

# HALLIBURTON

iCem<sup>®</sup> Service

**ANADARKO PETROLEUM CORP-EBUS**

United States of America, COLORADO

Date: Friday, June 28, 2019

**Anadarko Production JDB 15-6HZ**

Sincerely,

**Bryce Hinsch**

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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 15-6HZ** 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.

**Approximately 10 bbls of spacer were returned to surface.**

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**

## Cementing Job Summary

The Road to Excellence Starts with Safety

Sold To #: 300466		Ship To #: 3931153		Quote #: 0022596963		Sales Order #: 0905795574				
Customer: ANADARKO PETROLEUM CORP-EBUS				Customer Rep: WILL DRAKE						
Well Name: JDB			Well #: 15-6HZ		API/UWI #: 05-123-49213-00					
Field: WATTENBERG		City (SAP): IONE		County/Parish: WELD		State: COLORADO				
Legal Description: SE SE-15-1N-66W-553FSL-1079FEL										
Contractor:				Rig/Platform Name/Num: Akita 522						
Job BOM: 7523 7523										
Well Type: HORIZONTAL GAS										
Sales Person: HALAMERICA\HX41066				Srv Supervisor: Thomas Haas						
Job										
Formation Name										
Formation Depth (MD)		Top		Bottom						
Form Type				BHST						
Job depth MD		14363ft		Job Depth TVD		7534				
Water Depth				Wk Ht Above Floor		4 FT				
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	0	9.625	8.921	36		J-55	0	1926	0	1926
Casing	0	5.5	4.892	17	LTC	HCP110	0	14363	0	14363
Open Hole Section			7.875				1926	14363	1926	14363
Tools and Accessories										
Type	Size in	Qty	Make	Depth ft		Type	Size in	Qty	Make	
						Top Plug	5.5	1	HES	
Float Shoe	5.5			14353		Bottom Plug	5.5	1	HES	
Float Collar	5.5			14353						
						Plug Container	5.5	1	HES	
Fluid Data										
Stage/Plug #: 1										
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	FDP-C1337-18	SBM FDP-C1337-18 CEMENT SPACER SYS	60	bbl	10.5	6.17	39.6	6	2138	
0.75 gal/bbl		MUSOL(R) A, 5 GAL PAIL (100064220)								
0.25 gal/bbl		D-AIR 3000L, 5 GAL PAIL (101007444)								
90.94 lbm/bbl		BARITE, BULK (100003681)								

## Cementing Job Summary

0.75 gal/bbl		DUAL SPACER SURFACTANT B, 5 GAL PAIL (100003665)							
1 lbm/bbl		FE-2 (100001615)							
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	10.5 lb/gal Tuned Spacer III	Tuned Spacer III	50	bbl	10.5	6.19	41.4	8	1863
90.63 lbm/bbl		BARITE, BULK (100003681)							
1 lbm/bbl		FE-2 (100001615)							
37.50 gal/bbl		FRESH WATER							
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	7.73	8	4997
0.90 %		SCR-100 (100003749)							
5.23 Gal		FRESH WATER							
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	700	sack	13.5	1.68	7.99	8	5393
0.10 %		SA-1015, 50 LB SACK (102077046)							
8 Gal		FRESH WATER							
0.35 %		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
5	Biocide Water and MMCR	Biocide Water and MMCR	20	bbl	8.34				
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
6	Biocide Water	Biocide Water	313	bbl	8.34				
Cement Left In Pipe		Amount	N/A		Reason			Shoe Joint	

## *Cementing Job Summary*

Mix Water:	pH 7	Mix Water Chloride:	< 300 ppm	Mix Water Temperature:	80 °F
Cement Temperature:	N/A	Plug Displaced by:	FW 8.33 lb/gal	Disp. Temperature:	80 °F
Plug Bumped?	Yes	Bump Pressure:	2300 psi	Floats Held?	YES
Cement Returns:	N/A	Returns Density:	N/A	Returns Temperature:	N/A
<b>Comment</b> PLUG BUMP AT CALCULATED DISPLACEMENT, FINAL CIRCULATING PRESSURE @ 2300 PSI,PUMP 3 BBLS IN WET SHOE,FLOATS HELD 2 BBLS BACK. NO CEMENT TO SURFACE.					

## 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)	Pump Stg Tot (bbl)	Comments
Event	1	Call Out	Call Out	6/28/2019	03:00:00	USER					CREW CALLED OUT AT 0300 06/28/2019, REQUESTED ON LOCATION 0900 06/28/2019. CREW PICKED UP CEMENT, CHEMICALS (45GAL MUSOL, 45 GAL DUAL SPACER B, 30 GAL D-AIR), 100 LBS SUGAR, AND PLUG CONTAINER FROM FORT LUPTON, CO. BULK 660: 10867431/11645065 Bulk 660: 10866489/10988836 PUMP ELITE: 11645460/11897034 SOFT: 12051660/12040040
Event	2	Pre-Convoy Safety Meeting	Pre-Convoy Safety Meeting	6/28/2019	07:45:00	USER					DISCUSSED ROUTES, HAZARDS, AND COMMUNICATION WITH CREW
Event	3	Crew Leave Yard	Crew Leave Yard	6/28/2019	08:00:00	USER					STARTED JOURNEY MANAGEMENT.

Event	4	Arrive At Loc	Arrive At Loc	6/28/2019	08:30:00	USER					END JOURNEY MANAGEMENT. MEET WITH CO. MAN TO DISCUSS JOB; SURFACE CASING: 9.625" 36# @ 1926 CASING: 5.5" 17# @ 14363', 10' SHOE JOINT, 7 7/8" OPEN HOLE, TVD @ 7534', 9.4 PPG WELL FLUID, FRESH WATER DISPLACEMENT.
Event	5	Pre-Rig Up Safety Meeting	Pre-Rig Up Safety Meeting	6/28/2019	09:00:00	USER					HAZARD HUNT. DISCUSSED POSSIBLE HAZARDS ASSOCIATED WITH LOCATION, RIG UP AND WEATHER.
Event	6	Rig-Up Equipment	Rig-Up Equipment	6/28/2019	09:10:00	USER					CREW STAGED EQUIPMENT AND RIGGED UP BULK, IRON, AND WATER HOSES TO PERFORM JOB.
Event	7	Pre-Job Safety Meeting	Pre-Job Safety Meeting	6/28/2019	10:45:00	USER	8.37	0.00	6.00	15.80	MEETING WITH HALLIBURTON AND RIG PERSONNEL. COMMUNICATED POTENTIAL SAFETY HAZARDS AND JOB DETAILS.
Event	8	Start Job	Start Job	6/28/2019	11:19:44	COM4	3.63	0.00	7.00	0.00	START JOB DATA RECORDING.
Event	9	Test Lines	Test Lines	6/28/2019	11:21:22	COM4	8.24	0.00	221.00	1.90	PRESSURE TESTED IRON TO 6500 PSI. KICKOUTS SET @ 500 PSI, KICKED OUT @ 376 PSI, 5TH GEAR STALL OUT @ 2100 PSI.
Event	10	Pump Spacer 1	Pump Spacer 1	6/28/2019	11:25:26	COM4	8.31	0.00	145.00	0.00	PUMP 60 BBLS OF SPACER @ 10.5 LB/GAL, ADDED 45 GAL MUSOL A, 45 GAL DUAL SPACER B, 5 GAL D-AIR,



											DENSITY VERIFIED BY PRESSURIZED MUD SCALES.
Event	11	Pump Spacer 2	Pump Spacer 2	6/28/2019	11:34:43	COM4	10.50	8.50	836.00	60.20	PUMP 50 BBLS OF TUNED SPACER @ 10.5 LB/GAL, , DENSITY VERIFIED BY PRESSURIZED MUD SCALES.
Event	12	Drop Bottom Plug	Drop Bottom Plug	6/28/2019	11:35:58	COM4	10.36	8.50	758.00	10.60	PLUG LEFT PLUG CONTAINER, VERIFIED BY COMPANY MAN.
Event	13	Pump Lead Cement	Pump Lead Cement	6/28/2019	11:41:04	COM4	13.13	8.50	791.00	0.10	PUMP 640 SKS OF GASSTOP @ 13.2 LB/GAL, 1.56 YIELD, 7.73 GAL/SK, 178 BBLS, CALCULATED TOL @ 1863', MIX WATER MIXED WITH 1600 GAL OF LATEX AND 25 GAL D-AIR, DENSITY VERIFIED BY PRESSURIZED MUD SCALES.
Event	14	Pump Tail Cement	Pump Tail Cement	6/28/2019	12:01:43	COM4	13.09	8.50	483.00	174.10	PUMP 700 SKS OF ECONOCEM @ 13.5 LB/GAL, 1.68 YIELD, 7.99 GAL/SK, 209 BBLS, CALCULATED TOT @ 7599', DENSITY VERIFIED BY PRESSURIZED MUD SCALES.
Event	15	Shutdown	Shutdown	6/28/2019	12:28:41	COM4	14.17	0.00	38.00	219.80	SHUTDOWN TO DROP TOP PLUG, AND CLEAN PUMPS/LINES.
Event	16	Drop Top Plug	Drop Top Plug	6/28/2019	12:36:17	COM4	16.23	0.00	0.00	229.80	PLUG LEFT PLUG CONTAINER, VERIFIED BY COMPANY MAN.
Event	17	Pump Displacement	Pump Displacement	6/28/2019	12:36:39	COM4	14.89	0.00	0.00	229.80	BEGIN CALCULATED DISPLACEMENT OF 333 BBLS WITH FRESH WATER. MMCR AND BIOCID ADDED TO 1ST 20 BBLS.

Event	18	Bump Plug	Bump Plug	6/28/2019	13:17:41	COM4	8.21	0.00	2696.00	342.70	PLUG BUMPED AT CALCULATED DISPLACEMENT, FINAL CIRCULATING PRESSURE OF 2300 PSI. 10 BBLS OF SPACER BACK TO SURFACE.
Event	19	Other	CASING TEST	6/28/2019	13:18:11	USER	8.22	0.00	2958.00	343.10	5 MIN CASING TEST AT 3000 PSI.
Event	20	Other	SHIFT TOOL	6/28/2019	13:22:47	USER	8.25	0.00	3157.00	343.10	PRESSURE UP TO SHIFT WET SHOE SUB, TOOL SHIFTED AT 4800 PSI.
Event	21	Other	WET SHOE	6/28/2019	13:22:58	USER	8.25	2.60	3237.00	343.30	PUMP A 3 BBL WET SHOE.
Event	22	Other	CHECK FLOATS	6/28/2019	13:24:20	USER	8.19	5.00	2437.00	348.10	RELEASED PRESSURE BACK TO THE TRUCK, FLOATS HELD, 2 BBL BACK.
Event	23	End Job	End Job	6/28/2019	13:25:26	COM4	8.15	0.00	-9.00	0.00	END JOB DATA RECORDING.
Event	24	Pre-Rig Down Safety Meeting	Pre-Rig Down Safety Meeting	6/28/2019	13:30:00	USER	7.37	0.00	0.00	0.00	DISCUSSED POSSIBLE HAZARDS ASSOCIATED WITH WEATHER, LOCATION AND RIGGING DOWN IRON AND HOSES.
Event	25	Rig-Down Completed	Rig-Down Completed	6/28/2019	14:30:00	USER					ALL HALLIBURTON ITEMS WERE STOWED FOR TRAVEL.
Event	26	Pre-Convoy Safety Meeting	Pre-Convoy Safety Meeting	6/28/2019	14:35:00	USER					DISCUSSED ROUTES HAZARDS AND COMMUNICATION WITH CREW.
Event	27	Crew Leave Location	Crew Leave Location	6/28/2019	14:40:00	USER					THANK YOU FOR USING HALLIBURTON - THOMAS HAAS AND CREW.

## 3.0 Attachments

### 3.1 Anadarko Production JDB 15-6HZ-Custom Results

