

# HALLIBURTON

iCem<sup>®</sup> Service

## Post Job Report

**ANADARKO PETROLEUM CORP - EBUS**

**For: Bob Porter**

Date: Wednesday, May 28, 2014

**Sickler 27N-34HZ Maj 42 901374362**

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Sincerely,

**Steven Markovich**

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## 1.1 Executive Summary

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Halliburton appreciates the opportunity to perform the cementing services on the **Sickler 27N-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**

	Date	Time	Time Zone
<b>Requested Time On Location</b>	5/28	02:30	MST
<b>Called Out</b>	5/28	20:30	MST
<b>On Location</b>	5/28	01:30	MST
<b>Job Started</b>	5/28	07:15	MST
<b>Job Completed</b>	5/28	09:00	MST
<b>Departed Location</b>	5/28	10:00	MST

## 1.2 Cementing Job Summary

*The Road to Excellence Starts with Safety*

<b>Sold To #:</b> 300466		<b>Ship To #:</b> 3470948		<b>Quote #:</b>		<b>Sales Order #:</b> 0901374362					
<b>Customer:</b> ANADARKO PETROLEUM CORP - EBUS						<b>Customer Rep:</b> bob porter					
<b>Well Name:</b> SICKLER				<b>Well #:</b> 27N-34HZ			<b>API/UWI #:</b> 05-123-39301-00				
<b>Field:</b> WATTENBERG		<b>City (SAP):</b> IONE		<b>County/Parish:</b> WELD			<b>State:</b> COLORADO				
<b>Legal Description:</b> SW SE-34-2N-67W-363FSL-1497FEL											
<b>Contractor:</b>				<b>Rig/Platform Name/Num:</b> MAJOR 42							
<b>Job BOM:</b> 7521											
<b>Well Type:</b> HORIZONTAL GAS											
<b>Sales Person:</b> HALAMERICA\HX46524				<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>		850ft			<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</b> in	<b>ID</b> in	<b>Weight</b> lbm/ft	<b>Thread</b>	<b>Grade</b>	<b>Top MD</b> ft	<b>Bottom MD</b> ft	<b>Top TVD</b> ft	<b>Bottom TVD</b> ft	
Casing		9.625	8.921	36		J-55	0	850			
Open Hole Section			13.5				0	850			
<b>Tools and Accessories</b>											
<b>Type</b>	<b>Size</b> in	<b>Qty</b>	<b>Make</b>	<b>Depth</b> ft		<b>Type</b>	<b>Size</b> in	<b>Qty</b>	<b>Make</b>		
Guide Shoe	9.625			850		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>Sand Type</b>			

## 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	12	bbl	8.4				
42 gal/bbl									

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
2	Lead Cement	SWIFTCEM (TM) SYSTEM	503	sack	14.2	1.54		6	7.64

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
3	Displacement	Displacement	96.5	bbl	8.33				

		Amount	42 ft						
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Comment

### **1.3 Planned Pumping Schedule**

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- 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 ft<sup>3</sup>/sk
  - c. Water Requirement = 7.63 gal/sk
  - d. Volume = 503 sks (138 bbls)
  - e. Rate = 4 bpm
- 7. Drop Top Plug**
- 8. Start Displacement**
- 9. Pump Displacement Water**
  - a. Density = 8.33 lb/gal
  - b. Volume = 96.5 bbls
  - c. Rate = 4 bpm
- 10. Land Plug – Anticipated Final Circulation Pressure 400 psi**

**Calculated Total Displacement = 96.5 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	9.0
4	Actual mud Plastic Viscosity (PV)	cP	
5	Actual mud Yield Point (YP)	lb <sub>f</sub> /100ft <sup>2</sup>	
6	Actual mud 30 min Gel Strength	lb <sub>f</sub> /100ft <sup>2</sup>	
7	Time circulated before job	HH:MM	01:00
8	Mud volume circulated	Bbls	
9	Rate at which well was circulated	Bpm	
10	Pipe movement during hole circulation	Y/N	
11	Rig pressure while circulating	Psi	
12	Time from end mud circulation to start of job	HH:MM	00:05
13	Pipe movement during cementing	Y/N	N
14	Calculated displacement	Bbls	96.5
15	Job displaced by	Rig/HES	HES
16	Annular flow before job	Y/N	N
17	Annular flow after job	Y/N	N
18	Length of rat hole	Ft	
19	Units of gas detected while circulating	Units	
20	Was lost circulation experienced at any time?	Y/N	N

## 1.5 Water Field Test

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Item	Recorded Test Value	Units	Max. Acceptable Limit	Potential Problems in Exceeding Limit
pH	7.0	----	6.0 - 8.0	Chemicals in the water can cause severe retardation
Chlorides	<3000	ppm	3000 ppm	Can shorten thickening time of cement
Sulfates	<1500	ppm	1500 ppm	Will greatly decrease the strength of cement
Total Hardness	<500	ppm	500 mg/L	High concentrations will accelerate the set of the cement
Calcium	<500	ppm	500 ppm	High concentrations will accelerate the set of the cement
Total Alkalinity	<1000	ppm	1000 ppm	Cement is greatly retarded to the point where it may not set up at all (typically occurs @ pH ≥ 8.3).
Bicarbonates	<1000	ppm	1000 ppm	Cement is greatly retarded to the point where it may not set up at all
Potassium	<5000	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	<300	ppm	300 ppm	High concentrations will accelerate the set of the cement
Temperature	51	°F	50-80 °F	High temps will accelerate; Low temps may risk freezing in cold weather

**Submitted Respectfully by: Steven Markovich**



## 1.6 Job Event Log

Type	Seq. No.	Activity	Graph Label	Date	Time	Source	DH Density (ppg)	DS Pump Rate (bbl/min)	PS Pump Press (psi)	Comment
Event	1	STRTJOB	STRTJOB	5/28/2014	07:16:11	COM6	8.30	0.00	-35.00	
Event	2	OTHER	OTHER	5/28/2014	07:19:19	COM6	11.58	0.00	-34.00	Fill Lines
Event	3	TESTLINE	TESTLINE	5/28/2014	07:24:34	COM6	8.33	0.00	2700.00	Pressure Test to 2500psi
Event	4	OTHER	OTHER	5/28/2014	07:33:01	COM6	8.33	3.00	44.00	Pump 10bbls of Water
Event	5	OTHER	OTHER	5/28/2014	07:39:24	COM6	8.35	3.10	44.00	Pump 12bbls of Mud Flush
Event	6	OTHER	OTHER	5/28/2014	07:45:10	COM6	8.01	3.00	31.00	Pump 10bbls of Water
Event	7	OTHER	OTHER	5/28/2014	07:53:39	COM6	13.09	4.00	38.00	Pump 138bbls of 14.2ppg Cement
Event	8	OTHER	OTHER	5/28/2014	08:29:29	COM6	10.82			Shutdown
Event	9	OTHER	OTHER	5/28/2014	08:30:47	COM6				Plug pre-loaded in HES head
Event	10	OTHER	OTHER	5/28/2014	08:31:19	COM6	8.33	4.00	400	Displacement pump 96.5bbls of water. Traces of mud flush were seen at 36bbls away possible channeling. Cement to surface at 66bbls away. 30bbls of cement to surface
Event	11	OTHER	OTHER	5/28/2014	08:56:21	COM6			1198.00	Bumped plug. Final lift pressure 430psi
Event	12	OTHER	OTHER	5/28/2014	09:00:06	COM6				Floats held
Event	13	ENDJOB	ENDJOB	5/28/2014	09:09:19	COM6				Thanks Markovich and crew

2.0 Attachments

2.1 Sickler 27N -34HZ Maj 42 901374362-Custom Results.png



