

HALLIBURTON

iCem[®] Service

ANADARKO PETROLEUM CORP - EBUS

Date: Wednesday, June 25, 2014

NRC 3N-32HZ

Case 1

Sincerely,
Joshua Prudhomme

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1.1 Executive Summary

Halliburton appreciates the opportunity to perform the cementing services on the **NRC 3N-32HZ** 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
Job Started	5/3/2014	06:46:49	MT
Job Completed	5/3/2014	08:15:26	MT

1.2 Cementing Job Summary

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Cementing Job Summary

The Road to Excellence Starts with Safety

Sold To #: 300466	Ship To #: 3471386	Quote #:	Sales Order #: 0901318323							
Customer: ANADARKO PETROLEUM CORP - EBUS		Customer Rep:								
Well Name: NRC	Well #: 3N-32HZ	API/UWI #: 05-123-39291-00								
Field: WATTENBERG	City (SAP): ION	County/Parish: WELD	State: COLORADO							
Legal Description: NE NW-8-1N-67W-612FNL-2095FWL										
Contractor:		Rig/Platform Name/Num: Majors 42								
Job BOM: 7521										
Well Type: HORIZONTAL GAS										
Sales Person: HALAMERICA\HX46524		Srvc Supervisor: Wesley Whipple								
Job										
Formation Name										
Formation Depth (MD)	Top	Bottom								
Form Type		BHST								
Job depth MD	1223ft	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	1223		0
Open Hole Section			13.5				0	1223		0
Tools and Accessories										
Type	Size in	Qty	Make	Depth ft		Type	Size in	Qty	Make	
Guide Shoe	9.625			1223		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 ft ³ /sack	Mix Fluid Gal	Rate bbl/min	Total Mix Fluid Gal	
1	Mud Flush III (Powder)	Mud Flush III	0	bbl	8.4					
42 gal/bbl		FRESH WATER								

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Cementing Job Summary

Fluid #	Stage Type	Fluid Name	Qty	Qty UoM	Mixing Density lbm/gal	Yield ft3/sack	Mix Fluid Gal	Rate bbl/mi n	Total Mix Fluid Gal
2	Lead Cement	SWIFTCEM (TM) SYSTEM		sack	14.2	1.54		6	7.64
7.64 Gal		FRESH WATER							
Fluid #	Stage Type	Fluid Name	Qty	Qty UoM	Mixing Density lbm/gal	Yield ft3/sack	Mix Fluid Gal	Rate bbl/mi n	Total Mix Fluid Gal
3	Displacement	Displacement	62.5	bbl	8.33				
Cement Left In Pipe		Amount	42 ft		Reason		Shoe Joint		
Comment 20bbls of Cement Returns									

1.3 Planned Pumping Schedule

1. Pump Water Spacer

- a. Density = 8.33 lb/gal
- b. Volume = 10 bbl
- c. Rate = 2 bpm

2. Pump Mudflush Spacer

- a. Density = 8.4 lb/gal
- b. Volume = 12 bbl
- c. Rate = 2 bpm

3. Pump Water Spacer

- a. Density = 8.33 lb/gal
- b. Volume = 10 bbl
- c. Rate = 2 bpm

4. Drop Bottom Plug**5. Pump X (Lead)**

- a. Density = 14.2ppg
- b. Yield = 1.54
- c. Water Requirement = 7.64
- d. Volume = 435 sks (119.3 bbls)
- e. Rate = 5.5 bpm

6. Drop Top Plug**7. Start Displacement****8. Pump Displacement Water**

1.4 Job Overview

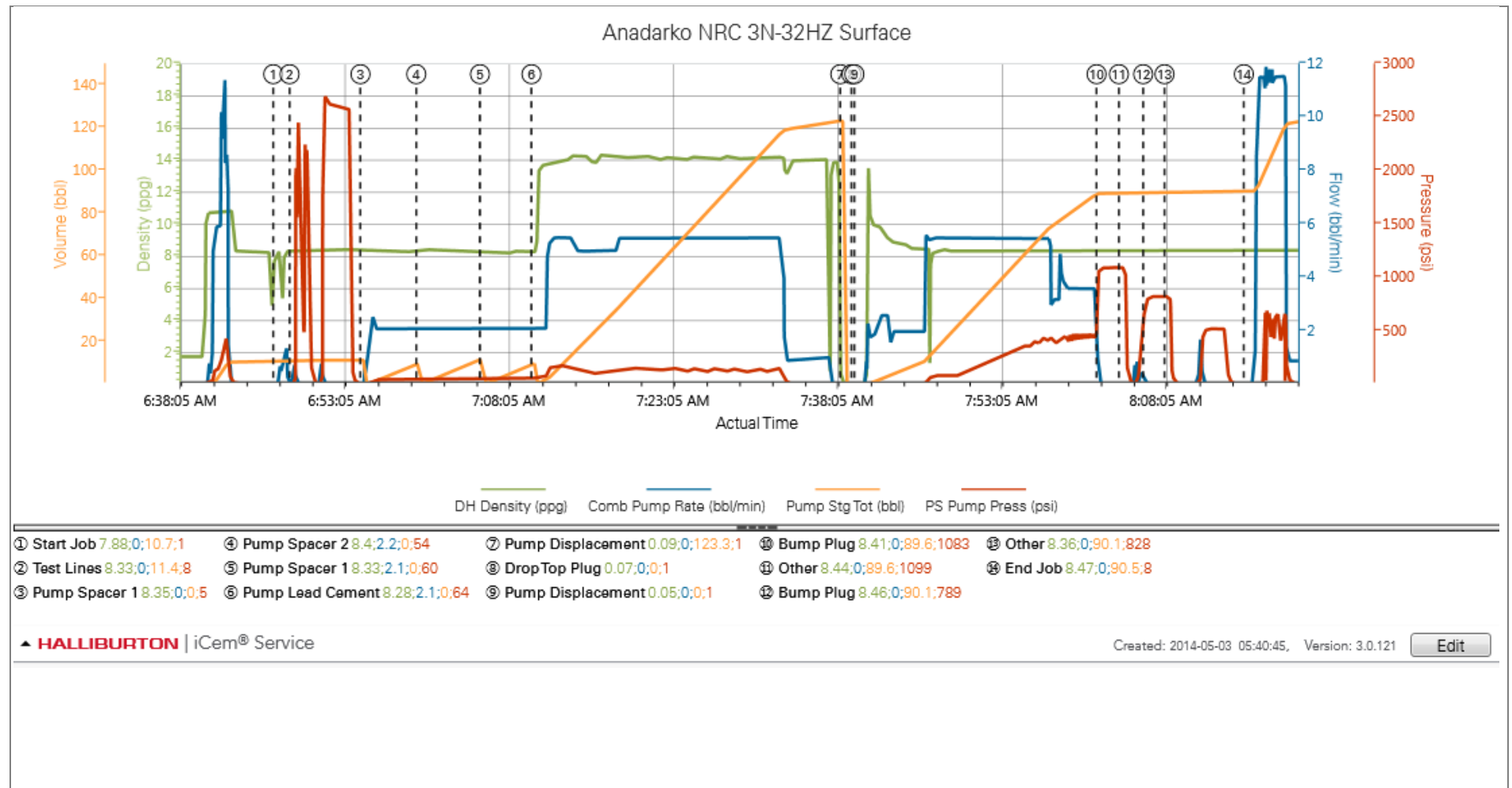
		Units	Description
1	Surface temperature at time of job	°F	
2	Mud type (OBM, WBM, SBM, Water, Brine)	-	WBM
3	Actual mud density	lb/gal	
4	Time circulated before job	HH:MM	
5	Mud volume circulated	Bbls	
6	Rate at which well was circulated	Bpm	
7	Pipe movement during hole circulation	Y/N	N
8	Rig pressure 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	Y
14	Annular flow after job	Y/N	Y
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

1.5 Job Event Log

Type	Seq. No.	Activity	Graph Label	Date	Time	Source	DH Density (ppg)	Comb Pump Rate (bbl/min)	Pump Stg Tot (bbl)	PS Pump Press (psi)	Comment
Event	1	Start Job	Start Job	5/3/2014	06:46:49	COM5	7.88	0.00	10.7	1.00	
Event	2	Test Lines	Test Lines	5/3/2014	06:48:19	COM5	8.33	0.00	11.4	8.00	
Event	3	Pump Spacer 1	Pump Spacer 1	5/3/2014	06:54:47	COM5	8.35	0.00	0.0	5.00	
Event	4	Pump Spacer 2	Pump Spacer 2	5/3/2014	06:59:53	COM5	8.40	2.20	0.0	54.00	
Event	5	Pump Spacer 1	Pump Spacer 1	5/3/2014	07:05:42	COM5	8.33	2.10	0.0	60.00	
Event	6	Pump Lead Cement	Pump Lead Cement	5/3/2014	07:10:24	COM5	8.28	2.10	0.0	64.00	
Event	7	Pump Displacement	Pump Displacement	5/3/2014	07:38:36	COM5	0.09	0.00	123.3	1.00	
Event	8	Drop Top Plug	Drop Top Plug	5/3/2014	07:39:37	COM5	0.07	0.00	0.0	1.00	
Event	9	Pump Displacement	Pump Displacement	5/3/2014	07:39:53	COM5	0.05	0.00	0.0	1.00	
Event	10	Bump Plug	Bump Plug	5/3/2014	08:02:00	COM5	8.41	0.00	89.6	1083.00	
Event	11	Other	Other	5/3/2014	08:04:02	COM5	8.44	0.00	89.6	1099.00	
Event	12	Bump Plug	Bump Plug	5/3/2014	08:06:15	COM5	8.46	0.00	90.1	789.00	
Event	13	Other	Other	5/3/2014	08:08:12	COM5	8.36	0.00	90.1	828.00	
Event	14	End Job	End Job	5/3/2014	08:15:26	COM5	8.47	0.00	90.5	8.00	

2.0 Custom Graphs

2.1 Custom Graph



3.0 Appendix

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