

# HALLIBURTON

iCem<sup>®</sup> Service

## Post Job Report

**ANADARKO PETROLEUM CORP - EBUS**

**For:**

Date: Saturday, June 07, 2014

**Benson Farms 12N-23HZ Surface**

Case 1

Sincerely,

**Derek Trier**

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**1.1 Executive Summary**

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Halliburton appreciates the opportunity to perform the cementing services on the **Benson Farms 12N-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**

	<b>Date</b>	<b>Time</b>	<b>Time Zone</b>
<b>Requested Time On Location</b>	6/7/14	12:30	
<b>Called Out</b>	6/7/14	07:00	
<b>On Location</b>	6/7/14	12:00	
<b>Job Started</b>	6/7/14	14:30	
<b>Job Completed</b>	6/7/14	15:40	
<b>Departed Location</b>	6/7/14	16:30	

## 1.2 Cementing Job Summary

# HALLIBURTON

## Cementing Job Summary

The Road to Excellence Starts with Safety

Sold To #: 300466	Ship To #: 3475218	Quote #:	Sales Order #: 0901405802							
Customer: ANADARKO PETROLEUM CORP - EBUS		Customer Rep: Alien								
Well Name: BENSON FARMS		Well #: 12N-23HZ	API/UWI #: 05-123-39399-00							
Field: WATTENBERG	City (SAP): MEAD	County/Parish: WELD	State: COLORADO							
Legal Description: NW SW-24-3N-68W-2075FSL-50FWL										
Contractor:		Rig/Platform Name/Num: Majors 42								
Job BOM: 7521										
Well Type: HORIZONTAL GAS										
Sales Person: HALAMERICA\HX46524		Srcv Supervisor: Devin Birchell								
<b>Job</b>										
Formation Name										
Formation Depth (MD)	Top	Bottom								
Form Type	BHST									
Job depth MD	1241ft	Job Depth TVD								
Water Depth	Wk Ht Above Floor									
Perforation Depth (MD)	From	To								
<b>Well Data</b>										
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	3	9.625	8.921	36		J-55	0	1244	0	1226
Open Hole Section			13.5				0	1244	0	1236
<b>Tools and Accessories</b>										
Type	Size in	Qty	Make	Depth ft	Type	Size in	Qty	Make		
Guide Shoe	9.625	1		1244	Top Plug	9.625	1	HES		
Float Shoe	9.625	1		1234	Bottom Plug	9.625		HES		
Float Collar	9.625	1		1192	SSR plug set	9.625		HES		
Insert Float	9.625	1			Plug Container	9.625	1	HES		
Stage Tool	9.625	1			Centralizers	9.625	10	HES		
<b>Miscellaneous Materials</b>										
Gelling Agt	Conc	Surfactant	Conc	Acid Type	Qty	Conc				
Treatment Fld	Conc	Inhibitor	Conc	Sand Type	Size	Qty				
<b>Fluid Data</b>										
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					
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	466	sack	14.2	1.54		6	7.64
<b>Fluid #</b>	<b>Stage Type</b>	<b>Fluid Name</b>	<b>Qty</b>	<b>Qty UoM</b>	<b>Mixing Density lbm/gal</b>	<b>Yield ft3/sack</b>	<b>Mix Fluid Gal</b>	<b>Rate bbl/mi n</b>	<b>Total Mix Fluid Gal</b>
3	Displacement	Displacement	93	bbl	8.33				
<b>Cement Left In Pipe</b>		<b>Amount</b> 40 ft	<b>Reason</b>			Shoe Joint			
<b>Comment</b>									

**1.3 Job Overview**

		<b>Units</b>	<b>Description</b>
<b>1</b>	Surface temperature at time of job	°F	67
<b>2</b>	Mud type (OBM, WBM, SBM, Water, Brine)	-	Wbm
<b>3</b>	Actual mud density	lb/gal	8.9
<b>4</b>	Actual mud Plastic Viscosity (PV)	cP	3
<b>5</b>	Actual mud Yield Point (YP)	lb <sub>f</sub> /100ft <sup>2</sup>	2
<b>6</b>	Actual mud 30 min Gel Strength	lb <sub>f</sub> /100ft <sup>2</sup>	
<b>7</b>	Time circulated before job	HH:MM	:30
<b>8</b>	Mud volume circulated	Bbls	
<b>9</b>	Rate at which well was circulated	Bpm	
<b>10</b>	Pipe movement during hole circulation	Y/N	N
<b>11</b>	Rig pressure while circulating	Psi	
<b>12</b>	Time from end mud circulation to start of job	HH:MM	:10
<b>13</b>	Pipe movement during cementing	Y/N	N
<b>14</b>	Calculated displacement	Bbls	
<b>15</b>	Job displaced by	Rig/HES	93
<b>16</b>	Annular flow before job	Y/N	N
<b>17</b>	Annular flow after job	Y/N	N
<b>18</b>	Length of rat hole	Ft	10
<b>19</b>	Units of gas detected while circulating	Units	0
<b>20</b>	Was lost circulation experienced at any time?	Y/N	n

## 1.4 Water Field Test

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Item	Recorded Test Value	Units	Max. Acceptable Limit	Potential Problems in Exceeding Limit
pH	7	----	6.0 - 8.0	Chemicals in the water can cause severe retardation
Chlorides	0	ppm	3000 ppm	Can shorten thickening time of cement
Sulfates	0	ppm	1500 ppm	Will greatly decrease the strength of cement
Total Hardness	0	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	0	ppm	300 ppm	High concentrations will accelerate the set of the cement
Temperature	71	°F	50-80 °F	High temps will accelerate; Low temps may risk freezing in cold weather

**Submitted Respectfully by:** \_\_\_\_\_

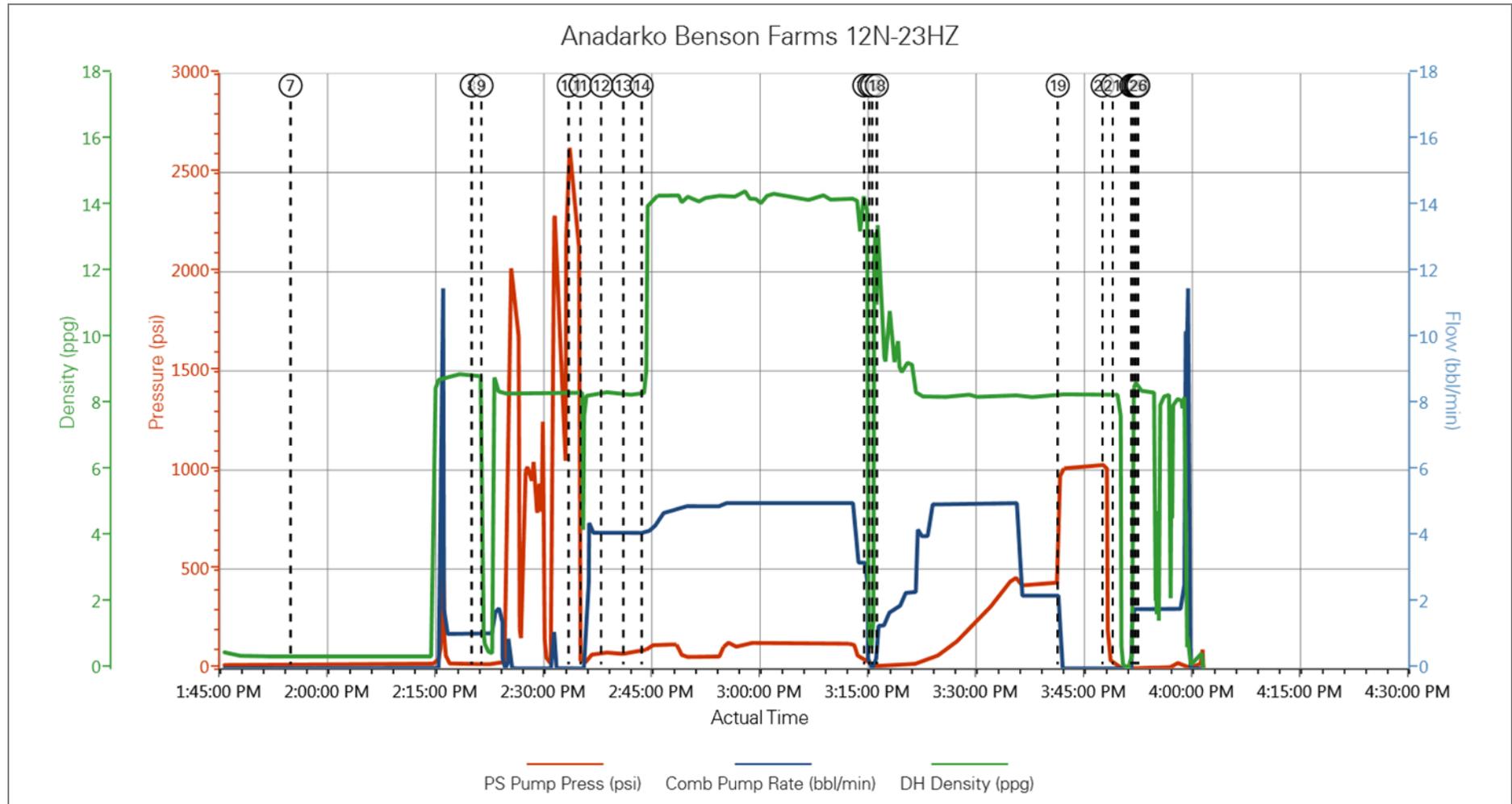
## 1.5 Job Event Log

Type	Seq. No.	Activity	Graph Label	Date	Time	Source	PS Pump Press (psi)	Comb Pump Rate (bbl/min)	DH Density (ppg)	Comment
Event	1	Call Out	Call Out	6/7/2014	07:00:12	USER				called cement crew for anadarko benson farms 12n-23hz surface
Event	2	Pre-Convoy Safety Meeting	Pre-Convoy Safety Meeting	6/7/2014	11:00:23	USER				discussed route, weather, other traffic, following distance
Event	3	Depart from Service Center or Other Site	Depart from Service Center or Other Site	6/7/2014	11:30:24	USER				called journey, gate checked and departed for location
Event	4	Arrive At Loc	Arrive At Loc	6/7/2014	12:00:12	USER				ended journey, talked with company rep on volumes, rates, pressures, and depths
Event	5	Pre-Rig Up Safety Meeting	Pre-Rig Up Safety Meeting	6/7/2014	12:35:21	USER				discussed spotting equipment, hand placement, swing path, and pinch points
Event	6	Rig-Up Equipment	Rig-Up Equipment	6/7/2014	12:40:24	USER				spot equipment and rig up iron to red zone rigged up water hoses
Event	7	Pre-Job Safety Meeting	Pre-Job Safety Meeting	6/7/2014	13:55:24	USER	18.00	0.00	0.37	discussed job procedures with cement and rig crews, pressures, rates and red zones
Event	8	Rig-Up Completed	Rig-Up Completed	6/7/2014	14:20:32	USER	22.00	1.00	8.83	loaded plug and rigged cement head to casing rigged stand pipe to cement head
Event	9	Prime Pumps	Prime Pumps	6/7/2014	14:21:54	USER	22.00	1.00	0.63	primed pump and lines ready for pressure test
Event	10	Test Lines	Test Lines	6/7/2014	14:34:00	COM1	2484.00	0.00	8.37	test pump and lines to 2345 psi
Event	11	Pump Spacer 1	Pump Spacer 1	6/7/2014	14:35:38	COM1	25.00	0.00	7.85	pump 10 bbls fresh water spacer
Event	12	Pump Spacer 2	Pump Spacer 2	6/7/2014	14:38:31	COM1	79.00	4.10	8.33	pump 12 bbls mud flush III spacer
Event	13	Pump Spacer 1	Pump Spacer 1	6/7/2014	14:41:34	COM1	79.00	4.10	8.30	pump 10 bbls fresh water spacer
Event	14	Pump Lead Cement	Pump Lead Cement	6/7/2014	14:44:07	COM1	88.00	4.10	8.34	pump 132 bbls (466 sks) 14.2 ppg slurry, y:1.54 ft3/sk w: 7.64 gal/sk
Event	15	Drop Top Plug	Drop Top Plug	6/7/2014	15:15:01	COM1	37.00	0.00	2.53	dropped plug with rig hand witnessing
Event	16	Shutdown	Shutdown	6/7/2014	15:15:43	COM1	11.00	0.00	0.62	shutdown to drop and wash up on plug
Event	17	Pump Displacement	Pump Displacement	6/7/2014	15:16:05	COM1	9.00	0.00	13.21	pump 93.4 bbls fresh water displacement

Event	18	Clean Lines	Clean Lines	6/7/2014	15:16:46	COM1	13.00	1.30	11.17	cleaned up pump abnd lines on plug
Event	19	Bump Plug	Bump Plug	6/7/2014	15:41:52	COM1	1004.00	0.00	8.29	bumped plug with 465 psi and took pressure to 1014 psi and held for 5 minutes
Event	20	Check Floats	Check Floats	6/7/2014	15:48:05	USER	1024.00	0.00	8.34	checked floats, floats held with .5 bbls back to truck
Event	21	End Job	End Job	6/7/2014	15:49:29	COM1	10.00	0.00	8.29	job completed
Event	22	Post-Job Safety Meeting (Pre Rig-Down)	Post-Job Safety Meeting (Pre Rig-Down)	6/7/2014	15:52:03	USER	3.00	1.80	8.71	discussed hand placement swing path pinch points
Event	23	Rig-Down Equipment	Rig-Down Equipment	6/7/2014	15:52:19	USER	4.00	1.80	8.54	rig down all iron and water hoses
Event	24	Rig-Down Completed	Rig-Down Completed	6/7/2014	15:52:37	USER	3.00	1.80	8.41	rig down completed final walk around to make sure everything is picked up
Event	25	Pre-Convoy Safety Meeting	Pre-Convoy Safety Meeting	6/7/2014	15:52:50	USER	3.00	1.80	8.46	discussed route, weather, other traffic, following distance
Event	26	Depart Location for Service Center or Other Site	Depart Location for Service Center or Other Site	6/7/2014	15:53:02	USER	3.00	1.80	8.35	thank you for using halliburton energy services

2.0 Custom Graphs

2.1 Custom Graph



3.0 Appendix

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