

*The Road to Excellence Starts with Safety*

<b>Sold To #:</b> 300466	<b>Ship To #:</b> 0003932202	<b>Quote #:</b> 0022559529	<b>Sales Order #:</b> 0905567623
<b>Customer:</b> ANADARKO PETROLEUM CORP-EBUS		<b>Customer Rep:</b> Sean Giddings	
<b>Well Name:</b> MAB		<b>Well #:</b> 15-3HZ	<b>API/UWI #:</b> 05-123-49241-00
<b>Field:</b> WATTENBERG	<b>City (SAP):</b> IONE	<b>County/Parish:</b> WELD	<b>State:</b> COLORADO
<b>Legal Description:</b> SW SE-15-1N-66W-518FSL-2171FEL			
<b>Contractor:</b>		<b>Rig/Platform Name/Num:</b> Akita 522	
<b>Job BOM:</b> 7523 7523			
<b>Well Type:</b> HORIZONTAL GAS			
<b>Sales Person:</b> HALAMERICA/HX41066		<b>Srvc Supervisor:</b> Nicholas Cummins	

**Job**

<b>Formation Name</b>			
<b>Formation Depth (MD)</b>	<b>Top</b>	1857ft	<b>Bottom</b>
			17990ft
<b>Form Type</b>		BHST	
<b>Job depth MD</b>	17980ft	<b>Job Depth TVD</b>	7400ft
<b>Water Depth</b>		<b>Wk Ht Above Floor</b>	4ft
<b>Perforation Depth (MD)</b>	<b>From</b>		<b>To</b>

**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	1857	0	1857
Casing		5.5	4.892	17	LTC	HCP110	0	17980	0	7400
Open Hole Section			7.875				1857	17990	1857	7400

**Tools and Accessories**

Type	Size in	Qty	Make	Depth ft	Type	Size in	Qty	Make
Guide Shoe	5.5	1		17980	Top Plug	5.5	1	WTHR
Float Shoe	5.5				Bottom Plug	5.5	1	WTHR
Float Collar	5.5	1		17970	SSR plug set	5.5		
Insert Float	5.5				Plug Container	5.5	1	HES
Stage Tool	5.5				Centralizers	5.5		

**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	FDP-C1337-18	SBM FDP-C1337-18 CEMENT SPACER SYS	80	bbl	10.5	6.14	36.1	4	2635

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	Gasstop B1	GASSTOP (TM) SYSTEM	640	sack	13.2	1.56	7.61	8	4935
3	EconoCem	ECONOCEM (TM) SYSTEM	1080	sack	13.5	1.68	7.99	8	8629
4	Biocide Water and MMCR	Biocide Water and MMCR	20	bbl	8.34				
0.50 gal/bbl		<b>MICRO MATRIX CEMENT RETARDER, 5 GAL PAIL (100003781)</b>							
5	Biocide Water	Biocide Water	397	bbl	8.34				
<b>Cement Left In Pipe</b>		<b>Amount</b>	11 ft		<b>Reason</b>			<b>Shoe Joint</b>	
Mix Water:		pH 7	Mix Water Chloride:		<400 ppm		Mix Water Temperature:		78 °F
Cement Temperature:		76 °F	Plug Displaced by:		8.33 lb/gal		Disp. Temperature:		80 °F
Plug Bumped?		Yes	Bump Pressure:		2378 psi		Floats Held?		Yes
Cement Returns:		0 bbl	Returns Density:		9.5 lb/gal		Returns Temperature:		
<b>Comment</b>									

## 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	3/25/2019	08:30:00	USER	The crew was called out on 3/25/19 at 0830. The customer requested HES on location at 1630 on 3/25/19.
Event	2	Depart from Service Center or Other Site	Depart from Service Center or Other Site	3/25/2019	14:45:00	USER	The crew held a pre journey safety meeting discussing the route and potential hazards while driving The supervisor called in a journey. The crew departed service center.
Event	3	Arrive at Location from Service Center	Arrive at Location from Service Center	3/25/2019	15:50:00	USER	The crew arrived on location safely. The rig was still running casing. The supervisor met with the Company man and received numbers. TD 17,990', TP 197,980' 5 1/2" 17# P-110, FC 17,970', PC 1,857' 9 5/8" 36# J-55, TVD 7,400', OH 7 7/8", Mud 9.5 ppg.
Event	4	Assessment Of Location Safety Meeting	Assessment Of Location Safety Meeting	3/25/2019	16:00:00	USER	Crew discussed all potential hazards on location.
Event	5	Pre-Rig Up Safety Meeting	Pre-Rig Up Safety Meeting	3/25/2019	16:20:00	USER	Crew held a safety meeting discussing the rig up procedure. Also all potential hazards associated with rigging up all HES equipment and lines.

Event	6	Rig-Up Equipment	Rig-Up Equipment	3/25/2019	16:20:00	USER	The crew rigged up all HES equipment and lines.
Event	7	Rig-Up Completed	Rig-Up Completed	3/25/2019	19:00:00	USER	Rig up completed, no one got hurt.
Event	8	Safety Meeting - Pre Job	Safety Meeting - Pre Job	3/25/2019	20:00:00	USER	The crew and all personal involved with cement job discussed all potential hazards associated with job. Followed by the job procedure to ensure everyone understood the plan of action
Event	9	Start Job	Start Job	3/25/2019	20:34:37	COM1	
Event	10	Other	Other	3/25/2019	20:37:29	COM1	
Event	11	Test Lines	Test Lines	3/25/2019	20:44:20	COM1	We pressure tested all HES lines to 6,500psi. The pressure test passed.
Event	12	Pump Spacer 1	Pump Spacer 1	3/25/2019	20:57:27	COM1	We pumped 80 bbls of tuned spacer with surfactants and .8 gals of biocide. At 4 bpm, pressure was at 460 psi. 10.5 ppg 6.14 yield 36.1 gal/sk. We used pressurized scales to verify density.
Event	13	Drop Bottom Plug	Drop Bottom Plug	3/25/2019	21:15:59	COM1	Company man witnessed plug drop.
Event	14	Pump Lead Cement	Pump Lead Cement	3/25/2019	21:19:55	COM1	We pumped 178 bbls (640sks) of lead cement at 8 bpm, pressure at 816 psi. 13.2 ppg 1.56 yield 7.61 gal/sk. We used pressurized scales to verify density.

Event	15	Pump Tail Cement	Pump Tail Cement	3/25/2019	21:40:27	COM1	We pumped 323 bbls (1080 sks) of tail cement at 8 bpm, pressure was at 620 psi. 13.5 ppg 1.68 yield 7.99 gal/sk. We used pressurized scales to verify density.
Event	16	Shutdown	Shutdown	3/25/2019	22:18:43	COM1	Shutdown to blow air then water from the rig floor to wash up tank. Then washed pumps and lines to wash up tank.
Event	17	Drop Top Plug	Drop Top Plug	3/25/2019	22:31:51	COM1	Company man witnessed top plug drop.
Event	18	Pump Displacement	Pump Displacement	3/25/2019	22:31:54	COM1	We pumped the calculated displacement of 417 bbls. With MMCR in the first 20 bbls and biocide throughout till the last 50 bbls. At 8 bpm per customer request. we adjusted rate as needed.
Event	19	Bump Plug	Bump Plug	3/25/2019	23:35:24	COM1	We bumped the plug, final circulating pressure was 2,378 psi. We brought pressure 500 psi over and shutdown.
Event	20	Other	Casing Test	3/25/2019	23:35:42	COM1	We performed a 10 min casing test at 3,000 psi.
Event	21	Other	Pressure Up/ Wet Shoe	3/25/2019	23:46:13	COM1	We pressured up to 4,824 psi at 2 bpm to shift wet shoe sub. The proceeded to pump a 3 bbl wet shoe at 5 bpm. Released pressure to check floats, floats held 3 bbls back.

Event	22	End Job	End Job	3/25/2019	23:52:02	COM1	Cement Job Complete. Estimated top of Spacer 104'. Estimated top of Lead 1,794'. Estimated top of Tail 7,527'.
Event	23	Pre-Rig Down Safety Meeting	Pre-Rig Down Safety Meeting	3/25/2019	23:53:00	USER	Crew held a safety meeting discussing the rig down procedure. Also all potential hazards associated with rigging down all HES equipment and lines.
Event	24	Rig-Down Equipment	Rig-Down Equipment	3/26/2019	00:00:00	USER	The crew rigged down all HES equipment and lines.
Event	25	Rig-Down Completed	Rig-Down Completed	3/26/2019	01:30:00	USER	Rig down completed no one got hurt.
Event	26	Pre-Convoy Safety Meeting	Pre-Convoy Safety Meeting	3/26/2019	01:45:00	USER	The crew held a pre journey safety meeting discussing the route and potential hazards while driving The supervisor called in a journey.
Event	27	Depart Location for Service Center or Other Site	Depart Location for Service Center or Other Site	3/26/2019	01:50:00	USER	Nick Cummins and crew would like to thank you for your business, and choosing Halliburton Cement! Please feel free to call if you have any questions.

