

HALLIBURTON

iCem[®] Service

Post Job Report

ANADARKO PETROLEUM CORP - EBUS

For: Randy Case

Date: Sunday, May 04, 2014

NRC# 28N-5HZ

NRC

Anadarko - NRC# 28N-5HZ - Surface

Sincerely,

Andrew Ashby / Weston Eaves

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1.1 Executive Summary

Halliburton appreciates the opportunity to perform the cementing services on the **NRC 28N-5HZ** 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
Requested Time On Location	5/3	20:00	MT
Called Out	5/3	16:30	MT
On Location	5/3	19:00	MT
Job Started	5/4	00:30	MT
Job Completed	5/4	02:00	MT
Departed Location	6/5	06:00	MT

1.2 Cementing Job Summary*The Road to Excellence Starts with Safety*

Sold To #: 300466		Ship To #: 3367969		Quote #:		Sales Order #: 0901300191				
Customer: ANADARKO PETROLEUM CORP - EBUS						Customer Rep: Randy Case				
Well Name: NRC			Well #: 28N-5 HZ			API/UWI #: 05-123-39155-00				
Field: WATTENBERG		City (SAP): ION		County/Parish: WELD		State: COLORADO				
Legal Description: NW NE-8-1N-67W-500FNL-1350FEL										
Contractor:				Rig/Platform Name/Num: Majors 29						
Job BOM: 7521										
Well Type: HORIZONTAL GAS										
Sales Person: HALAMERICA\HX46524				Srv Supervisor: Andrew Ashby						
Job										
Formation Name										
Formation Depth (MD)		Top		Bottom						
Form Type				BHST						
Job depth MD		1351ft		Job Depth TVD						
Water Depth				Wk Ht Above Floor						
Perforation Depth (MD)				To						
Well Data										
	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	1341	0	1341
Open Hole Section			13.5				0	1351	0	1351
Tools and Accessories										
Type	Size in	Qty	Make	Depth ft		Type	Size in	Qty	Make	
Guide Shoe	9.625			1341		Top Plug	9.625	1	HES	
Float Shoe	9.625					Bottom Plug	9.625		HES	
Float Collar	9.625			1300.99		SSR plug set	9.625		HES	
Insert Float	9.625					Plug Container	9.625		HES	
	9.625					Centralizers	9.625		HES	
Miscellaneous Materials										
Gelling Agt		Conc		Surfactant		Conc		Acid Type	Qty	
Treatment Fld		Conc				Conc		Sand Type		

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	12	bbl	8.4				

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
2	Lead Cement	SWIFTCEM (TM) SYSTEM	483	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	100.7	bbl	8.33				

		Amount	40 ft						

Comment

1.4 Planned Pumping Schedule

HALLIBURTON

Cementing

Anadarko - Major 29

NRC# 28N-5HZ - Surface

Job Procedure

Time	#	Event/Stage	Amount bbls	Rate bpm	Requested Quantity	Density ppg	Yield ft ³ /sk	Water Rq. gal/sk	Total Water bbls
	1	Start Job	***Pre Pump Iron Inspection. Verify and communicate all valves are lined up to pump***						
	4	Fill Lines	2	2	2 bbls	8.3			2
	6	Pressure Test	5000 psi	***Reset Kick Outs to Maximum Job Pressure: 2000 psi***					
	9	Pump Water Spacer	10	4	10 bbls	8.3			10
	10	Pump Mud Flush III	12	4	12 bbls	8.4			12
	9	Pump Water Spacer	10	4	10 bbls	8.3			10
	14	Pump Primary Cement	132	4	483 sks	14.2	1.54	7.64	88
	48	Shutdown/Wash Pumps/Drop Plug	Estimated Shutdown Time: 5 Minutes						
	23	Pump Water Displacement	100.7	4	101 bbls	8.3			100.7
	4	Slow Rate	Last 10	3	***Adjust rates as needed for job***				
	26	Pressure to Land Plug	412 psi	***+ 500	psi over Final Circulating Pressure***				
	4	Check Floats	Estimated Job Pump Time	0.82 hrs			Total Water For Job (Including Wash Up)		273
	2	End Job							bbls

1.5 Job Overview

		Units	Description
1	Surface temperature at time of job	°F	50
2	Mud type (OBM, WBM, SBM, Water, Brine)	-	OBM
3	Actual mud density	lb/gal	9.0
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	1:00
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	
14	Calculated displacement	Bbls	100.7
15	Job displaced by	Rig/HES	HES
16	Annular flow before job	Y/N	Y
17	Annular flow after job	Y/N	Y
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

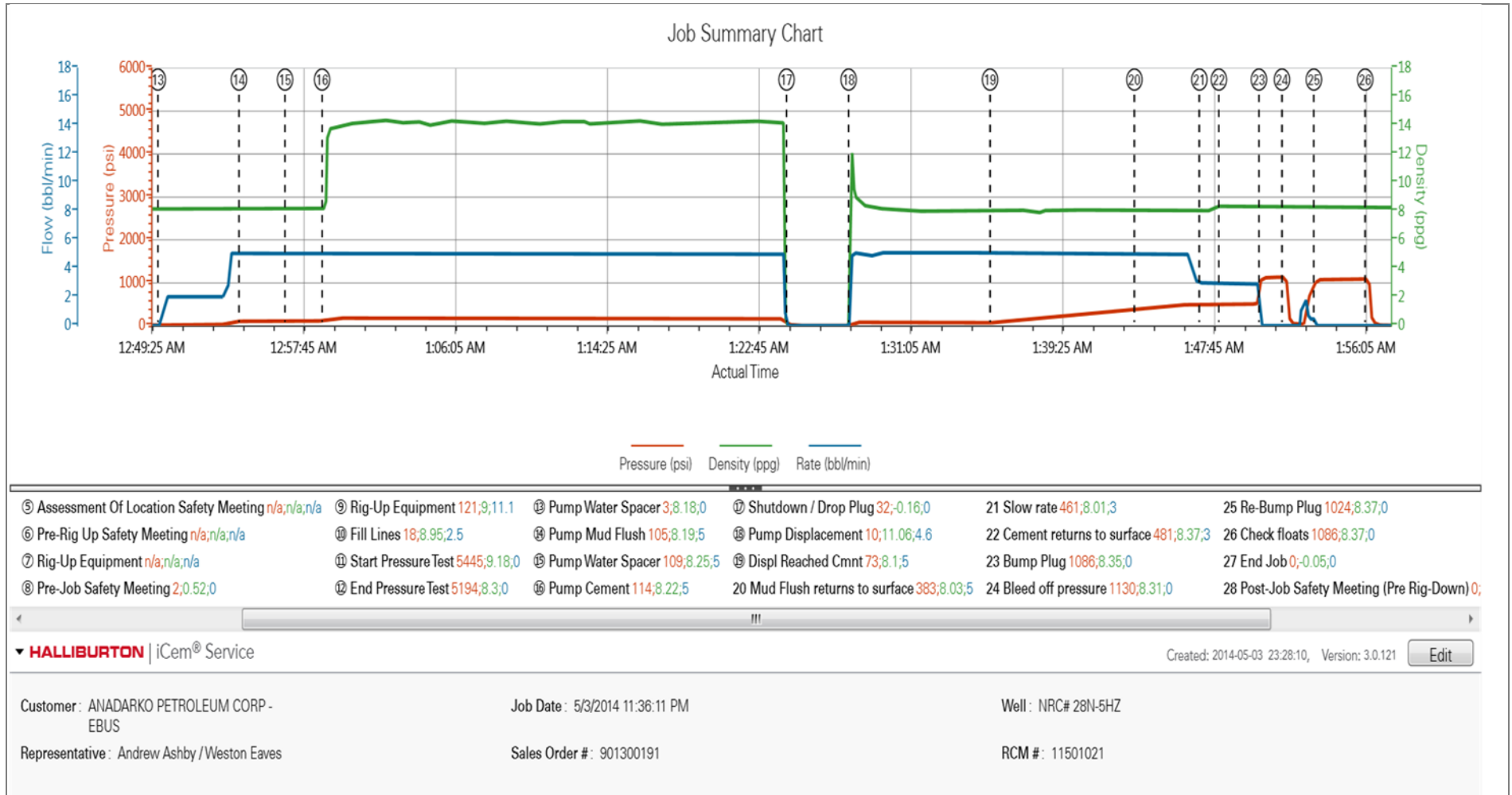
1.6 Job Event Log

Type	Seq. No.	Activity	Graph Label	Date	Time	Source	Pressure (psi)	Density (ppg)	Rate (bbl/min)	Comment
Event	1	Call Out	Call Out	5/3/2014	16:00:00	USER				Crew Called Out
Event	2	Pre-Convoy Safety Meeting	Pre-Convoy Safety Meeting	5/3/2014	18:00:00	USER				Met w/crew to discuss travel to location
Event	3	Depart from Service Center or Other Site	Depart from Service Center or Other Site	5/3/2014	18:00:01	USER				Passed gate check and left yard
Event	4	Arrive At Loc	Arrive At Loc	5/3/2014	19:00:00	USER				Arrived on location - rig still pulling drill pipe.
Event	5	Assessment Of Location Safety Meeting	Assessment Of Location Safety Meeting	5/3/2014	19:05:00	USER				Met w/crew to discuss spotting in equipment and where all the materials are.
Event	6	Pre-Rig Up Safety Meeting	Pre-Rig Up Safety Meeting	5/3/2014	21:30:00	USER				Met w/crew to discuss the safety and hazards of rig-up.
Event	7	Rig-Up Equipment	Rig-Up Equipment	5/3/2014	21:30:01	USER				Rig everything up.
Event	8	Pre-Job Safety Meeting	Pre-Job Safety Meeting	5/4/2014	00:00:00	USER	2.00	0.52	0.00	Met w/ Co. Rep. & rig crew to discuss the job procedure and hazards involved.
Event	9	Rig-Up Equipment	Rig-Up Equipment	5/4/2014	00:15:00	USER	121.00	9.00	11.10	Rig up the floor, load plug, witnessed by Co. Rep., Prime up RCM
Event	10	Other	Fill Lines	5/4/2014	00:28:36	COM12	18.00	8.95	2.50	Fill Lines w/water for pressure test
Event	11	Other	Start Pressure Test	5/4/2014	00:45:30	COM12	5445.00	9.18	0.00	Test lines to 5000 psi
Event	12	Test Lines	End Pressure Test	5/4/2014	00:48:09	COM12	5194.00	8.30	0.00	Lost 251 psi over 3 min.
Event	13	Pump Spacer 1	Pump Water Spacer	5/4/2014	00:49:53	COM12	3.00	8.18	0.00	10 bbls water spacer - Getting Good returns
Event	14	Pump Spacer 2	Pump Mud Flush	5/4/2014	00:54:20	COM12	105.00	8.19	5.00	12 bbls Mud Flush (40 lbs)
Event	15	Pump Spacer 1	Pump Water Spacer	5/4/2014	00:56:52	COM12	109.00	8.25	5.00	10 bbls water spacer
Event	16	Pump Cement	Pump Cement	5/4/2014	00:58:54	COM12	114.00	8.22	5.00	483 sks @ 14.2 lbm/gal, 1.54 cuft/sk, 7.64 gal/sk
Event	17	Shutdown	Shutdown / Drop Plug	5/4/2014	01:24:24	COM12	32.00	-0.16	0.00	Witnessed by Co. Rep. - wash up on top of plug.

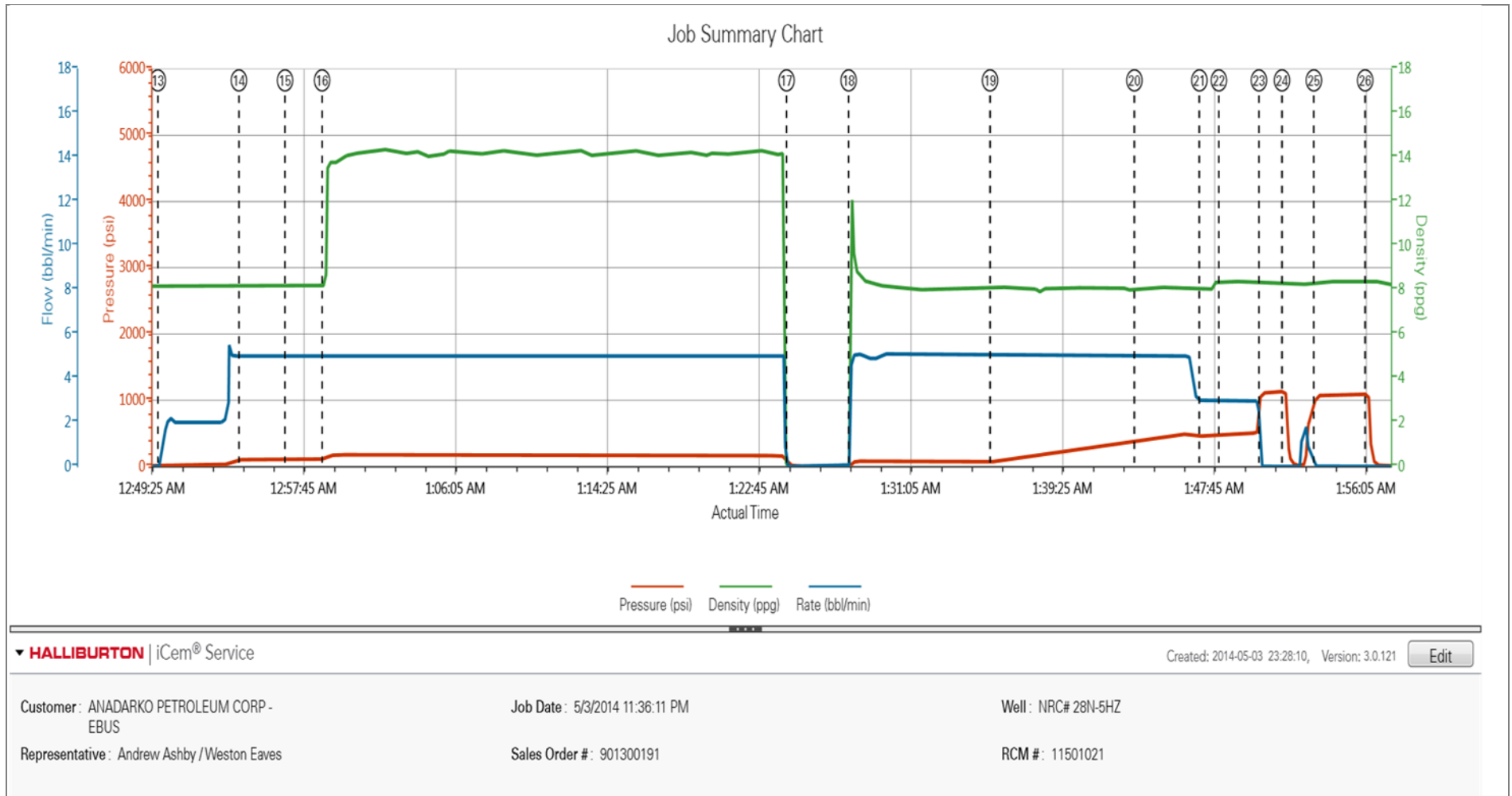
Event	18	Pump Displacement	Pump Displacement	5/4/2014	01:27:48	COM12	10.00	11.06	4.60	100.7 bbls calculated water displacement - still getting good returns.
Event	19	Displ Reached Cmnt	Displ Reached Cmnt	5/4/2014	01:35:34	COM12	73.00	8.10	5.00	caught pressure @ 40 bbls away.
Event	20	Other	Mud Flush returns to surface	5/4/2014	01:43:30	COM12	383.00	8.03	5.00	Mud flush returns to surface @ 76 bbls away
Event	21	Other	Slow rate	5/4/2014	01:47:04	COM12	461.00	8.01	3.00	Slow rate to bump plug @ 90 bbls away
Event	22	Displ Reached Cmnt	Cement returns to surface	5/4/2014	01:48:08	COM12	481.00	8.37	3.00	Cement comes to surface @ 96 bbls away.
Event	23	Bump Plug	Bump Plug	5/4/2014	01:50:20	COM12	1086.00	8.35	0.00	Bump plug 500 psi over final circulating pressure
Event	24	Other	Bleed off pressure	5/4/2014	01:51:36	COM12	1130.00	8.31	0.00	Bleed off pressure and re-bump per Co. Rep.
Event	25	Bump Plug	Re-Bump Plug	5/4/2014	01:53:21	COM12	1024.00	8.37	0.00	Re-bump plug to same pressure ash before.
Event	26	Other	Check floats	5/4/2014	01:56:10	COM12	1086.00	8.37	0.00	Floats held - 1 bbls back. Approx 5 bbls good cement to surface.
Event	27	End Job	End Job	5/4/2014	02:20:17	COM12	0.00	-0.05	0.00	Job complete per Co. Rep.
Event	28	Post-Job Safety Meeting (Pre Rig-Down)	Post-Job Safety Meeting (Pre Rig-Down)	5/4/2014	02:25:00	USER	0.00	0.00	0.00	Met w/crew to discuss rigging down.
Event	29	Rig-Down Equipment	Rig-Down Equipment	5/4/2014	02:30:00	USER	0.00	0.00	0.00	Rig everything down.
Event	30	Pre-Convoy Safety Meeting	Pre-Convoy Safety Meeting	5/4/2014	03:50:00	USER				Met w/crew to discuss travel home.
Event	31	Depart Location	Depart Location	5/4/2014	04:00:00	USER				Thanks for using Halliburton!!

2.0 Attachments

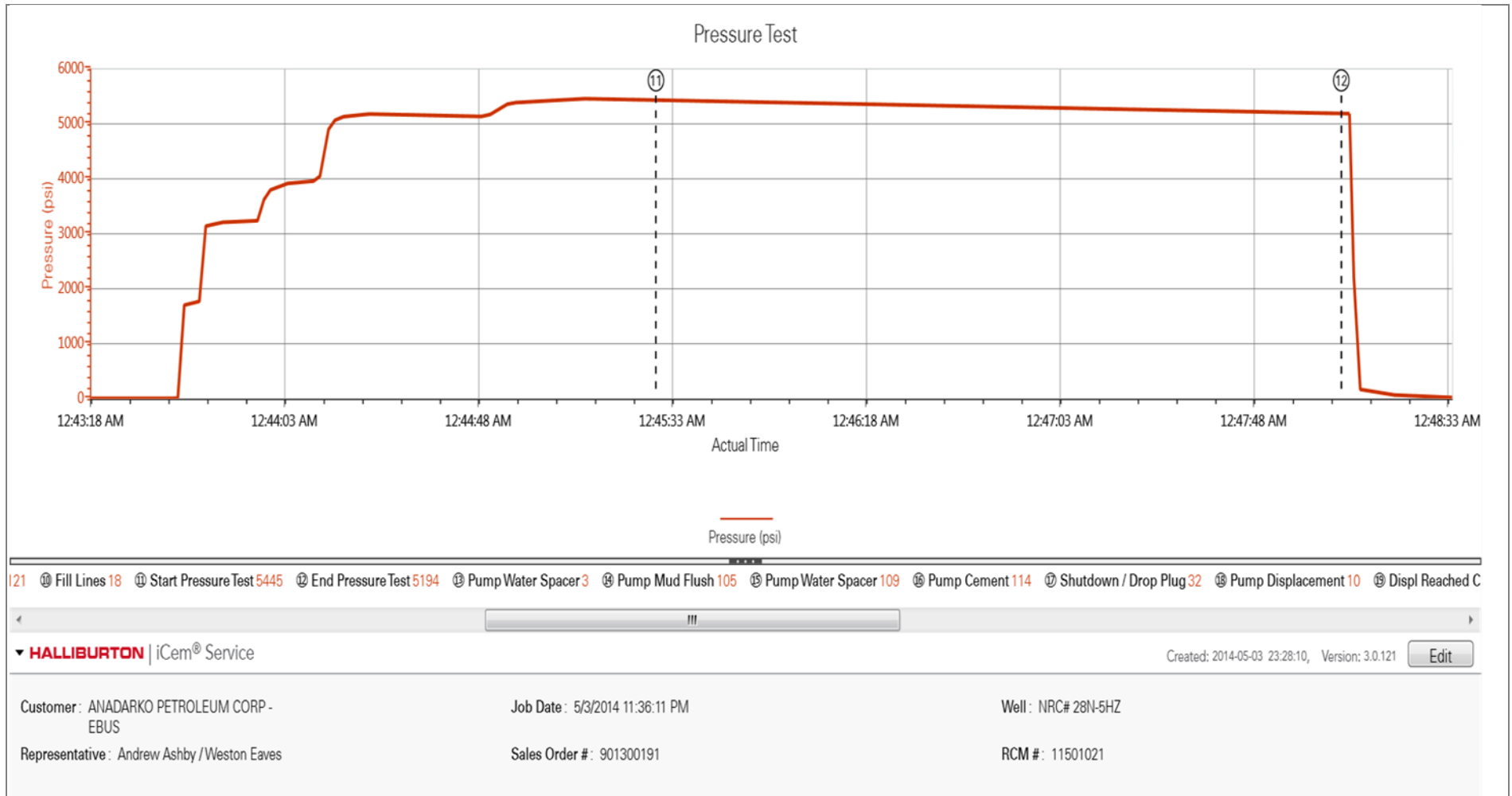
2.1 Anadarko - NRC# 28N-5HZ - Surface-Job Summary.png



2.2 Anadarko - NRC# 28N-5HZ - Surface-Job Summary NE.png

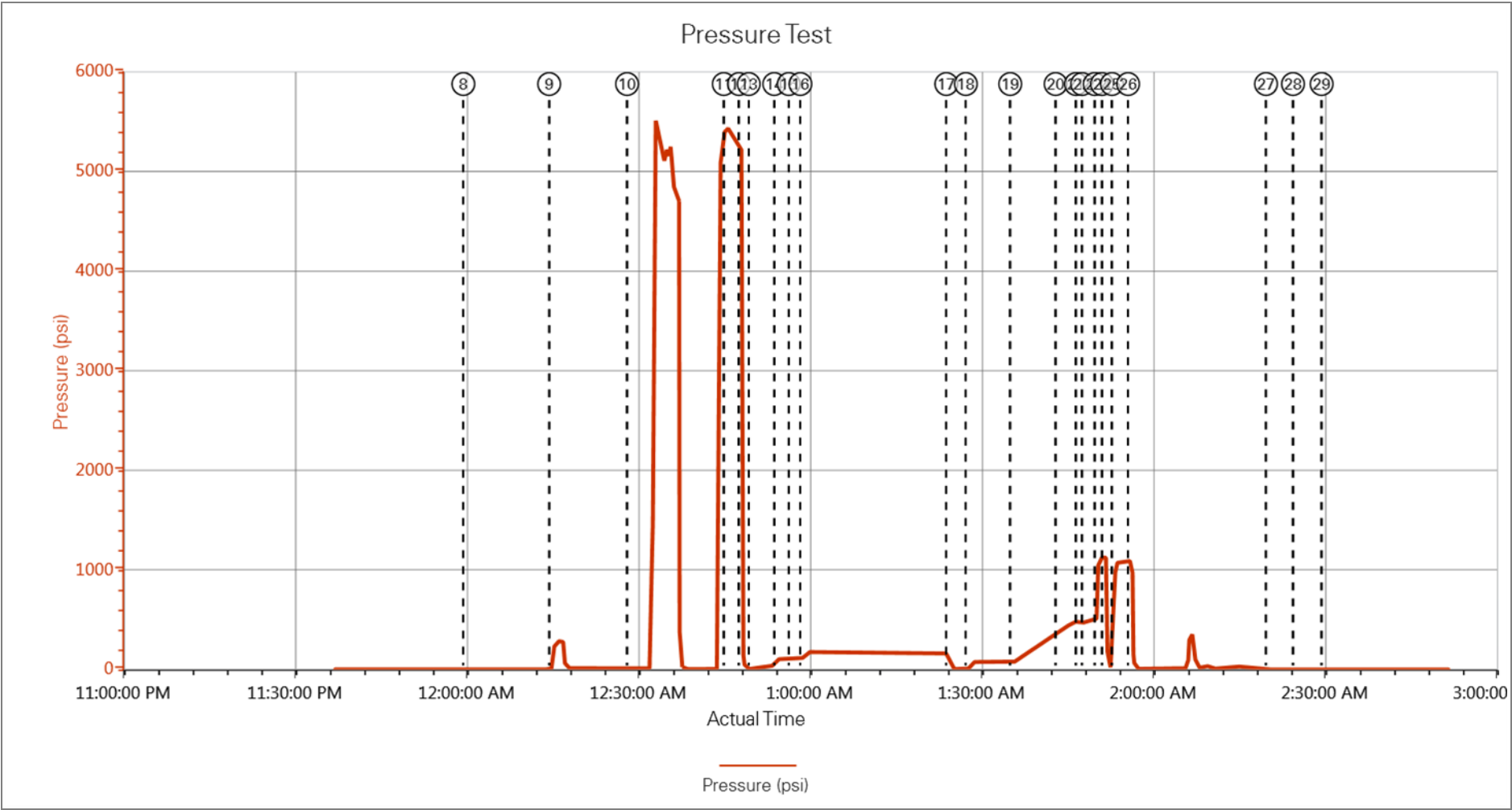


2.3 Anadarko - NRC# 28N-5HZ - Surface-Pressure Test.png



3.0 Custom Graphs

3.1 Custom Graph



3.2 Custom Graph



4.0 Appendix

Insert additional information regarding the job here (i.e. bulk and pilot testing, pre-job modeling, etc....)