

## HALLIBURTON

## Cementing Job Summary

### The Road to Excellence Starts with Safety

Sold To #: 300466	Ship To #: 3747434	Quote #:	Sales Order #: 0903978890
Customer: ANADARKO PETROLEUM CORP		Customer Rep: Pete Ayotte & James Adkins	
Well Name: CAMENISCH	Well #: 4C-35HZ	API/UWI #: 05-123-43344-00	
Field: WATTENBERG	City (SAP): IONE	County/Parish: WELD	State: COLORADO
Legal Description: SW SW-2-1N-67W-425FSL-779FWL			
Contractor: NABORS DRLG		Rig/Platform Name/Num: NABORS X22	
Job BOM: 7523 7523			
Well Type: HORIZONTAL GAS			
Sales Person: HALAMERICA\HX41066		Srv Supervisor: Bradley Hinkle	

### Job

Formation Name			
Formation Depth (MD)	Top	Bottom	
Form Type	BHST		
Job depth MD	14209ft	Job Depth TVD	7671ft
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	1852	0	1852
Casing		5.5	4.892	17	LTC	HCP110	0	14209	0	7671
Open Hole Section			8.5				1852	14220	0	7671

### Tools and Accessories

Type	Size in	Qty	Make	Depth ft	Type	Size in	Qty	Make
Guide Shoe	5.5				Top Plug	5.5	1	Weatherford
Float Shoe	5.5	1		14209	Bottom Plug	5.5		HES
Float Collar	5.5	1		14117	SSR plug set	5.5		HES
Insert Float	5.5				Plug Container	5.5	1	HES
Stage Tool	5.5				Centralizers	5.5		HES

### 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	10.5 lb/gal Tuned Spacer III	Tuned Spacer III	80	bbl	10.5	6.26	40.6	4	

## HALLIBURTON

## Cementing Job Summary

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	Cap Cement	ELASTICEM W/O SUPER CBL	150	sack	13.2	1.57		5	7.51
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	Lead Cement	ELASTICEM W/ SUPER CBL	545	sack	13.2	1.57		5	7.53
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	Tail Cement	ECONOCEM (TM) SYSTEM	1170	sack	13.5	1.68		5	7.98
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	Displacement	Fresh Water with MMCR	20	bbl	8.34			5	
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	Displacement	Biocide Water	307	bbl	8.34			5	
Cement Left In Pipe		Amount	92 ft			Reason			Shoe Joint
Mix Water:		pH 6	Mix Water Chloride: 0 ppm			Mix Water Temperature:		67 °F	
Cement Temperature:		## °F °C	Plug Displaced by: ## lb/gal kg/m3 XXXX			Disp. Temperature:		## °F °C	
Plug Bumped?		Yes	Bump Pressure: 2200 psi			Floats Held?		Yes	
Cement Returns:		## bbl m3	Returns Density: ## lb/gal kg/m3			Returns Temperature:		## °F °C	
Comment Observed interphase of spacer and mud at 240 bbls away and then lost returns at 250 bbls away for duration of displacement.									

## 2.0 Real-Time Job Summary

## 2.1 Job Event Log

Type	Seq. No.	Activity	Graph Label	Date	Time	Source	DH Density (ppg)	Comb Pump Rate (bbl/min)	DS Pump Press (psi)	Comments
Event	1	Call Out	Call Out	4/23/2017	11:30:00	USER				Crew called for an on location of 1530. Crew was Bradley Hinkle, Todd Porter, Knoell Coombs, Luke Kosakewich and William Mix.
Event	2	Depart Yard Safety Meeting	Depart Yard Safety Meeting	4/23/2017	14:30:00	USER				Pre-journey safety meeting.
Event	3	Arrive at Location from Service Center	Arrive at Location from Service Center	4/23/2017	15:00:00	USER				Sign in, perform a site assessment and pre rig-up safety meeting.
Event	4	Discuss Job	Job Numbers	4/23/2017	15:05:00	USER				Check-in with customer, discuss job and get numbers. TD: 14220. TP: 14209. FC: 14117. TVD: 7671. 5.5" 17# casing inside a 8.5" OH. 9.625" 36# surface casing set at 1852. Mud weight at 8.8 ppg.
Event	5	Safety Meeting - Pre Job	Safety Meeting - Pre Job	4/24/2017	00:30:00	USER	8.51	0.00	24.00	Pre-job safety meeting with all personnel on location.
Event	6	Start Job	Start Job	4/24/2017	00:53:55	COM4	8.53	0.00	20.00	
Event	7	Test Lines	Test Lines	4/24/2017	01:11:07	COM4	8.57	0.00	111.00	Pressure test lines with a 500 PSI electronic kick-out test.
Event	8	Pump Spacer 1	Pump Spacer 1	4/24/2017	01:18:37	COM4	8.55	0.00	12.00	Pump 80 bbls Tuned Spacer mixed at 10.5 ppg with surfactants and 30 pounds Tuff-Fiber mixed in. Density

										verified by pressurized scales.
Event	9	Pump Lead Cement	Pump Lead Cement	4/24/2017	01:50:22	COM4	10.60	0.00	3.00	Pump 42 bbls (150 sacks) ElastiCem without Super-CBL mixed at 13.2 ppg with 15 pounds Tuff-Fiber mixed in. Density verified by pressurized scales.
Event	10	Check Weight	Check Weight	4/24/2017	01:58:47	COM4	13.32	5.10	242.00	Cement weighed at 13.2 ppg.
Event	11	Pump Lead Cement	Pump Lead Cement	4/24/2017	02:00:52	COM4	13.30	5.10	332.00	Pump 152 bbls (545 sacks) ElastiCem with Super-CBL mixed at 13.2 ppg with 54.5 pounds Tuff-Fiber mixed in. Density verified by pressurized scales.
Event	12	Pump Tail Cement	Pump Tail Cement	4/24/2017	02:39:00	COM4				Pump 350 bbls (1170 sacks) EconoCem mixed at 13.5 ppg. Density verified by pressurized scales.
Event	13	Check Weight	Check Weight	4/24/2017	02:40:41	COM4	13.47	5.00	340.00	Cement weighed at 13.35 ppg.
Event	14	Shutdown	Shutdown	4/24/2017	03:51:37	COM4	13.18	0.40	70.00	
Event	15	Clean Lines	Clean Lines	4/24/2017	03:53:26	COM4	13.20	0.00	14.00	Rig blew down lines to wash-up tank and then pump washed pumps and lines until clean.
Event	16	Drop Top Plug	Drop Top Plug	4/24/2017	04:08:23	COM4				Top plug preloaded. Customer witnessed plug drop.
Event	17	Pump Displacement	Pump Displacement	4/24/2017	04:08:24	COM4	8.37	0.00	3.00	Pump 327 bbls, first 20 bbls with cement retarder (MMCR) added and Biocide added throughout rest of displacement. Observed an interphase of spacer and

										mud at 240 bbls away. Good returns throughout displacement until 250 bbls away and then returns stopped. Slowed rate to maintain a constant pressure and try to re-establish returns. Lost about 77 bbls of fluid downhole.
Event	18	Bump Plug	Bump Plug	4/24/2017	05:12:19	COM4	8.35	4.00	2000.00	Bump plug at 2200 PSI and increased pressure to 3000 PSI for a 15 minute casing test.
Event	19	Check Floats	Check Floats	4/24/2017	05:28:42	USER	8.36	0.00	3147.00	Didn't get a good indication of floats holding. Continued to get consistent flow for a quarter of a barrel over about 15 minutes.
Event	20	Bump Plug	Bump Plug	4/24/2017	05:48:27	USER	8.32	3.60	341.00	Bumped plug again and brought pressure to 3000 PSI. Held for 2 minutes.
Event	21	Check Floats	Check Floats	4/24/2017	05:51:04	USER	8.38	0.00	2061.00	Bled off pressure by surging bleed off valve. Floats held with 4 bbls back.
Event	22	Safety Meeting - Pre Rig-Down	Safety Meeting - Pre Rig-Down	4/24/2017	05:55:00	USER	8.32	0.00	4.00	Pre rig-down safety meeting.
Event	23	Depart Location for Service Center or Other Site	Depart Location for Service Center or Other Site	4/24/2017	07:30:00	USER				Pre-journey safety meeting.

## 3.0 Attachments

### 3.1 Anadarko Camenisch 4C-35HZ Production Job Chart.png

