

HALLIBURTON

iCem[®] Service

ANADARKO PETROLEUM CORP - EBUS

For:

Date: Wednesday, July 16, 2014

NRC 2N-8HZ Surface

Case 1

Sincerely,

Derek Trier

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1.1 Executive Summary

Halliburton appreciates the opportunity to perform the cementing services on the **NRC 2N-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

	Date	Time	Time Zone
Called Out	04/09	1900	
On Location	04/10	0000	
Job Started			
Job Completed			
Departed Location			

1.2 Cementing Job Summary

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Cementing Job Summary

The Road to Excellence Starts with Safety

Sold To #: 300466		Ship To #: 3363549		Quote #:		Sales Order #: 0901255466				
Customer: ANADARKO PETROLEUM CORP - EBUS						Customer Rep: randy case				
Well Name: NRC			Well #: 2N-8HZ		API/UWI #: 05-123-39095-00					
Field: WATTENBERG		City (SAP): ION		County/Parish: WELD		State: COLORADO				
Legal Description:										
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 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	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
Treatment Fld		Conc		Inhibitor		Conc		Sand Type		Size
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
1	Mud Flush III (Powder)	Mud Flush III			10	bbl	8.4			
42 gal/bbl		FRESH WATER								
Fluid Data										
Fluid #	Stage Type	Fluid Name			Qty	Qty UoM	Mixing Density lbm/gal	Yield ft3/sack	Mix Fluid Gal	Rate bbl/min

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Cementing Job Summary

2	Lead Cement	SWFTCEM (TM) SYSTEM	443	sack	14.2	1.54		6	7.64	
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	
3	Displacement	Displacement	0	bbl	8.33					
Cement Left In Pipe		Amount	42 ft		Reason			Shoe Joint		
Comment 16BBL CEMENT BACK TO SURFACE										

1.3 Job Overview

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

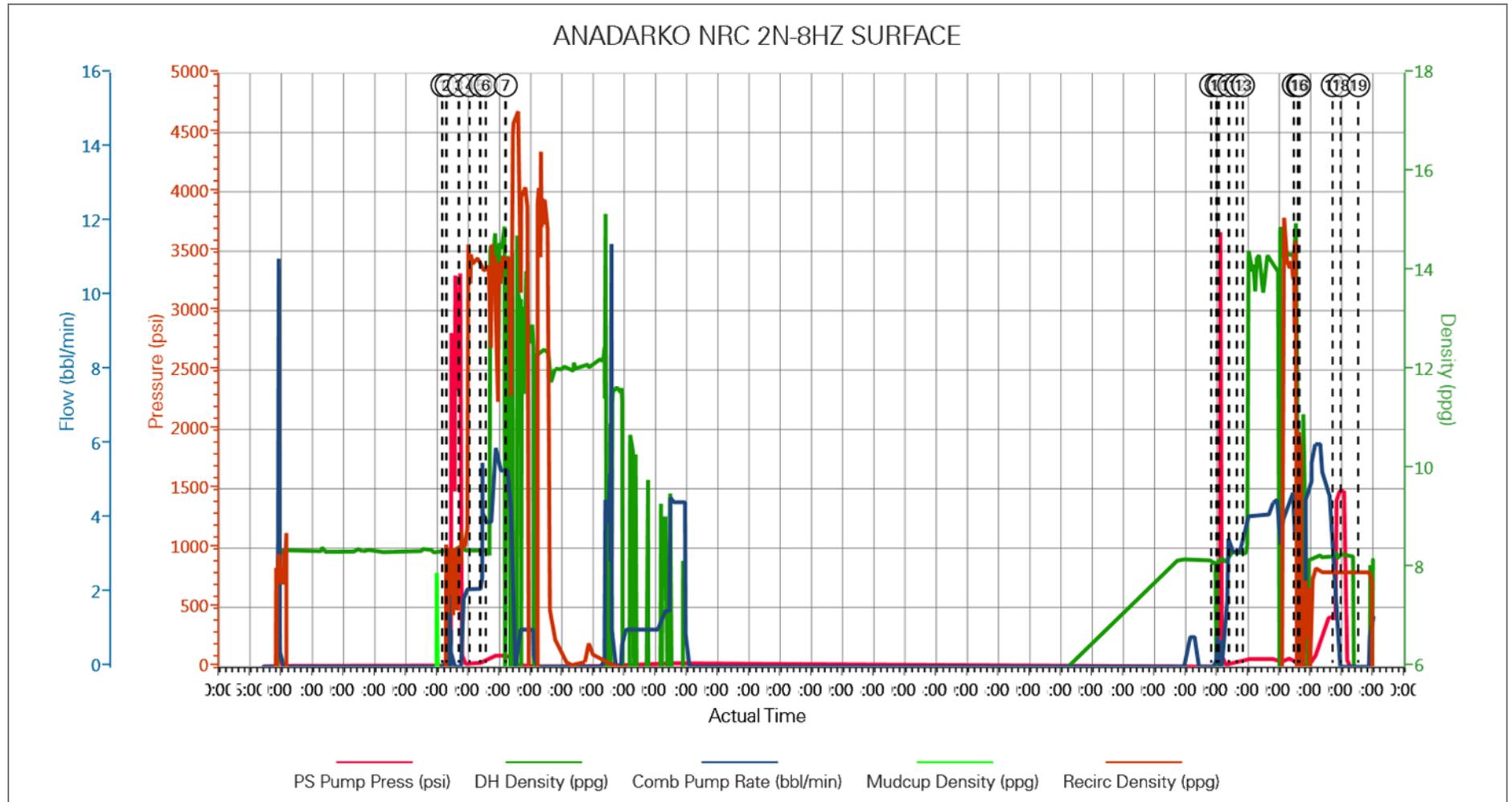
1.4 Job Event Log

3.1 Job Event Log

Type	Seq. No.	Activity	Graph Label	Date	Time	Source	PS Pump Press (psi)	DH Density (ppg)	Comb Pump Rate (bbf/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

2.0 Custom Graphs

2.1 Custom Graph



3.0 Appendix

Insert Planned Pump Schedule from Proposal or actual Job Procedure built for job