

# HALLIBURTON

iCem<sup>®</sup> Service

## **ANADARKO PETROLEUM CORP-EBUS**

Date: Friday, July 05, 2019

### **JDB 15-5HZ Production**

Job Date: Monday, June 24, 2019

Sincerely,  
**Tyler Hill**

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## 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 **JDB 15-5HZ** 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 Ft. Lupton**

*The Road to Excellence Starts with Safety*

<b>Sold To #:</b> 300466		<b>Ship To #:</b> 3930975		<b>Quote #:</b> 0022595930		<b>Sales Order #:</b> 0905787740					
<b>Customer:</b> ANADARKO PETROLEUM CORP-EBUS				<b>Customer Rep:</b>							
<b>Well Name:</b> JDB		<b>Well #:</b> 15-5HZ		<b>API/UWI #:</b> 05-123-49222-00							
<b>Field:</b> WATTENBERG		<b>City (SAP):</b> IONE		<b>County/Parish:</b> WELD		<b>State:</b> COLORADO					
<b>Legal Description:</b> SE SE-15-1N-66W-567FSL-1083FEL											
<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> Prince Perez							
<b>Job</b>											
<b>Formation Depth (MD)</b>		<b>Top</b> 0'		<b>Bottom</b>		14,034'					
<b>Job depth MD</b>		14,024		<b>Job Depth TVD</b>		7,748'					
<b>Water Depth</b>				<b>Wk Ht Above Floor</b>		5'					
<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	1929	0	1929	
Casing		5.5	4.892	17	LTC	HCP110	0	14024	0	7748	
Open Hole Section			7.875				1929	14034	1929	7748	
<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	1		14,024		Top Plug	5.5	1	WF		
Float Shoe	5.5					Bottom Plug	5.5	1	WF		
Float Collar	5.5	1		14,014		SSR plug set	5.5				
Insert Float	5.5					Plug Container	5.5	1	HES		
Stage Tool	5.5					Centralizers	5.5	269			
<b>Fluid Data</b>											
<b>Stage/Plug #:</b> 1											
<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 ft/sack</b>	<b>Mix Fluid Gal</b>	<b>Rate bbl/min</b>	<b>Total Mix Fluid Gal</b>
1	Spacer	SBM FDP-C1337-18 CEMENT SPACER SYS			60	bbl	10.5	6.17	39.6	5	2,162

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	GASSTOP (TM) SYSTEM	640	sack	13.2	1.56	7.73	6	4,947	
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	Tail	ECONOCHEM (TM) SYSTEM	660	sack	13.5	1.68	8	6	5,280	
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	Displacement	Biocide Water and MMCR	20	bbl	8.34					
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	Biocide Water	305	bbl	8.34					
Cement Left In Pipe		Amount	0 ft		Reason			Wet Shoe		
Mix Water:		pH 7	Mix Water Chloride:			<300 ppm		Mix Water Temperature:		66 °F
Cement Temperature:		## °F	Plug Displaced by:			8.33 lb/gal		Disp. Temperature:		66 °F
Plug Bumped?		Yes	Bump Pressure:			2,160 psi		Floats Held?		Yes
Cement Returns:		0 bbl	Returns Density:			9.3 lb/gal		Returns Temperature:		## °F
Comment										
Pumped 60 bbls of FDP Spacer with 45 gallons of Dual B, 45 gallons of Musol A, .8 of a gallon of biocide and 20 gallons of Dair.										
Pumped 177.82 bbls of Gasstop cement with 1,600 gallons of Latex.										
Pumped 197.48 bbls of Econocem.										
Pumped 325 bbls of fresh water displacement with MMCR in the first 20 bbls and biocide throughout.										
Pumped a 3 bbl wet shoe.										
2 bbls back on the floats.										

## 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)	PS Pump Press (psi)	Comments
Event	1	Call Out	Call Out	6/24/2019	07:30:00	USER				CREW CALLED OUT AT 07:30, REQUESTED ON LOCATION 13:00. CREW PICKED UP CEMENT, CHEMICALS, AND PLUG CONTAINER FROM FT. LUPTON, CO. BULK 660, 11633846, AND PUMP 11189145.
Event	2	Pre-Convoy Safety Meeting	Pre-Convoy Safety Meeting	6/24/2019	11:20:00	USER				CREW DISCUSSED ROUTES, HAZARDS, AND COMMUNICATION WITH CREW.
Event	3	Crew Leave Shop	Crew Leave Shop	6/24/2019	11:30:00	USER				STARTED JOURNEY MANAGEMENT.
Event	4	Arrive at Location from Service Center	Arrive at Location from Service Center	6/24/2019	11:40:00	USER				END JOURNEY MANAGEMENT. MEET WITH CO. MAN TO DISCUSS JOB; SURFACE CASING- 9/58" 36 LB/FT @ 1,929', 5.5" CASING: 17 LB/FT TOTAL 14,023.5', 7 7/8" HOLE, TD 14,034', 9' SHOE TRAC, TVD- 7,748'. PUMP FRESH WATER DISPLACEMENT. CASING LANDED @ 14:30 6/24/2019.
Event	5	Safety Meeting - Assessment of Location	Safety Meeting - Assessment of Location	6/24/2019	11:50:00	USER				HAZARD HUNT. DISCUSSED POSSIBLE HAZARDS ASSOCIATED WITH

										LOCATION, RIG UP AND WEATHER.
Event	6	Rig-Up Equipment	Rig-Up Equipment	6/24/2019	12:00:00	USER				RIG UP BULK AND MIXING EQUIPMENT.
Event	7	Rig-Up Completed	Rig-Up Completed	6/24/2019	13:50:00	USER				
Event	8	Pre-Job Safety Meeting	Pre-Job Safety Meeting	6/24/2019	14:00:00	USER				MEETING WITH HALLIBURTON AND RIG PERSONNEL. COMMUNICATED POTENTIAL SAFETY HAZARDS AND JOB DETAILS.
Event	9	Start Job	Start Job	6/24/2019	16:12:02	COM4	4.51	0.00	0.00	BEGIN RECORDING JOB DATA.
Event	10	Test Lines	Test Lines	6/24/2019	16:16:04	COM4	8.19	0.00	6511.00	PRESSURE TESTED IRON TO 6,500 PSI. KICKOUTS SET @ 500 PSI, KICKED OUT @ 700 PSI, 5TH GEAR STALL OUT @ 1,865 PSI. 6,500 PRESSURE TEST KICKED OUT @ 6,470 PSI
Event	11	Pump Spacer 1	Pump Spacer 1	6/24/2019	16:24:02	COM4	8.08	0.00	-5.00	PUMP 60 BBLS OF FDP SPACER @ 10.5 LB/GAL, 6.17 CUFT/SK, 39.6 GALL/SK. 20 GALS D-AIR, 45 GALLONS OF DUAL B, 45 GALLONS OF MUSOL A, AND .8 OF A GALLON OF BIOCID. HOS CALCULATED @ 1,252.6'. TOS CALCULATED @ 643.4'. DENSITY VERIFIED BY PRESSURIZED MUD SCALES. PUMP RATE 6 BBLS/MIN @ 410 PSI.
Event	12	Drop Bottom Plug	Drop Bottom Plug	6/24/2019	16:33:53	COM4	10.56	5.50	280.00	PLUG LEFT CONTAINER, VERIFIED BY CO. MAN.

Event	13	Pump Lead Cement	Pump Lead Cement	6/24/2019	16:34:16	COM4	10.83	5.50	337.00	PUMPED 640 SKS OF GASSTOP @ 13.2 LB/GAL, 1.56 FT3/SK, 7.73 GAL/SK. 177.82 BBLS. HOL CALCULATED @ 5,736.6', TOL CALCULATED @ 1,896'. DENSITY VERIFIED BY PRESSURIZED MUD SCALES. PUMP RATE 5 BBLS/MIN @ 240 PSI
Event	14	Check Weight	Check Weight	6/24/2019	16:36:28	COM4	13.45	5.50	421.00	
Event	15	Pump Tail Cement	Pump Tail Cement	6/24/2019	17:08:38	COM4	13.12	5.50	243.00	PUMP 660 SKS OF ECONOCEM @ 13.5 LB/GAL, 1.68 FT3/SK, 8 GAL/SK, 197.48 BBLS. HOT CALCULATED @ 6,390.9', TOT CALCULATED @ 7,632.6'. DENSITY VERIFIED BY PRESSURIZED MUD SCALES. PUMP RATE 8 BBLS/MIN @ 650 PSI.
Event	16	Check Weight	Check Weight	6/24/2019	17:13:05	COM4	13.37	8.60	572.00	
Event	17	Shutdown	Shutdown	6/24/2019	17:36:39	USER	14.06	0.00	81.00	SHUTDOWN TO WASH LINES.
Event	18	Drop Top Plug	Drop Top Plug	6/24/2019	17:54:12	COM4	8.10	0.00	-2.00	PLUG LEFT CONTAINER, VERIFIED BY CO. MAN.
Event	19	Pump Displacement	Pump Displacement	6/24/2019	17:54:16	COM4	8.16	0.00	-2.00	BEGIN CALCULATED DISPLACEMENT OF 325.13 BBLS WITH FRESH WATER. MMCR IN THE FIRST 20 BBLS AND BIOCIDES THROUGHOUT. PUMP RATE 8 BPM @ 2,000 PSI. CAUGHT CEMENT @ 70 BBLS INTO DISPLACEMENT. NO SPACER TO SURFACE. SLOW RATE TO 3 BPM @



										305 BBLS INTO DISPLACEMENT.
Event	20	Bump Plug	Bump Plug	6/24/2019	18:43:51	COM4	8.22	0.00	3082.00	PLUG BUMPED AT CALCULATED DISPLACEMENT. 2,160 PSI PRESSURED UP TO 3,000 PSI. SHUTDOWN FOR 15 MINUTES.
Event	21	Shift Tool - Lower	Shift Tool - Lower	6/24/2019	18:59:27	USER	8.28	2.10	4772.00	SHEARED @ 4,772 PSI FOLLOWED BY A 3 BBL WET SHOE.
Event	22	Check Floats	Check Floats	6/24/2019	19:01:11	USER	8.17	0.00	967.00	RELEASED PRESSURE, FLOATS HELD, 2 BBLS BACK.
Event	23	End Job	End Job	6/24/2019	19:01:51	COM4	8.23	0.00	-1.00	STOP RECORDING JOB DATA.
Event	24	Post-Job Safety Meeting (Pre Rig-Down)	Post-Job Safety Meeting (Pre Rig-Down)	6/24/2019	19:10:00	USER				DISCUSSED POSSIBLE HAZARDS ASSOCIATED WITH WEATHER, LOCATION AND RIGGING DOWN IRON AND HOSES.
Event	25	Rig-Down Equipment	Rig-Down Equipment	6/24/2019	19:20:00	USER				RIG DOWN BULK AND MIXING EQUIPMENT.
Event	26	Rig-Down Completed	Rig-Down Completed	6/24/2019	21:10:00	USER				
Event	27	Pre-Convoy Safety Meeting	Pre-Convoy Safety Meeting	6/24/2019	21:20:00	USER				CREW DISCUSSED ROUTES HAZARDS AND COMMUNICATION WITH CREW.
Event	28	Crew Leave Location	Crew Leave Location	6/24/2019	21:30:00	USER				THANK YOU FOR USING HALLIBURTON – PRINCE PEREZ AND CREW.

## 3.0 Attachments

### 3.1 Anadarko JDB 15-5HZ Production.png

