HALLIBURTON

iCem® Service

ANADARKO PETROLEUM CORP - EBUS

For: Allen Secrest
Date: Friday, July 04, 2014

2N-1HZ

Anadarko Dolph #2N-1HZ

Sincerely,
Matt Bulinski

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1.1 Executive Summary

Halliburton appreciates the opportunity to perform the cementing services on the **Dolph 2N-1HZ** 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.

Overall Job went very well once casing to Bottom rig circulated 1hr before stabbing HES head with 10min stop circulating time in between. Very low pressures throughout whole job. All Spacers to surface with 20bbls cement as well. Final circulating pressure 739psi

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	7/3	22:00	MT
On Location	7/4	01:00	MT
Job Started	7/4	06:13	MT
Job Completed	7/4	08:32	MT
Departed Location	7/4	10:00	MT

1.2 Cementing Job Summary

Sold To #: 300466	**Ship To #:** 3473004	**Quote #:**	**Sales Order #:** 0901484929
Customer: ANADARKO PETROLEUM CORP - EBUS		**Customer Rep:** Allen Secrest	
Well Name: DOLPH	**Well #:** 2N-1HZ		**API/UWI #:** 05-123-39335-00
Field: WATTENBERG	**City (SAP):** IONE	**County/Parish:** WELD	**State:** COLORADO
Legal Description: SE SE-1-2N-66W-662FSL-755FEL			
Contractor:		**Rig/Platform Name/Num:** MAJOR 42	
Job BOM: 7521			
Well Type: HORIZONTAL GAS			
Sales Person: HALAMERICA\HX46524		**Srvc Supervisor:** Matthew Bulinski	

Job

Formation Name					
Formation Depth (MD)	Top		Bottom		
Form Type			BHST		
Job depth MD	1428.93ft		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	1428.93		
Open Hole Section			13.5				0	1433		

Tools and Accessories

Type	Size in	Qty	Make	Depth ft		Type	Size in	Qty	Make
Guide Shoe	9.625	1		1428.93		Top Plug	9.625	1	HES
Float Shoe	9.625	1				Bottom Plug	9.625	1	HES
Float Collar	9.625	1		1390.89		SSR plug set	9.625	1	HES
Insert Float	9.625	1				Plug Container	9.625	1	HES
Stage Tool	9.625	1				Centralizers	9.625	1	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 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			3	504
42 gal/bbl		FRESH WATER							

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	560	sack	14.2	1.54	7.64	5	4278.4

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
3	Displacement	Displacement	108	bbl	8.33			5	4515

Cement Left In Pipe	Amount	38.04 ft	Reason	Shoe Joint

Comment Job went very well with 20bbls Cmt to suface

1.3 Planned Pumping Schedule

1. **Fill Lines with Water**
    a. Density = 8.33
    b. Volume = 4
2. **Pressure Test Lines to 3500si**
3. **Pump water Spacer**
    a. Density = 8.33 lb/gal
    b. Volume = 10 bbl
    c. Rate = 2.5 bpm
4. **Pump Mud Flush Spacer**
    a. Density = 8.4 lb/gal
    b. Volume = 12 bbl
    c. Rate = 3.5 bpm
5. **Pump water Spacer**
    a. Density = 8.33 lb/gal
    b. Volume = 10 bbl
    c. Rate = 4 bpm
6. **Pump Swiftcem (Lead)**
    a. Density = 14.2
    b. Yield = 1.54
    c. Water Requirement = 7.64
    d. Volume = 560 sks (153.6 bbls)
    e. Rate = 5 bpm
7. **Drop Top Plug**
8. **Start Displacement**
9. **Pump Displacement Water**
    a. Density = 8.33 lb/gal
    b. Volume = 108 bbls
    c. Rate = 5 bpm
10. Land Plug – Anticipated Final Circulation Pressure 739 psi

Calculated Total Displacement = 108 bbls

1.4 Job Overview

		Units	Description
1	Surface temperature at time of job	°F	65
2	Mud type (OBM, WBM, SBM, Water, Brine)	-	WBM
3	Actual mud density	lb/gal	9.2
4	Time circulated before job	HH:MM	1
5	Mud volume circulated	Bbls	
6	Rate at which well was circulated	Bpm	4
7	Pipe movement during hole circulation	Y/N	
8	Rig pressure while circulating	Psi	
9	Time from end mud circulation to start of job	HH:MM	10
10	Pipe movement during cementing	Y/N	
11	Calculated displacement	Bbls	108
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

1.5 Water Field Test

Item	Recorded Test Value	Units	Max. Acceptable Limit	Potential Problems in Exceeding Limit
pH	6	----	6.0 - 8.0	Chemicals in the water can cause severe retardation
Chlorides	39	ppm	3000 ppm	Can shorten thickening time of cement
Sulfates	Less 200	ppm	1500 ppm	Will greatly decrease the strength of cement
Total Hardness		ppm	500 mg/L	High concentrations will accelerate the set of the cement
Calcium		ppm	500 ppm	High concentrations will accelerate the set of the cement
Total Alkalinity		ppm	1000 ppm	Cement is greatly retarded to the point where it may not set up at all (typically occurs @ pH ≥ 8.3).
Bicarbonates		ppm	1000 ppm	Cement is greatly retarded to the point where it may not set up at all
Potassium		ppm	5000 ppm	High concentrations will shorten the pump time of cement (indicates the presence of chlorides, therefore if Potassium levels are measured as high, so should the chlorides)
Iron	1	ppm	300 ppm	High concentrations will accelerate the set of the cement
Temperature	68	^{o}F	50-80 ^{o}F	High temps will accelerate; Low temps may risk freezing in cold weather

Submitted Respectfully by: _____Matt Bulinski_____

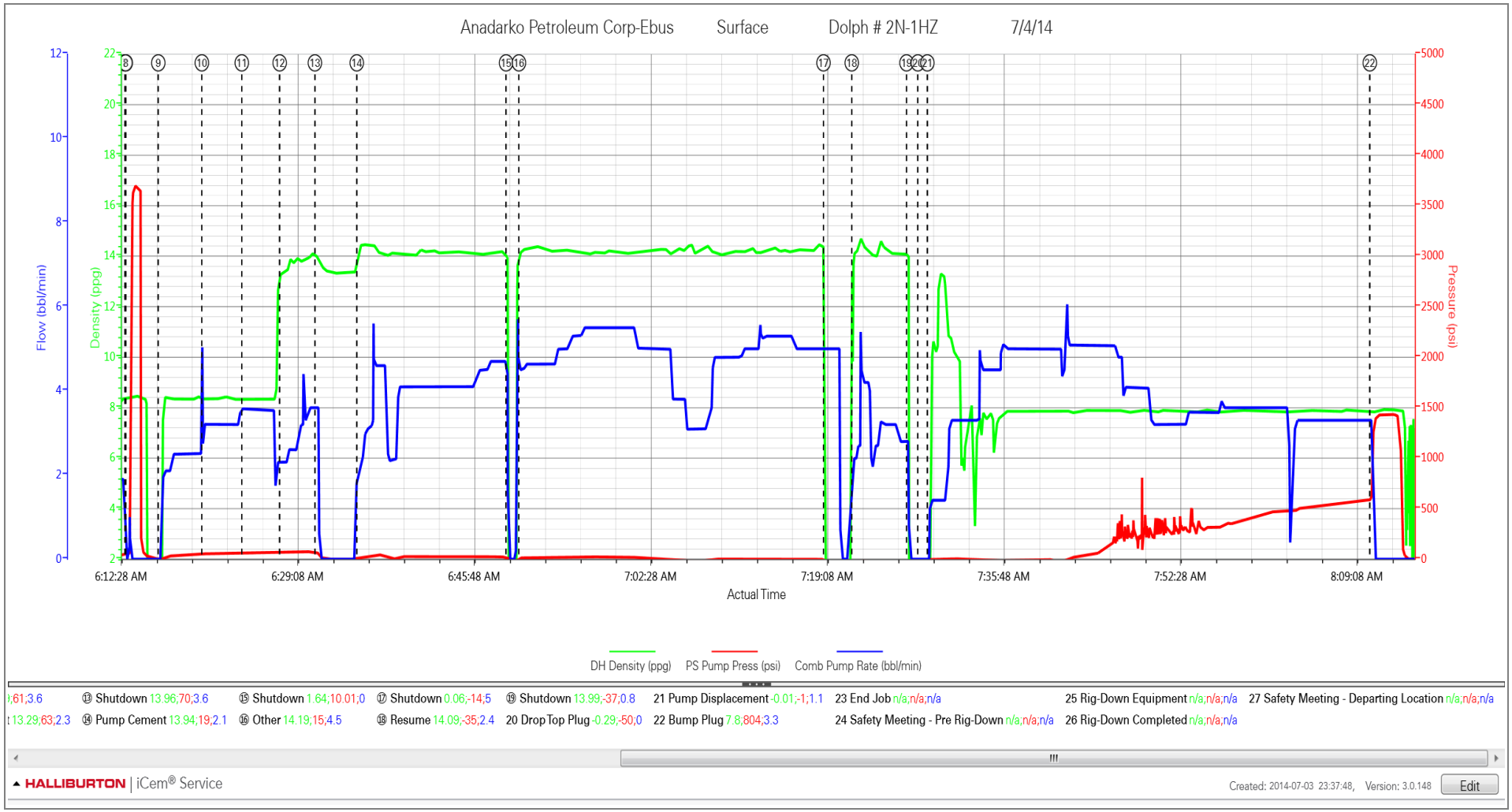
1.6 Job Event Log

Type	Seq. No.	Activity	Graph Label	Date	Time	Source	DH Density *(ppg)*	PS Pump Press *(psi)*	Comb Pump Rate *(bbl/min)*	Comment
Event	1	Depart Yard Safety Meeting	Depart Yard Safety Meeting	7/4/2014	01:00:00	USER				JSA on Job materials, Pre-tripping trucks, and Driving to Location
Event	2	Arrive At Loc	Arrive At Loc	7/4/2014	01:30:00	USER				Arrived 2hrs early and rig is almost out of hole with DP. Finished running Csg at 05:05
Event	3	Safety Meeting - Pre Rig-Up	Safety Meeting - Pre Rig-Up	7/4/2014	01:35:00	USER				JSA on Hazard hunt, rigging up bulk trucks, and iron to rig
Event	4	Rig-Up Equipment	Rig-Up Equipment	7/4/2014	01:40:00	USER				
Event	5	Rig-Up Completed	Rig-Up Completed	7/4/2014	02:00:00	USER				
Event	6	Safety Meeting - Pre Job	Safety Meeting - Pre Rig-Up	7/4/2014	05:40:00	USER	-0.14	22.00	0.00	JSA with Company Man, Rig hands, and HES hands on Pump scheduale
Event	7	Start Job	Start Job	7/4/2014	06:13:01	COM5	8.34	47.00	0.00	
Event	8	Test Lines	Test Lines	7/4/2014	06:13:06	COM5	8.35	47.00	0.00	3500psi Pressure Test Lines
Event	9	Pump Spacer 1	Pump Spacer 1	7/4/2014	06:16:10	COM5	-0.09	0.00	0.00	10bbls H20 Spacer
Event	10	Pump Spacer 2	Pump Spacer 2	7/4/2014	06:20:17	COM5	8.34	53.00	3.20	12bbls Mud Flush Spacer
Event	11	Pump Spacer 1	Pump Spacer 1	7/4/2014	06:24:03	COM5	8.29	60.00	3.60	10bblls H20 Spacer
Event	12	Pump Lead Cement	Pump Lead Cement	7/4/2014	06:27:37	COM5	13.29	63.00	2.30	560sks Swiftcem, 14.2ppg, 1.54yield, 7.64gal/sk, Mixed with rig water and # verify by pressurized mud scales. Shutdown three x's to weigh... Pumped at Avg 5bbl/min with 70psi
Event	13	Shutdown	Shutdown	7/4/2014	06:30:57	COM5	13.96	69.00	3.60	Shutdown Check weight with Pressurized mud scales
Event	14	Pump Cement	Pump Cement	7/4/2014	06:34:54	COM5	13.95	19.00	2.10	Resume pumping

Event	15	Shutdown	Shutdown	7/4/2014	06:49:00	COM5	1.62	11.00	0.00	Shutdown Check weight with Pressurized mud scales
Event	16	Other	Other	7/4/2014	06:50:12	COM5	14.17	14.00	4.50	Resume pumping
Event	17	Shutdown	Shutdown	7/4/2014	07:18:58	COM5	0.11	-11.00	5.00	Shutdown Check weight and blow down all pods off trucks
Event	18	Resume	Resume	7/4/2014	07:21:38	USER	14.08	-36.00	2.40	Resume pumping
Event	19	Shutdown	Shutdown	7/4/2014	07:26:48	USER	13.99	-37.00	0.80	
Event	20	Drop Top Plug	Drop Top Plug	7/4/2014	07:27:52	COM5	-0.29	-50.00	0.00	Pre-Loaded
Event	21	Pump Displacement	Pump Displacement	7/4/2014	07:28:46	COM5	-0.27	-1.00	1.00	108bbls H20 displacment
Event	22	Bump Plug	Bump Plug	7/4/2014	08:10:32	COM5	7.82	739.00	3.30	Slowed down last 20bbls to bump.. Plug landed at 739psi and brought to 1384psi for 2mins
Event	23	End Job	End Job	7/4/2014	08:32:18	USER				
Event	24	Safety Meeting - Pre Rig-Down	Safety Meeting - Pre Rig-Down	7/4/2014	08:38:02	USER				JSA on rigging down bulk trucks and iron
Event	25	Rig-Down Equipment	Rig-Down Equipment	7/4/2014	08:38:14	USER				
Event	26	Rig-Down Completed	Rig-Down Completed	7/4/2014	08:38:27	USER				
Event	27	Safety Meeting - Departing Location	Safety Meeting - Departing Location	7/4/2014	08:38:37	USER				JSA on location clean up, pre-tripping trucks, and rest to drive back to brighton yard

2.0 Custom Graphs

2.1 Custom Graph



3.0 Appendix

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