

# HALLIBURTON

iCem<sup>®</sup> Service

**ANADARKO PETROLEUM CORP - EBUS**

**For:**

Date: Wednesday, July 16, 2014

**NRC 27C-8HZ Surface**

Case 1

Sincerely,

**Derek Trier**

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**1.1 Executive Summary**

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Halliburton appreciates the opportunity to perform the cementing services on the **NRC 27C-8HZ** 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 [Brighton]**

**Job Times**

	<b>Date</b>	<b>Time</b>	<b>Time Zone</b>
<b>Job Started</b>	04/10	0219	MST
<b>Job Completed</b>	04/10	0939	
<b>Departed Location</b>	04/10	1030	

1.2 Cementing Job Summary

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Cementing Job Summary

The Road to Excellence Starts with Safety

Sold To #: 300466		Ship To #: 3363596		Quote #:		Sales Order #: 0901254333					
Customer: ANADARKO PETROLEUM CORP - EBUS				Customer Rep: randy case							
Well Name: NRC		Well #: 27C-8HZ		APVUWI #: 05-123-39094							
Field: WATTENBERG		City (SAP): ION		County/Parish: WELD		State: COLORADO					
Legal Description: SW SE-8-1N-67W-350FSL-1810FEL											
Contractor:				Rig/Platform Name/Num: Majors 29							
Job BOM: 7521											
Well Type: HORIZONTAL GAS											
Sales Person: HALAMERICA\HX46524						Srvc Supervisor: Vaughn Oteri					
Job											
Formation Name											
Formation Depth (MD)		Top		Bottom							
Form Type											
BHST											
Job depth MD		820ft		Job Depth TVD							
Water Depth											
Wk Ht Above Floor											
Perforation Depth (MD)		From		To							
Well Data											
Description		New / Used	Size in	ID in	Weight lbr/ft	Thread	Grade	Top MD ft	Bottom MD ft	Top TVD ft	Bottom TVD ft
Casing			9.625	8.921	36		J-55	0	817		
Open Hole Section				13.5				0	820		
Tools and Accessories											
Type	Size in	Qty	Make	Depth ft		Type	Size in	Qty	Make		
Guide Shoe	9.625			817		Top Plug	9.625		HES		
Float Shoe	9.625					Bottom Plug	9.625		HES		
Float Collar	9.625					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 lbr/gal	Yield ft <sup>3</sup> /sack	Mix Fluid Gal	Rate bbl/min	Total Mix Fluid Gal		
1	Mud Flush III (Powder)	Mud Flush III	10	bbl	8.4						
42 gal/bbl		FRESH WATER									
Fluid #	Stage Type	Fluid Name	Qty	Qty UoM	Mixing Density lbr/gal	Yield ft <sup>3</sup> /sack	Mix Fluid Gal	Rate bbl/min	Total Mix Fluid Gal		

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*Cementing Job Summary*

2	Lead Cement	SWIFCEM (TM) SYSTEM	434	sack	14.2	1.54		6	7.64	
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	
3	Displacement	Displacement		bbl	8.33					
Cement Left In Pipe		Amount	42 ft		Reason			Shoe Joint		
Comment 16BBL CEMENT BACK TO SURFACE										

**1.3 Job Overview**

		<b>Units</b>	<b>Description</b>
<b>1</b>	Surface temperature at time of job	°F	
<b>2</b>	Mud type (OBM, WBM, SBM, Water, Brine)	-	WBM
<b>3</b>	Actual mud density	lb/gal	
<b>4</b>	Time circulated before job	HH:MM	
<b>5</b>	Mud volume circulated	Bbls	
<b>6</b>	Rate at which well was circulated	Bpm	
<b>7</b>	Pipe movement during hole circulation	Y/N	N
<b>8</b>	Rig pressure while circulating	Psi	
<b>9</b>	Time from end mud circulation to start of job	HH:MM	
<b>10</b>	Pipe movement during cementing	Y/N	N
<b>11</b>	Calculated displacement	Bbls	
<b>12</b>	Job displaced by	Rig/HES	HES
<b>13</b>	Annular before job)?	Y/N	N
<b>14</b>	Annular flow after job	Y/N	N
<b>15</b>	Length of rat hole	Ft	
<b>16</b>	Units of gas detected while circulating	Units	
<b>17</b>	Was lost circulation experienced at any time ?	Y/N	N

1.4 Job Event Log

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ANADARKO PETROLEUM CORP - EBUS  
 ANADARKO NRC 28C-8HZ SURFACE SO#901255466  
 Case 1

3.1 Job Event Log

Type	Seq. No.	Activity	Graph Label	Date	Time	Source	PS Pump Press (psi)	DH Density (ppg)	Comb Pump Rate (bbl/min)	Mudcup Density (ppg)	Redrc Density (ppg)	Comment
Event	1	Start Job	Start Job	4/10/2014	02:19:23	COM6	6.00	8.33	0.00	0.00	8.25	
Event	2	Test Lines	Test Lines	4/10/2014	02:21:23	COM6	9.00	8.37	0.00	0.00	7.49	
Event	3	Pump Spacer 1	Pump Spacer 1	4/10/2014	02:27:20	COM6	17.00	8.35	0.00	0.00	8.46	
Event	4	Pump Spacer 2	Pump Spacer 2	4/10/2014	02:32:29	COM6	25.00	8.34	2.10	0.00	14.26	
Event	5	Pump Spacer 1	Pump Spacer 1	4/10/2014	02:37:36	COM6	54.00	8.32	3.90	0.00	13.99	
Event	6	Pump Cement	Pump Cement	4/10/2014	02:40:13	COM6	59.00	8.25	3.90	0.00	14.10	
Event	7	Start Job	Start Job	4/10/2014	02:49:50	COM6	95.00	14.21	5.30	0.00	14.21	
Event	8	Start Job	Start Job	4/10/2014	08:29:05	COM6	-1.00	8.20	0.00	0.00	0.00	PRELOADED CEMENT HEAD WITH PLUG WITNESSED BY REP
Event	9	Test Lines	Test Lines	4/10/2014	08:31:44	COM6	3605.00	8.21	0.00	0.00	0.00	PRESSURE TESTED PUMPS AND LINES FOUND NO LEAKS AND PRESSURE HELD GOOD
Event	10	Pump Spacer 1	Pump Spacer 1	4/10/2014	08:32:47	COM6	9.00	8.15	0.00	0.00	0.00	PUMPED 10BBL OF FRESH WATER @3BPM 48PSI
Event	11	Pump Spacer 2	Pump Spacer 2	4/10/2014	08:37:42	COM6	34.00	8.33	3.10	0.00	0.00	MIXED 12BBL OF MUD FLUSH @3BPM 52PSI
Event	12	Pump Spacer 1	Pump Spacer 1	4/10/2014	08:41:34	COM6	34.00	8.32	3.10	0.00	0.00	PUMPED 10BBL OF FRESH WATER @4BPM 52PSI
Event	13	Pump Cement	Pump Cement	4/10/2014	08:44:25	COM6	53.00	8.31	3.90	0.00	0.00	MIXED 121BBL OF 14.2PPG SWFTCEM @5BOM 88PSI
Event	14	Shutdown	Shutdown	4/10/2014	09:08:51	COM6	-8.00	0.32	0.00	0.00	10.23	
Event	15	Drop Top Plug	Drop Top Plug	4/10/2014	09:10:49	COM6	-23.00	-0.17	0.00	0.00	-0.78	RELEASE PLUG WITNESSED BY COMPANY REP
Event	16	Pump Displacement	Pump Displacement	4/10/2014	09:11:33	COM6	-22.00	11.17	1.10	0.00	6.70	PUMPED 91BBL OF FRESH WATER
Event	17	Bump Plug	Bump Plug	4/10/2014	09:27:35	COM6	1422.00	8.34	0.00	0.00	7.91	BUMP PLUG 1000PSI OVER FINAL PRESSURE
Event	18	Other	Other	4/10/2014	09:31:27	COM6						RELEASED PRESSURE BACK TO PUMP TRUCK 1BBL

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ANADARKO PETROLEUM CORP - EBUS  
ANADARKO NRC 28C-8HZ SURFACE SO#901255466  
Case 1

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BACKFLOATS HELD GOOD

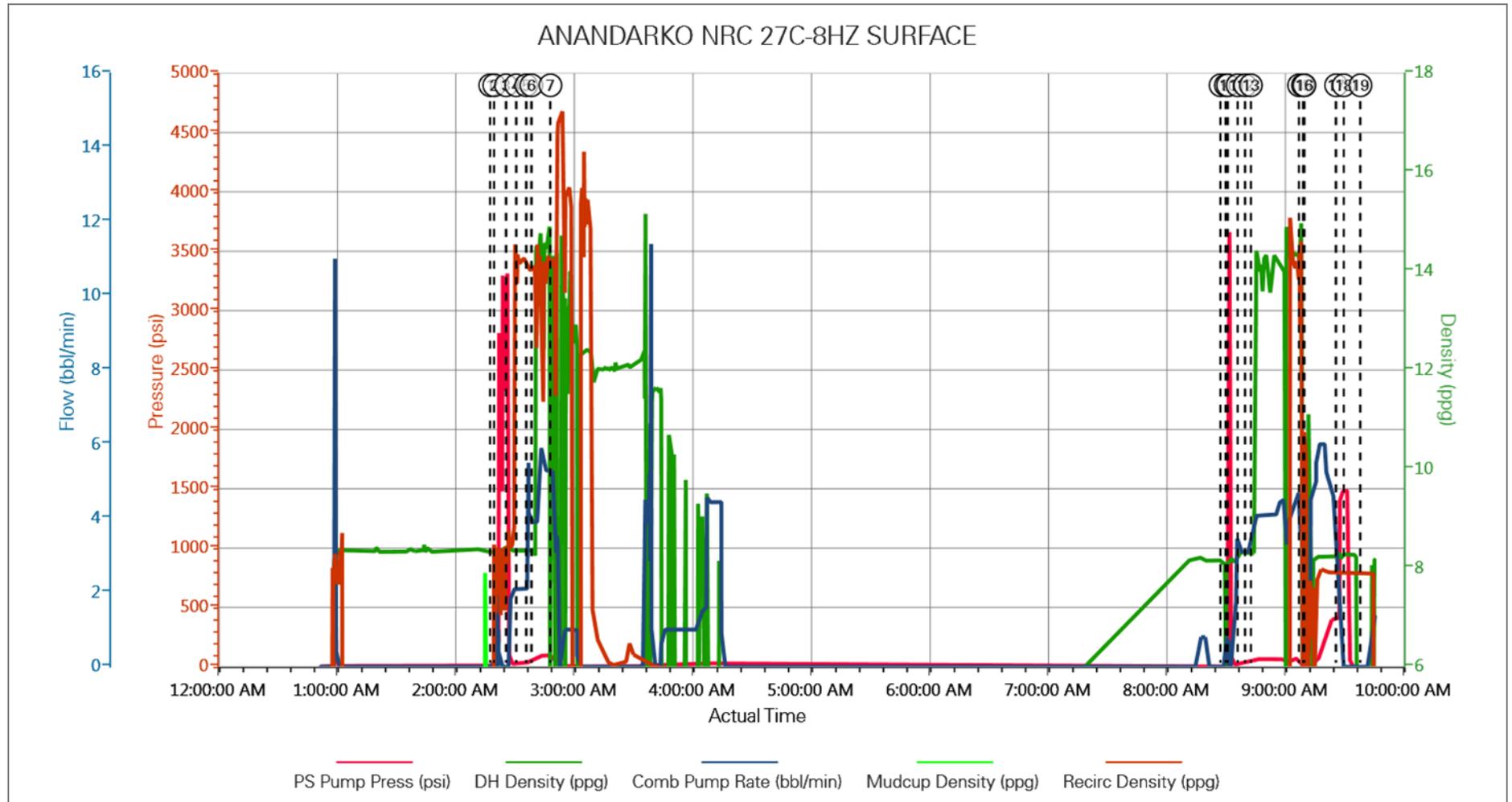
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Event	19	End Job	End Job	4/10/2014	09:39:54	COM6
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2.0 Custom Graphs

2.1 Custom Graph



3.0 Appendix

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