

## 1.0 Cementing Job Summary

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### 1.1 Executive Summary

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Halliburton appreciates the opportunity to perform the cementing services on the **Mab 15-6HZ** cement **Production** 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 Fort Lupton**

*The Road to Excellence Starts with Safety*

<b>Sold To #:</b> 300466		<b>Ship To #:</b> 3932316		<b>Quote #:</b> 0022566321		<b>Sales Order #:</b> 0905619375					
<b>Customer:</b> ANADARKO PETROLEUM CORP-EBUS				<b>Customer Rep:</b> ALBERT BRIAN							
<b>Well Name:</b> MAB			<b>Well #:</b> 15-6HZ		<b>API/UWI #:</b> 05-123-49247-00						
<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-563FSL-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>Srv Supervisor:</b> Vitali Neverdasov							
<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>		18208ft		<b>Job Depth TVD</b>		7413					
<b>Water Depth</b>				<b>Wk Ht Above Floor</b>							
<b>Perforation Depth (MD)</b>		<b>From</b>		<b>To</b>							
<b>Well Data</b>											
<b>Description</b>	<b>New / Used</b>	<b>Size in</b>	<b>ID in</b>	<b>Weight lbm/ft</b>	<b>Thread</b>	<b>Grade</b>	<b>Top MD ft</b>	<b>Bottom MD ft</b>	<b>Top TVD ft</b>	<b>Bottom TVD ft</b>	
Casing		9.625	8.921	36		J-55	0	1861	0	1861	
Casing	0	5.5	4.892	17	LTC	HCP110	0	18208	0	7413	
Open Hole Section			7.875				1894	18218	1861	7413	
<b>Tools and Accessories</b>											
<b>Type</b>	<b>Size in</b>	<b>Qty</b>	<b>Make</b>	<b>Depth ft</b>		<b>Type</b>	<b>Size in</b>	<b>Qty</b>	<b>Make</b>		
Guide Shoe	5.5					Top Plug	5.5	1	WHED		
Float Shoe	5.5	1	N/A	18208		Bottom Plug	5.5	1	WHED		
Float Collar	5.5	1	N/A	18198		SSR plug set	5.5				
Insert Float	5.5					Plug Container	5.5	1	HES		
Stage Tool	5.5					Centralizers	5.5		N/A		
<b>Fluid Data</b>											
<b>Stage/Plug #: 1</b>											
<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/min</b>	<b>Total Mix Fluid Gal</b>
1	FDP-C1337-18	SBM FDP-C1337-18 CEMENT SPACER SYS			80	bbl	10.5			4	
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>									

91.40 lbm/bbl		BARITE, BULK (100003681)							
0.75 gal/bbl		DUAL SPACER SURFACTANT B, 5 GAL PAIL (100003665)							
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	Gasstop B1	GASSTOP (TM) SYSTEM	640	sack	13.2	1.56		6	7.71
0.87 %		SCR-100 (100003749)							
5.11 Gal		FRESH WATER							
0.10 Gal		D-AIR 3000L, TOTETANK (101396181)							
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	EconoCem	ECONOCER (TM) SYSTEM	1100	sack	13.5	1.68		8	8
0.10 %		SA-1015, 50 LB SACK (102077046)							
8 Gal		FRESH WATER							
0.29 %		HR-5, 50 LB SK (100005050)							
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	Biocide Water and MMCR	Biocide Water and MMCR	20	bbl	8.34			8	
0.50 gal/bbl		MICRO MATRIX CEMENT RETARDER, 5 GAL PAIL (100003781)							
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	Biocide Water	402	bbl	8.34			8	
Cement Left In Pipe		Amount	0 ft		Reason			WET SHOE	
Comment :WHEN BUMP THE PLUG WET SHOE SUB GOT SHIFTED @ 3050 PSI. PUMP 3 BBLS WET SHOE. ESTIMATED TOP OF SPACER @ 154'. TOP OF LEAD @ 1824'. TOP OF TAIL @ 7557'.									

## 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	4/13/2019	12:00:00	USER	For Location @ 16:00
Event	2	Depart Yard Safety Meeting	Depart Yard Safety Meeting	4/13/2019	14:30:00	USER	Journey management meeting held prior to departure
Event	3	Depart from Service Center or Other Site	Depart from Service Center or Other Site	4/13/2019	15:00:00	USER	Called Journey
Event	4	Arrive at Location from Service Center	Arrive at Location from Service Center	4/13/2019	15:10:00	USER	3 MILES. Discussed numbers and job procedures with Customer. RIG HAS 2500' OF CASING TO RUN.
Event	5	Safety Meeting - Pre Rig-Up	Safety Meeting - Pre Rig-Up	4/13/2019	15:40:00	USER	JSA to discuss the hazards of rig-up
Event	6	Rig-Up Equipment	Rig-Up Equipment	4/13/2019	15:45:00	USER	Rig-up all surface lines and equipmnet up to the Buffer zone
Event	7	Casing on Bottom	Casing on Bottom	4/13/2019	16:50:00	USER	CASING LANDED
Event	8	Circulate Well	Circulate Well	4/13/2019	17:10:00	USER	RIG UP PLUG CONTAINER AND MANIFOLD FOR RIG TO CIRCULATE
Event	9	Pre-Job Safety Meeting	Pre-Job Safety Meeting	4/13/2019	18:22:00	USER	With all essential personnel, to discuss the hazards of pumping the job, and pump schedule.
Event	10	Start Job	Start Job	4/13/2019	18:48:01	COM4	
Event	11	Check Weight	Check Weight	4/13/2019	18:55:05	COM4	

Event	12	Test Lines	Test Lines	4/13/2019	18:57:00	USER	Load line with 3 bbls of water. Test lines @ 6556 psi
Event	13	Pump Spacer	Pump Spacer	4/13/2019	19:03:00	USER	BATCH/ WEIGHT/ PUMP 80 BBLS OF FDP SPACER WITH SURFACTANS @ 10.5 PPG.
Event	14	Check Weight	Check Weight	4/13/2019	19:24:05	COM4	
Event	15	Drop Bottom Plug	Drop Bottom Plug	4/13/2019	19:28:00	USER	Pre-loaded bottom plug in plug container, verified by customer rep. DROP PLUG ON THE FLY 73 BBLS INTO SPACER.
Event	16	Pump Lead Cement	Pump Lead Cement	4/13/2019	19:34:00	USER	BATCH/ WEIGH/ PUMP 640 SKS (177.8 BBLS) OF GASSTOP CEMENT USING LATEX WATER @ 13.2 ppg, verified with pressurized scales
Event	17	Pump Tail Cement	Pump Tail Cement	4/13/2019	20:05:00	USER	WEIGHT/ PUMP 1100 SKS (329.1 BBLS) OF ECONOCEM @ 13.5 ppg, verified with pressurized scales.
Event	18	Check Weight	Check Weight	4/13/2019	20:06:30	COM4	
Event	19	Check Weight	Check Weight	4/13/2019	20:15:34	COM4	
Event	20	Shutdown	Shutdown	4/13/2019	20:57:00	USER	Finished pumping cement
Event	21	Clean Lines	Clean Lines	4/13/2019	21:01:00	USER	Wash pumps and lines
Event	22	Drop Top Plug	Drop Top Plug	4/13/2019	21:10:00	USER	Pre-loaded top plug in plug container verified by customer rep.
Event	23	Pump Displacement - Start	Pump Displacement - Start	4/13/2019	21:13:00	USER	422.2 BBLS OF FRESH WATER. FIRST 20 BBLS WITH MMCR. REMAINING WITH BIOCID. LAST 100 BBLS FRESH WATER
Event	24	Bump Plug	Bump Plug	4/13/2019	22:06:00	USER	@500 psi over final circulating pressure of 2610 psi. SHIFTED WET SHOE SUB @ 3050 PSI.
Event	25	Pump Water	Pump Water	4/13/2019	22:07:00	USER	WET SHOE SUB OPENED WHEN BUMP THE PLUG @ 3050 PSI. WENT AND PUMP 3 BBLS OF WET SHOE.
Event	26	Check Floats	Check Floats	4/13/2019	22:11:00	USER	Floats held. 3 bbls back
Event	27	End Job	End Job	4/13/2019	22:12:11	COM4	

Event	28	Pre-Rig Down Safety Meeting	Pre-Rig Down Safety Meeting	4/13/2019	22:20:00	USER	JSA to discuss the hazards of rig-down
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## 3.0 Attachments

### 3.1 Job Chart

