

# HALLIBURTON

iCem<sup>®</sup> Service

**ANADARKO PETROLEUM CORP - EBUS**

Date: Thursday, May 08, 2014

**NRC 4N-32HZ**

901324433 Maj 42 Surface 4N-32 HZ

Sincerely,  
**Derek Trier**

Table of Contents

1.1	Executive Summary	3
1.2	Cementing Job Summary	4
1.4	Planned Pumping Schedule	6
1.5	Job Overview	6
1.6	Job Event Log	7
2.0	Attachments	8
2.1	901324433 Maj 42 Surface 4N-32 HZ.png	8
3.0	Custom Graphs	9
3.1	Custom Graph	9
4.0		

## 1.1 Executive Summary

---

Halliburton appreciates the opportunity to perform the cementing services on the **NRC 4N-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
<b>Called Out</b>	5/7/14	13:30	MTN
<b>On Location</b>	5/7/14	17:00	MTN
<b>Job Started</b>	5/7/14	22:54	MTN
<b>Job Completed</b>	5/8/14	00:30	MTN
<b>Departed Location</b>	5/8/14	01:00	MTN

**1.2 Cementing Job Summary**

<b>Sold To #:</b> 300466		<b>Ship To #:</b> 3458811		<b>Quote #:</b>		<b>Sales Order #:</b> 0901324433				
<b>Customer:</b> ANADARKO PETROLEUM CORP - EBUS					<b>Customer Rep:</b> Larry Hirsch					
<b>Well Name:</b> NRC			<b>Well #:</b> 4N-32 HZ			<b>API/UWI #:</b> 05-123-39186-00				
<b>Field:</b> WATTENBERG		<b>City (SAP):</b> ION		<b>County/Parish:</b> WELD			<b>State:</b> COLORADO			
<b>Legal Description:</b> NW NW-8-1N-67W-667FNL-605FWL										
<b>Contractor:</b>				<b>Rig/Platform Name/Num:</b> MAJORS 42						
<b>Job BOM:</b> 7521										
<b>Well Type:</b> HORIZONTAL GAS										
<b>Sales Person:</b> HALAMERICA\HB47901					<b>Srv Supervisor:</b> Steven Markovich					
<b>Job</b>										
<b>Formation Name</b>										
<b>Formation Depth (MD)</b>		<b>Top</b>		<b>Bottom</b>						
<b>Form Type</b>				<b>BHST</b>						
<b>Job depth MD</b>		1221ft		<b>Job Depth TVD</b>						
<b>Water Depth</b>				<b>Wk Ht Above Floor</b>						
<b>Perforation Depth (MD)</b>				<b>To</b>						
<b>Well Data</b>										
	<b>New / Used</b>	<b>Size in</b>	<b>ID in</b>	<b>Weight lbm/ft</b>	<b>Thread</b>	<b>Grade</b>	<b>Top MD ft</b>	<b>Bottom MD ft</b>	<b>Top TVD ft</b>	<b>Bottom TVD ft</b>
Casing		9.625	8.921	36		J-55	0	1231		0
Open Hole Section			13.5				0	1231		0
<b>Tools and Accessories</b>										
<b>Type</b>	<b>Size in</b>	<b>Qty</b>	<b>Make</b>	<b>Depth ft</b>		<b>Type</b>	<b>Size in</b>	<b>Qty</b>	<b>Make</b>	
Guide Shoe	9.625			1231		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	
	9.625					Centralizers	9.625		HES	
<b>Miscellaneous Materials</b>										
<b>Gelling Agt</b>		<b>Conc</b>		<b>Surfactant</b>		<b>Conc</b>		<b>Acid Type</b>	<b>Qty</b>	
<b>Treatment Fld</b>		<b>Conc</b>				<b>Conc</b>		<b>Sand Type</b>		
<b>Fluid Data</b>										
<b>Stage/Plug #: 1</b>										

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	Mud Flush III (Powder)	Mud Flush III	12	bbl	8.4				
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	Lead Cement	SWIFTCEM (TM) SYSTEM	439	sack	14.2	1.54		6	7.64
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	Displacement	Displacement	91	bbl	8.33				
		Amount	42 ft						
Comment									

## 1.4 Planned Pumping Schedule

Stage /Plug #	Fluid #	Fluid Type	Fluid Name	Surface Density lbm/gal	Avg Rate bbl/min	Surface Volume	Downhole Volume
1	1	Spacer	Fresh Water	8.33	3.00	10.0 bbl	10.0 bbl
1	2	Spacer	Mud Flush III	8.40	3.00	12.0 bbl	12.0 bbl
1	3	Spacer	Fresh Water	8.33	3.00	10.0 bbl	10.0 bbl
1	4	Cement Slurry	Lead Cement	14.20	4.00	439.0 sacks	439.0 sacks

## 1.5 Job Overview

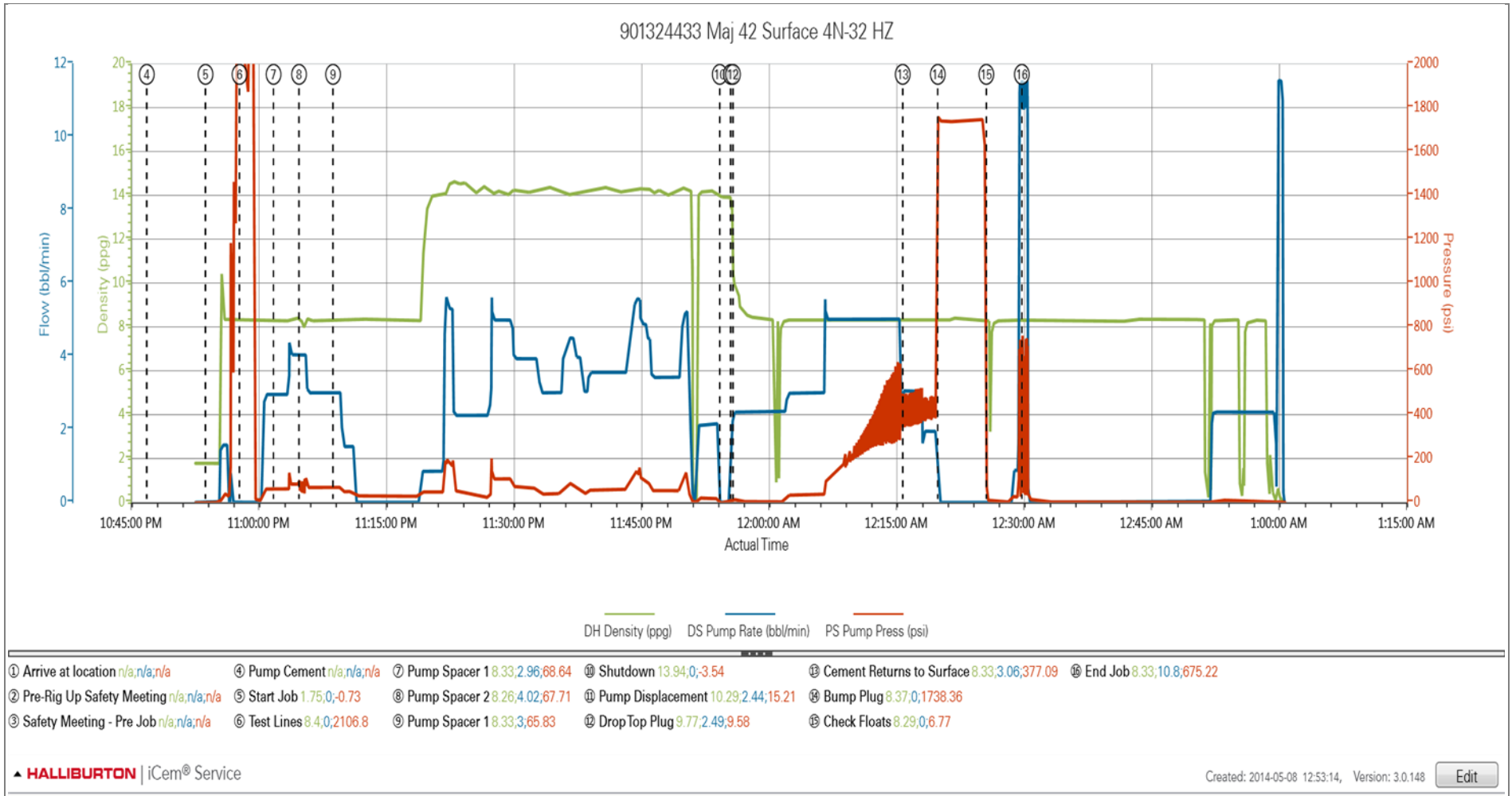
		Units	Description
1	Surface temperature at time of job	°F	40
2	Mud type (OBM, WBM, SBM, Water, Brine)	-	WBM
3	Actual mud density	lb/gal	9 lb/gal
4	Time circulated before job	HH:MM	00:30
5	Mud volume circulated	Bbls	
6	Rate at which well was circulated	Bpm	
7	Pipe movement during hole circulation	Y/N	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	91
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

## 1.6 Job Event Log

Type	Seq. No.	Activity	Graph Label	Date	Time	Source	Downhole Density (ppg)	Driv-Side Pump Rate (bbl/min)	Pass-Side Pump Pressure (psi)	Comment
Event	1	Arrive At Loc	Arrive at location	5/7/2014	17:30:00	USER				Arrived at location rig still pulling drill pipe. approx 4 stands of drill pipe to pull and all of casing to run. Rig went down a few times due to lighting.
Event	2	Pre-Rig Up Safety Meeting	Pre-Rig Up Safety Meeting	5/7/2014	17:35:00	USER				Pre rig safety meeting went over hazards on location and where and how to spot equipment.
Event	3	Safety Meeting - Pre Job	Safety Meeting - Pre Job	5/7/2014	22:30:00	USER				Held JSA with all personell.
Event	4	Pump Cement	Pump Cement	5/7/2014	22:47:05	USER				Pump 120 BBLs of 14.2 LBS/GAL
Event	5	Start Job	Start Job	5/7/2014	22:54:00	USER	1.75	0.00	-0.73	Start Job
Event	6	Test Lines	Test Lines	5/7/2014	22:58:00	USER	8.40	0.00	2106.80	Test lines to 2500 PSI
Event	7	Pump Spacer 1	Pump Spacer 1	5/7/2014	23:02:00	USER	8.33	2.96	68.64	Pump 10BBLS Fresh Water
Event	8	Pump Spacer 2	Pump Spacer 2	5/7/2014	23:05:00	USER	8.26	4.02	67.71	Pump 10BBLS Mud Flush
Event	9	Pump Spacer 1	Pump Spacer 1	5/7/2014	23:09:00	USER	8.33	3.00	65.83	Pump 10BBLS Fresh Water
Event	10	Shutdown	Shutdown	5/7/2014	23:54:28	USER	13.94	0.00	-3.54	Shutdown
Event	11	Pump Displacement	Pump Displacement	5/7/2014	23:55:46	USER	10.29	2.44	15.21	Pumped 91 BBLs Fresh Water Displacement
Event	12	Drop Top Plug	Drop Top Plug	5/7/2014	23:56:01	USER	9.77	2.49	9.58	Dropped Plug
Event	13	Cement Returns to Surface	Cement Returns to Surface	5/8/2014	00:15:59	USER	8.33	3.06	377.09	Cement to Surface @ 68 BBLS away 23BBLS to surface
Event	14	Bump Plug	Bump Plug	5/8/2014	00:20:07	USER	8.37	0.00	1738.36	Bumped plug @ 450 took pressure 1000 over and held for 5 mins.
Event	15	Check Floats	Check Floats	5/8/2014	00:25:49	USER	8.29	0.00	6.77	Floats good
Event	16	End Job	End Job	5/8/2014	00:30:00	USER	8.33	10.80	675.22	Thank you Markovich and Crew

## 2.0 Attachments

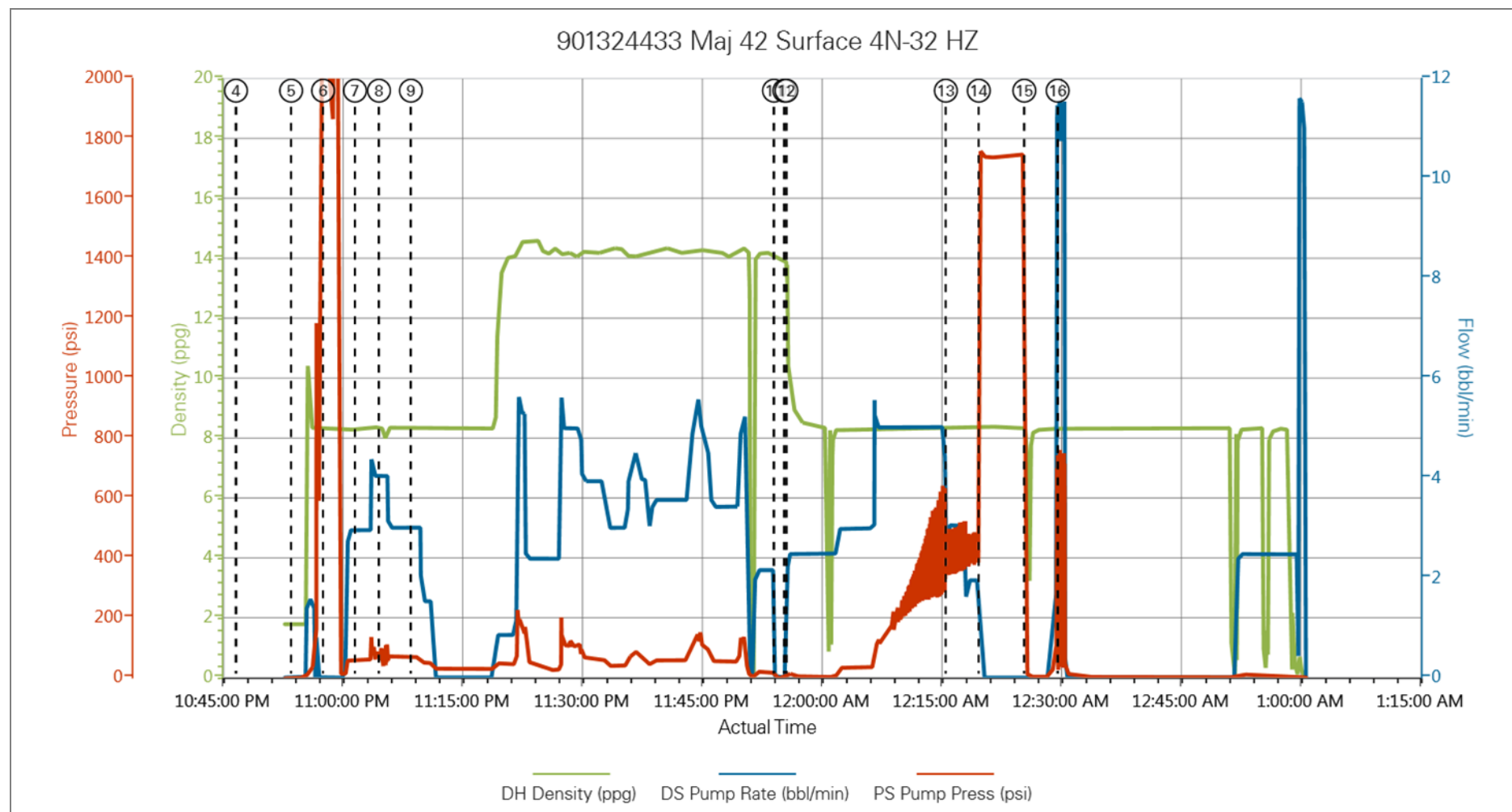
### 2.1 901324433 Maj 42 Surface 4N-32 HZ.png





## 3.0 Custom Graphs

### 3.1 Custom Graph



4.0

---