

HALLIBURTON

iCem[®] Service

ANADARKO PETROLEUM CORP-EBUS

Date: Thursday, July 25, 2019

JDB 15-10HZ Production

Job Date: Saturday, July 13, 2019

Sincerely,

Justin Lansdale

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1.0 Cementing Job Summary

1.1 Executive Summary

Halliburton appreciates the opportunity to perform the cementing services on the **JDB 15-10HZ** 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

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*Cementing Job Summary**The Road to Excellence Starts with Safety*

The Road to Excellence Starts With Safety			
Sold To #: 300466	Ship To #: 3931055	Quote #: 0022601234	Sales Order #: 0905830965
Customer: ANADARKO PETROLEUM CORP-EBUS		Customer Rep: Bret Curtis	
Well Name: JDB		Well #: 15-10HZ	API/UWI #: 05-123-49218-00
Field: WATTENBERG	City (SAP): IONE	County/Parish: WELD	State: COLORADO
Legal Description: SE SE-15-1N-66W-494FSL-1065FEL			
Contractor:		Rig/Platform Name/Num: Akita 522	
Job BOM: 7523 7523			
Well Type: HORIZONTAL GAS			
Sales Person: HALAMERICA\HX41066		Srvc Supervisor: Prince Perez	

Job

Formation Depth (MD)	Top 0'	Bottom	13,443'
Job depth MD	13432ft	Job Depth TVD	7,430'
Water Depth		Wk Ht Above Floor	5'

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	1901	0	1901
Casing		5.5	4.892	17	LTC	HCP110	0	13432	0	7430
Open Hole Section			7.875				1901	13443	1901	7430

Tools and Accessories

Type	Size in	Qty	Make	Depth ft	Type	Size in	Qty	Make
Guide Shoe	5.5	1		13,432	Top Plug	5.5	1	
Float Shoe	5.5				Bottom Plug	5.5	1	
Float Collar	5.5	1		13,423	SSR plug set	5.5		
Insert Float	5.5				Plug Container	5.5	1	HES
Stage Tool	5.5				Centralizers	5.5	253	

Fluid Data**Stage/Plug #: 1**

Fluid #	Stage Type	Fluid Name	Qty	Qty UoM	Mixing Density lbm/gal	Yield ft ³ /sack	Mix Fluid Gal	Rate bbl/min	Total Mix Fluid Gal
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 ft ³ /sack	Mix Fluid Gal	Rate bbl/min	Total Mix Fluid Gal
2	Spacer (No Surfactants)	SBM FDP-C1337-18 CEMENT SPACER SYS	50	bbl	10.5	6.19	41.4	5	1,878

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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
3	Lead	GASSTOP (TM) SYSTEM	640	sack	13.2	1.56	7.71	6	4,934
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	ECONOCER (TM) SYSTEM	590	sack	13.5	1.679	8	6	4,720
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 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
6	Displacement	Biocide Water	291.4	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:		75 °F
Cement Temperature:		## °F	Plug Displaced by:		8.33 lb/gal		Disp. Temperature:		75 °F
Plug Bumped?		Yes	Bump Pressure:		2,100 psi		Floats Held?		Yes
Cement Returns:		0 bbl	Returns Density:		9.5 lb/gal		Returns Temperature:		## °F
Comment									
Pumped 60 bbls of FDP Spacer with 45 gallons of Dual B, 45 gallons of Musol A, and .8 of a gallon of Biocide.									
Pumped 50 bbls of FDP spacer without surfactants.									
Pumped 177.8 bbls of Gasstop with 1,813 gallons of Latex.									
Pumped 176.4 bbls of Econocem.									
Pumped 311.4 bbls of fresh water displacement with 10 gallons of MMCR in the first 20 bbls and biocide throughout.									
Pumped a 3 bbl wet shoe.									
2 bbls back on the floats.									
No spacer back.									

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Created: Thursday, July 25, 2019

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	7/12/2019	15:00:00	USER	CREW CALLED OUT AT 15:00, REQUESTED ON LOCATION 21:00. CREW PICKED UP CEMENT, CHEMICALS, AND PLUG CONTAINER FROM FT. LUPTON, CO. BULK 660, 10867439, AND PUMP 11189145.
Event	2	Pre-Convoy Safety Meeting	Pre-Convoy Safety Meeting	7/12/2019	18:50:00	USER	CREW DISCUSSED ROUTES, HAZARDS, AND COMMUNICATION WITH CREW.
Event	3	Crew Leave Shop	Crew Leave Shop	7/12/2019	19:00:00	USER	STARTED JOURNEY MANAGEMENT.
Event	4	Arrive at Location from Service Center	Arrive at Location from Service Center	7/12/2019	19:10:00	USER	END JOURNEY MANAGEMENT. MEET WITH CO. MAN TO DISCUSS JOB; SURFACE CASING- 9/58" 36 LB/FT @ 1,901', 5.5" CASING: 17 LB/FT TOTAL 13,432.4', 7 7/8" HOLE, TD 13,443', 9.4' SHOE TRAC, TVD- 7,430'. PUMP FRESH WATER DISPLACEMENT. CASING LANDED @ 22:15 7/13/2019.

Event	5	Safety Meeting - Assessment of Location	Safety Meeting - Assessment of Location	7/12/2019	19:20:00	USER	HAZARD HUNT. DISCUSSED POSSIBLE HAZARDS ASSOCIATED WITH LOCATION, RIG UP AND WEATHER.
Event	6	Rig-Up Equipment	Rig-Up Equipment	7/12/2019	19:30:00	USER	RIG UP BULK AND MIXING EQUIPMENT.
Event	7	Rig-Up Completed	Rig-Up Completed	7/12/2019	22:50:00	USER	
Event	8	Pre-Job Safety Meeting	Pre-Job Safety Meeting	7/12/2019	23:15:00	USER	MEETING WITH HALLIBURTON AND RIG PERSONNEL. COMMUNICATED POTENTIAL SAFETY HAZARDS AND JOB DETAILS.
Event	9	Start Job	Start Job	7/12/2019	23:45:33	COM4	BEGIN RECORDING JOB DATA.
Event	10	Test Lines	Test Lines	7/12/2019	23:58:07	COM4	PRESSURE TESTED IRON TO 6,500 PSI. KICKOUTS SET @ 500 PSI, KICKED OUT @ 900 PSI, 5TH GEAR STALL OUT @ 1,970 PSI. 6,500 PRESSURE TEST KICKED OUT @ 6,600 PSI

Event	11	Pump Spacer 1	Pump Spacer 1	7/13/2019	00:05:46	COM4	PUMP 60 BBLS OF FDP SPACER @ 10.5 LB/GAL, 6.17 CUFT/SK, 39.6 GALL/SK. 40 GALS D-AIR, 45 GALLONS OF DUAL B, 45 GALLONS OF MUSOL A. HOS CALCULATED @ 1,968'. 17 BBLS CALCULATED TO RETURN TO SURFACE. DENSITY VERIFIED BY PRESSURIZED MUD SCALES. PUMP RATE 6 BBLS/MIN @ 510 PSI. PUMP 50 BBLS OF FDP SPACER (NO SURFACTANTS) @ 10.5 LB/GAL, 6.19 CUFT/SK, 41.4 GALL/SK.
Event	12	Check Weight	Check Weight	7/13/2019	00:16:24	COM4	
Event	13	Drop Bottom Plug	Drop Bottom Plug	7/13/2019	00:22:51	COM4	PLUG LEFT CONTAINER, VERIFIED BY CO. MAN.
Event	14	Pump Lead Cement	Pump Lead Cement	7/13/2019	00:22:54	COM4	PUMPED 640 SKS OF GASSTOP @ 13.2 LB/GAL, 1.56 FT3/SK, 7.71 GAL/SK. WITH 1,813 GALLONF OF LATEX. 177.82 BBLS. HOL CALCULATED @ 5,754.7', TOL CALCULATED @ 7,722.7'. DENSITY VERIFIED BY PRESSURIZED MUD SCALES. PUMP RATE 7 BBLS/MIN @ 460 PSI
Event	15	Check Weight	Check Weight	7/13/2019	00:25:08	COM4	
Event	16	Check Weight	Check Weight	7/13/2019	00:42:31	COM4	

Event	17	Pump Tail Cement	Pump Tail Cement	7/13/2019	00:51:52	COM4	PUMP 590 SKS OF ECONOCEM @ 13.5 LB/GAL, 1.679 FT3/SK, 8 GAL/SK, 176.43 BBLS. HOT CALCULATED @ 5,709.7', TOT CALCULATED @ 7,722.7'. DENSITY VERIFIED BY PRESSURIZED MUD SCALES. PUMP RATE 8 BBLS/MIN @ 550 PSI.
Event	18	Check Weight	Check Weight	7/13/2019	00:54:05	COM4	
Event	19	Shutdown	Shutdown	7/13/2019	01:16:51	COM4	SHUTDOWN TO WASH LINES.
Event	20	Drop Top Plug	Drop Top Plug	7/13/2019	01:27:38	COM4	PLUG LEFT CONTAINER, VERIFIED BY CO. MAN.
Event	21	Pump Displacement	Pump Displacement	7/13/2019	01:27:40	COM4	BEGIN CALCULATED DISPLACEMENT OF 311.4 BBLS WITH FRESH WATER. MMCR IN THE FIRST 20 BBLS AND BIOCIDES THROUGHOUT. PUMP RATE 9 BPM @ 2,800 PSI. CAUGHT CEMENT @ 53 BBLS INTO DISPLACEMENT. NO SPACER TO SURFACE. SLOW RATE TO 3 BPM @ 290 BBLS INTO DISPLACEMENT.
Event	22	Bump Plug	Bump Plug	7/13/2019	02:07:54	COM4	PLUG BUMPED AT CALCULATED DISPLACEMENT. 2,171 PSI. PRESSURED UP TO 3,000 PSI. SHUTDOWN FOR 15 MINUTES.
Event	23	Shift Tool - Lower	Shift Tool - Lower	7/13/2019	02:28:48	USER	SHEARED @ 4,555 PSI FOLLOWED BY A 3 BBL WET SHOE.
Event	24	Check Floats	Check Floats	7/13/2019	02:30:29	USER	RELEASED PRESSURE, FLOATS HELD, 2 BBLS BACK.
Event	25	End Job	End Job	7/13/2019	02:31:38	COM4	STOP RECORDING JOB DATA.

Event	26	Post-Job Safety Meeting (Pre Rig-Down)	Post-Job Safety Meeting (Pre Rig-Down)	7/13/2019	02:40:00	USER	DISCUSSED POSSIBLE HAZARDS ASSOCIATED WITH WEATHER, LOCATION AND RIGGING DOWN IRON AND HOSES.
Event	27	Rig-Down Equipment	Rig-Down Equipment	7/13/2019	02:50:00	USER	RIG DOWN BULK AND MIXING EQUIPMENT.
Event	28	Rig-Down Completed	Rig-Down Completed	7/13/2019	05:10:00	USER	
Event	29	Pre-Convoy Safety Meeting	Pre-Convoy Safety Meeting	7/13/2019	05:20:00	USER	
Event	30	Crew Leave Location	Crew Leave Location	7/13/2019	05:30:00	USER	BULK TRUCKS LEFT LOCATION TO GET CEMENT FOR THE NEXT JOB.

3.0 Attachments

3.1 Anadarko JDB 15-10HZ-Custom Results (1).png

