

## Cementing Job Summary

The Road to Excellence Starts with Safety

Sold To #: 300466		Ship To #: 3973841		Quote #: 0022638675		Sales Order #: 0906039531				
Customer: ANADARKO PETROLEUM CORP-EBUS				Customer Rep: Josh Sheppard						
Well Name: FARLEY			Well #: 23-5HZ		API/UWI #: 05-123-50193-00					
Field: WATTENBERG		City (SAP): PLATTEVILLE		County/Parish: WELD		State: COLORADO				
Legal Description: SW SW-23-3N-66W-686FSL-492FWL										
Contractor: AKITA DRLG				Rig/Platform Name/Num: AKITA 522						
Job BOM: 7523 7523										
Well Type: HORIZONTAL GAS										
Sales Person: HALAMERICA\HX41066				Srvc Supervisor: Michael Loughran						
<b>Job</b>										
Formation Name										
Formation Depth (MD)		Top		Bottom						
Form Type		BHST								
Job depth MD		13030.85ft		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		9.625	8.921	36		J-55	0	1899	0	1899
Casing		5.5	4.892	17	LTC	HCP110	0	13030.85	0	7278
Open Hole Section			7.875				1899	13041	1899	7278
<b>Tools and Accessories</b>										
Type	Size in	Qty	Make	Depth ft		Type	Size in	Qty	Make	
Guide Shoe	5.5					Top Plug	5.5	1	3rd	
Float Shoe	5.5			13022.57		Bottom Plug	5.5	1	3rd	
Float Collar	5.5					SSR plug set	5.5		HES	
Insert Float	5.5					Plug Container	5.5	1	HES	
Stage Tool	5.5					Centralizers	5.5		HES	
<b>Fluid Data</b>										
Stage/Plug #: 1										

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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	Tuned Prime	TUNED PRIME CEMENT SPACER SYS	60	bbl	10.5	6.17		6	
	1 lbm/bbl	<b>FE-2, 2000 LB BAG - (1005549)</b>							
	90.94 lbm/bbl	<b>BARITE, BULK (100003681)</b>							
	0.75 gal/bbl	<b>MUSOL(R) A, 5 GAL PAIL (100064220)</b>							
	0.25 gal/bbl	<b>D-AIR 3000L, 5 GAL PAIL (101007444)</b>							
	0.75 gal/bbl	<b>DUAL SPACER SURFACTANT B, 5 GAL PAIL (100003665)</b>							
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	Tuned Prime (No Surfactants)	TUNED PRIME CEMENT SPACER SYS	55	bbl	10.5	6.19		6	
	1 lbm/bbl	<b>FE-2, 2000 LB BAG - (1005549)</b>							
	90.63 lbm/bbl	<b>BARITE, BULK (100003681)</b>							
	0.25 gal/bbl	<b>D-AIR 3000L, 5 GAL PAIL (101007444)</b>							
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	Gasstop B1	GASSTOP (TM) SYSTEM	640	sack	13.2	1.56		8	7.61
	0.45 %	<b>SCR-100, 2000 LB BAG - (1005967)</b>							
	5.23 Gal	<b>FRESH WATER</b>							
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
4	EconoCem	ECONOCEM (TM) SYSTEM	550	sack	13.5	1.69		8	8.07
	0.10 %	<b>SA-1015, 50 LB SACK (102077046)</b>							
	7.99 Gal	<b>FRESH WATER</b>							
	0.42 %	<b>HR-5, 50 LB SK (100005050)</b>							
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
5	Biocide Water and MMCR	Biocide Water and MMCR	20	bbl	8.34			8	
	0.50 gal/bbl	<b>MICRO MATRIX CEMENT RETARDER, 5 GAL PAIL (100003781)</b>							
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
6	Biocide Water	Biocide Water	282	bbl	8.34			8	

## Cementing Job Summary

Cement Left In Pipe	Amount	0 ft	Reason	Wet Shoe Joint	
Mix Water:	pH 7	Mix Water Chloride:	Less 200 ppm	Mix Water Temperature:	58 °F
Cement Temperature:		Plug Displaced by:	8.33 lb/gal	Disp. Temperature:	
Plug Bumped?	Yes	Bump Pressure:	2650 psi	Floats Held?	Yes
Cement Returns:		Returns Density:		Returns Temperature:	
<b>Comment</b> Good returns throughout job, Plug bumped, final circ psi 2080 @ 2 bpm, 15 min casing test 3000 psi, 3 bbl wet shoe, Approx 23 bbl spacer/Obm interface to surface. Calculated top of Lead 1925', Top tail 7679' calculations with no excess					

## 2.0 Real-Time Job Summary

### 2.1 Job Event Log

Type	Seq. No.	Activity	Graph Label	Date	Time	Source	Comments
Event	1	Call Out	Call Out	10/16/2019	14:30:00	USER	Crew called out for on location time of 1630 hrs. 10/16/2019
Event	2	Crew Leave Yard	Crew Leave Yard	10/16/2019	17:30:00	USER	Crew Leaves Yard
Event	3	Arrive At Loc	Arrive At Loc	10/16/2019	18:20:00	USER	Arrive at location, Rig running casing, Meet with customer, TP 13031.85 17# HCP-110, TD 13041, 7.825 Hole, WSS 13022.57, TVD 7278, PC 1899' 9.625 J-55 36#, WF 9.3 OBM, Top and Bottom plug provided by customer, Water 58 Deg., PH 7, Chlorides and sulfates less than 200 ppm
Event	4	Pre-Rig Up Safety Meeting	Pre-Rig Up Safety Meeting	10/16/2019	18:30:00	USER	Pre rig up safety meeting
Event	5	Rig-Up Equipment	Rig-Up Equipment	10/16/2019	18:40:00	USER	Rig up all service lines and iron to buffer zone
Event	6	Pre-Job Safety Meeting	Pre-Job Safety Meeting	10/16/2019	22:00:00	USER	Discuss job procedures, Discuss job hazards and hazards of Halliburton Equipment.
Event	7	Start Job	Start Job	10/16/2019	23:35:54	COM4	Begin recording data
Event	8	Test Lines	Test Lines	10/16/2019	23:39:04	COM4	Test lines to 6500 psi

Event	9	Pump Spacer 1	Pump Spacer 1	10/16/2019	23:46:32	COM4	60 bbl. Tuned Prime w/surfactants. 10.5ppg, 6.17 yield, 39.6 gal/sack, 45 gal Musol, 45 gal Dual spacer B, D-Air
Event	10	Pump Spacer 2	Pump Spacer 2	10/16/2019	23:56:39	COM4	55 bbl. Tuned Prime spacer / no surfactants. 10.5 ppg, 6.19 yield, 41.4 gal/sack
Event	11	Drop Bottom Plug	Drop Bottom Plug	10/17/2019	00:06:30	COM4	Drop bottom plug
Event	12	Pump Lead Cement	Pump Lead Cement	10/17/2019	00:08:37	COM4	640 sacks GasStop lead, 177.82 bbl., 13.2 ppg, 1.56 yield, 7.61 gal/sack, 1600 gallon Latex
Event	13	Pump Tail Cement	Pump Tail Cement	10/17/2019	00:32:59	COM4	550 sacks EconoCem Tail, 165.54 bbl., 13.5 ppg, 1.69 yield, 8.07 gal/sack
Event	14	Shutdown	Shutdown	10/17/2019	00:57:17	COM4	Shutdown to wash pumps and Lines
Event	15	Drop Top Plug	Drop Top Plug	10/17/2019	01:07:20	COM4	Drop top plug
Event	16	Pump Displacement	Pump Displacement	10/17/2019	01:08:01	COM4	302 bbl. fresh water displacement. 1st 20 bbl. add 10 gal Micro Matrix retarder and Biocide throughout
Event	17	Bump Plug	Bump Plug	10/17/2019	01:55:52	COM4	500 psi over fcp of 2080 psi @ 2 bbl./min. Bump pressure 2650 psi. Hold pressure 15 minutes. See approx. 23 bbl. spacer/obm interface to surface. Estimated top lead cement 1925', estimated top tail cement 7679', (Calculations with no excess)

Event	18	Pressure Up Well	Pressure Up Well	10/17/2019	02:21:20	COM4	4680 psi Wet shoe sleeve shifts, Pump 3 bbl. wet shoe
Event	19	Other	Other	10/17/2019	02:24:38	COM4	Check floats, Floats hold, 2 bbl. back
Event	20	End Job	End Job	10/17/2019	02:26:04	COM4	Stop recording data
Event	21	Pre-Rig Down Safety Meeting	Pre-Rig Down Safety Meeting	10/17/2019	02:29:03	USER	JSA safe Rig-Down
Event	22	Rig-Down Equipment	Rig-Down Equipment	10/17/2019	02:35:43	USER	Rig down equipment
Event	23	Crew Leave Location	Crew Leave Location	10/17/2019	04:00:00	USER	Thanks for choosing Halliburton Energy Services!

3.0 Attachments

3.1 Job Chart



