

# HALLIBURTON

iCem<sup>®</sup> Service

**ANADARKO PETROLEUM CORP - EBUS**

Date: Friday, May 23, 2014

**Spurling 35N-34HZ**

Sincerely,  
**Aaron Smith**

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**1.1 Executive Summary**

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Halliburton appreciates the opportunity to perform the cementing services on the **Spurling 35N-34HZ** 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**

	<b>Date</b>	<b>Time</b>	<b>Time Zone</b>
<b>On Location</b>	4/11/2014	07:00	MT
<b>Job Started</b>	4/11/2014	08:12	MT
<b>Job Completed</b>	4/11/2014	09:28	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 #: 3354742		Quote #:		Sales Order #: 0901246882					
Customer: ANADARKO PETROLEUM CORP - EBUS				Customer Rep: LARRY HERSH							
Well Name: SPURLING			Well #: 35N-34 HZ			API/UWI #: 05-123-38950-00					
Field: WATTENBERG		City (SAP): ION		County/Parish: WELD			State: COLORADO				
Legal Description: NW NW-34-2N-67W-377FNL-1088FWL											
Contractor: Bob Porter					Rig/Platform Name/Num: Majors 42						
Job BOM: 7521											
Well Type: HORIZONTAL GAS											
Sales Person: HALAMERICA/HX46524					Srvc Supervisor: Aaron Smith						
Job											
Formation Name											
Formation Depth (MD)			Top		Bottom						
Form Type											
BHST											
Job depth MD			1066ft		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	1056		0	
Open Hole Section			13.5				0	1066			
Tools and Accessories											
Type	Size in	Qty	Make	Depth ft		Type	Size in	Qty	Make		
Guide Shoe	9.625	1		1056		Top Plug	9.625	1	HES		
Float Shoe	9.625	1				Bottom Plug	9.625	1	HES		
Float Collar	9.625	1		1014		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 ft <sup>3</sup> /sack	Mix Fluid Gal	Rate bbl/min	Total Mix Fluid Gal
1	Mud Flush III (Powder)	Mud Flush III			10	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 ft <sup>3</sup> /sac k	Mix Fluid Gal	Rate bbl/mi n	Total Mix Fluid Gal
2	Lead Cement	SWIFTCEM (TM) SYSTEM	367	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 ft <sup>3</sup> /sac k	Mix Fluid Gal	Rate bbl/mi n	Total Mix Fluid Gal
3	Displacement	Displacement	0	bbl	8.33				
<b>Cement Left In Pipe</b>		<b>Amount</b>	42 ft		<b>Reason</b>			Shoe Joint	
<b>Comment</b>									

**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 Spacer	8.33	2.0	10.0 bbl	10.0 bbl
1	1	Spacer	Mud Flush	8.40	2.0	12.0 bbl	12.0 bbl
1	1	Spacer	Fresh Water Spacer	8.33	5.0	10.0 bbl	10.0 bbl
1	2	Cement Slurry	SwiftCem B2	14.2	5.0	367.0 sacks	367.0 sacks

**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	Y
14	Annular flow after job	Y/N	N
15	Length of rat hole	Ft	10
16	Units of gas detected while circulating	Units	
17	Was lost circulation experienced at any time ?	Y/N	N

1.4 Job Event Log

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ANADARKO PETROLEUM CORP - EBUS  
ANADARKO PETROLEUM SPURLING 35N-24 HZ SURFACE  
Case 1

1.1 Job Event Log

Type	Seq. No.	Activity	Graph Label	Date	Time	Source	Comb Pump Rate (bbf/min)	PS Pump Press (psi)	DH Density (ppg)	Comment
Event	1	Arrive at Location from Service Center	Arrive at Location from Service Center	4/11/2014	07:00:00	USER				WITH ALL EQUIPMENT AND MATERIALS
Event	2	Assessment Of Location Safety Meeting	Assessment Of Location Safety Meeting	4/11/2014	07:10:00	USER				HAZARD HUNT AND WATER TEST
Event	3	Pre-Rig Up Safety Meeting	Pre-Rig Up Safety Meeting	4/11/2014	07:15:00	USER				WITH HES CREW TO DISCUSS, IRON, WATER, AND BULK EQUIPMENT RIG UP SAFETY
Event	4	Rig-Up Equipment	Rig-Up Equipment	4/11/2014	07:20:00	USER				HES CREW RIGGED UP TO FLOOR.
Event	5	Rig-Up Completed	Rig-Up Completed	4/11/2014	07:40:00	USER				
Event	6	Pre-Job Safety Meeting	Pre-Job Safety Meeting	4/11/2014	07:45:00	USER	0.00	126.00	2.15	WITH CUSTOMER REP AND RIG CREW.
Event	7	Start Job	Start Job	4/11/2014	08:12:23	COM7	0.00	2.00	-0.35	
Event	8	Test Lines	Test Lines	4/11/2014	08:14:13	COM7	0.00	12.00	8.34	@ 2500 PSI
Event	9	Pump Spacer 1	Pump Spacer 1	4/11/2014	08:22:08	COM7	0.80	6.00	8.31	10 BBLS FRESH WATER WITH NO ADDITIVES
Event	10	Pump Spacer 2	Pump Spacer 2	4/11/2014	08:28:06	COM7	3.10	54.00	8.28	12 BBLS MUDFLUSH
Event	11	Pump Spacer 1	Pump Spacer 1	4/11/2014	08:31:57	COM7	3.10	62.00	8.37	10 BBLS FRESH WATER WITH NO ADDITIVES
Event	12	Pump Cement	Pump Cement	4/11/2014	08:34:41	COM7	0.90	47.00	13.32	100.6 BBLS 967 BBLS @ 14.2 PPG, 1.54 YIELD, 7.64 GAL/SK VERIFIED USING PRESSURIZED SCALES
Event	13	Shutdown	Shutdown	4/11/2014	08:53:20	COM7	0.00	31.00	0.60	
Event	14	Drop Top Plug	Drop Top Plug	4/11/2014	08:53:53	COM7	0.00	3.00	-0.04	PRE-LOADED HWE TOP PLUG VERIFIED BY CUSTOMER REP
Event	15	Pump Displacement	Pump Displacement	4/11/2014	08:55:04	COM7	4.50	29.00	13.23	78 BBLS FRESH WATER WITH NO ADDITIVES
Event	16	Other	Spacer Returns to Surface	4/11/2014	09:07:25	COM7				@ 32 BBLS DISPLACEMENT 32 BBLS TO THE PIT

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ANADARKO PETROLEUM CORP - EBUS  
ANADARKO PETROLEUM SPURLING 35N-24 HZ SURFACE  
Case 1

Event	17	Other	Cement Returns to Surface	4/11/2014	09:13:42	COM7				@ 64 BBLS DISPLACEMENT, 14 BBLS TO SURFACE
Event	18	Bump Plug	Bump Plug	4/11/2014	09:19:03	COM7	0.00	1533.00	8.34	FINAL CIRCULATING PRESSURE 327
Event	19	End Job	End Job	4/11/2014	09:28:37	COM7	0.00	112.00	8.36	RIG-DOWN JSA, JOURNEY MANAGEMENT, THANKS AARON SMITH AND CREW

**2.0 Appendix**

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