

HALLIBURTON

iCem[®] Service

ANADARKO PETROLEUM CORP - EBUS

For: BOB BALKENBUSH

Date: Tuesday, July 15, 2014

SPOTTED 4C-23HZ

NRC

Case 1

Sincerely,

AARON SMITH

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1.1 Executive Summary

Halliburton appreciates the opportunity to perform the cementing services on the **Spotted 4C-23HZ** 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
Called Out	5/28	1100	MST
On Location	5/28	1710	MST
Job Started	5/28	1803	MST
Job Completed	5/28	2212	MST
Departed Location	5/28	2300	MST

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

Sold To #: 300466		Ship To #: 3508004		Quote #:		Sales Order #: 0901378242				
Customer: ANADARKO PETROLEUM CORP - EBUS					Customer Rep: BOB BALKENBUSH					
Well Name: SPOTTED			Well #: 4C-23HZ			API/UWI #: 05-123-39430-00				
Field: WATTENBERG		City (SAP): IONE		County/Parish: WELD			State: COLORADO			
Legal Description: SW SW-23-2N-67W-275FSL-850FWL										
Contractor:				Rig/Platform Name/Num: MAJOR 29						
Job BOM: 7521										
Well Type: HORIZONTAL GAS										
Sales Person: HALAMERICA\HX46524				Srv Supervisor: Aaron Smith						
Job										
Formation Name										
Formation Depth (MD)		Top		Bottom						
Form Type					BHST					
Job depth MD		1308ft			Job Depth TVD					
Water Depth					Wk Ht Above Floor		6			
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	0	9.625	8.921	36		J-55	0	1297	0	1297
Open Hole Section			13.5				0	1308	0	1308
Tools and Accessories										
Type	Size in	Qty	Make	Depth ft		Type	Size in	Qty	Make	
Guide Shoe	9.625	1				Top Plug	9.625	1	HES	
Float Shoe	9.625	1	SSII	1297		Bottom Plug	9.625		HES	
Float Collar	9.625	1	SSII	1257		SSR plug set	9.625		HES	
Insert Float	9.625	1				Plug Container	9.625	1	HES	
	9.625	1				Centralizers	9.625	12	HES	
Miscellaneous Materials										
Gelling Agt		Conc		Surfactant		Conc		Acid Type		Qty
Treatment Fld		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				

42 gal/bbl

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	SWIFTCM (TM) SYSTEM	489	sack	14.2	1.537		6	7.63

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	97	bbl	8.33				

	Amount	40 ft		
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Comment 68 SKS G NEAT CEMENT 15.8 PPG, 1.15 YIELD, 5.00 GAL/SK TOP OUT CEMENT

1.3 Planned Pumping Schedule

- 1. Fill Lines with Water**
- 2. Pressure Test Lines to 2500psi**
- 3. Pump 10 Fresh Water Spacer**
 - a. Density = 8.33 lb/gal
 - b. Volume = 10 bbl
 - c. Rate = 3 bpm
- 4. Pump Mud Flush III Spacer**
 - a. Density = 8.4 lb/gal
 - b. Volume = 12 bbl
 - c. Rate = 3 bpm
- 5. Pump Fresh Water Spacer**
 - a. Density = 8.33 lb/gal
 - b. Volume = 10 bbl
 - c. Rate = 3 bpm
- 6. Pump SwiftCem**
 - a. Density = 14.2 ppg
 - b. Yield = 1.54 ft³/sk
 - c. Water Requirement = 7.63 gal/sk
 - d. Volume = 489 sks (134 bbls)
 - e. Rate = 5 bpm
- 7. Drop Top Plug**
- 8. Start Displacement**
- 9. Pump Displacement Water**
 - a. Density = 8.33 lb/gal
 - b. Volume = 97 bbls
 - c. Rate = 4 bpm
- 10. Land Plug – Anticipated Final Circulation Pressure 400 psi**

Calculated Total Displacement = 97 bbls

1.4 Job Event Log

Type	Seq. No.	Activity	Graph Label	Date	Time	Source	Comb Pump Rate (bbl/min)	PS Pump Press (psi)	DH Density (ppg)	Comment
Event	1	Call Out	Call Out	5/28/2014	11:00:00	USER				CALLED OUT BY ARC FOR ON LOCATION @ 1700
Event	2	Depart Yard Safety Meeting	Depart Yard Safety Meeting	5/28/2014	15:30:00	USER				JOURNEY MANAGEMENT MEETING PRIOR TO DEPARTURE
Event	3	Depart from Service Center or Other Site	Depart from Service Center or Other Site	5/28/2014	15:45:00	USER				
Event	4	Arrive at Location from Service Center	Arrive at Location from Service Center	5/28/2014	17:10:00	USER				WITH ALL EQUIPMENT AND MATERIALS
Event	5	Pre-Rig Up Safety Meeting	Pre-Rig Up Safety Meeting	5/28/2014	17:15:00	USER				RIG-UP JSA WITH HES CREW
Event	6	Rig-Up Equipment	Rig-Up Equipment	5/28/2014	17:18:00	USER				RIGGED UP ALL EQUIPEMENT AND SURFACE LINES
Event	7	Rig-Up Completed	Rig-Up Completed	5/28/2014	17:35:00	USER				
Event	8	Pre-Job Safety Meeting	Pre-Job Safety Meeting	5/28/2014	17:45:00	USER				WITH CUSTOMER REP AND RIG CREW
Event	9	Start Job	Start Job	5/28/2014	18:03:30	COM7				
Event	10	Test Lines	Test Lines	5/28/2014	18:04:30	COM7				@2500 PSI
Event	11	Pump Spacer 1	Pump Spacer 1	5/28/2014	18:07:48	COM7	3.00	8.00	8.35	10 BBLS FRESH WATER
Event	12	Pump Spacer 2	Pump Spacer 2	5/28/2014	18:12:20	COM7	3.10	44.00	8.32	12 BBLS MUD FLUSH
Event	13	Pump Spacer 1	Pump Spacer 1	5/28/2014	18:16:08	COM7	3.40	49.00	8.35	10 BBLS FRESH WATER
Event	14	Pump Cement	Pump Cement	5/28/2014	18:22:42	COM7	5.0	16.00	14.2	134 BBLS/489 SKS @14.2 PPG, 1.54 YIELD, 7.63 GAL/SK
Event	15	Shutdown	Shutdown	5/28/2014	18:51:28	COM7				
Event	16	Drop Top Plug	Drop Top Plug	5/28/2014	18:52:47	COM7				PRE-LOADED HWE TOP PLUG IN PLUG CONTAINER, VERIFIED BY CUSTOMER REP
Event	17	Pump Displacement	Pump Displacement	5/28/2014	18:53:34	COM7	4.00	13.00	8.33	97 BBLS FRESH WATER

Event	18	Other	Spacer Returns to Surface	5/28/2014	19:09:17	COM7	5.10	286.00	7.73	@ 70 BBLS DISPLACEMENT 27 BBLS TO SURFACE
Event	19	Bump Plug	Bump Plug	5/28/2014	19:20:08	COM7				
Event	20	Other	Check Floats	5/28/2014	19:25:32	COM7				FLOATS HELD, .5 BBLS BACK
Event	21	Wait on HES Materials to Arrive - Start Time	Wait on HES Materials to Arrive - Start Time	5/28/2014	19:34:23	USER				WAITING ON TOP OUT CEMENT TO ARRIVE
Event	22	Wait on HES Materials to Arrive - End Time	Wait on HES Materials to Arrive - End Time	5/28/2014	21:07:00	USER				BULK WITH TOP OUT CEMENT ARRIVED ON LOCATION
Event	23	Start Job	Start Job	5/28/2014	21:15:40	COM7				
Event	24	Pump Cement	Pump Cement	5/28/2014	21:50:31	COM7				14 BBLS/68 SKS TOP OUT CEMENT @ 15.8 PPG, 1.15 YIELD, 5.00 GAL/SK
Event	25	Shutdown	Shutdown	5/28/2014	22:04:58	COM7				
Event	26	End Job	End Job	5/28/2014	22:12:38	COM7				
Event	27	Pre-Rig Down Safety Meeting	Pre-Rig Down Safety Meeting	5/28/2014	22:18:00	USER				RIG-DOWN JSA WITH HES CREW
Event	28	Rig-Down Equipment	Rig-Down Equipment	5/28/2014	22:30:00	USER				RIGGED DOWN ALL EQUIPMENT
Event	29	Rig-Down Completed	Rig-Down Completed	5/28/2014	22:45:00	USER				
Event	30	Depart Location Safety Meeting	Depart Location Safety Meeting	5/28/2014	22:50:00	USER				JOURNEY MANAGEMENT MEETING PRIOR TO DEPARTURE
Event	31	Depart Location for Service Center or Other Site	Depart Location for Service Center or Other Site	5/28/2014	23:00:10	USER				THANKS AARON SMITH AND CREW

2.0 Custom Graphs

2.1 Custom Graph



