

HALLIBURTON

iCem[®] Service

ANADARKO PETROLEUM CORP-EBUS

Ft. Lupton District, co

Date: Thursday, July 25, 2019

Anadarko JDB 15-2HZ Production

Job Date: Tuesday, June 11, 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 **Anadarko JDB 15-2HZ** 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

Sold To #: 300466		Ship To #: 0003931205		Quote #: 0022589738		Sales Order #: 0905757424				
Customer: ANADARKO PETROLEUM CORP-EBUS				Customer Rep: Anadarko Rep						
Well Name: JDB			Well #: 15-2HZ		API/UWI #: 05-123-49221-00					
Field: WATTENBERG		City (SAP): IONE		County/Parish: WELD		State: COLORADO				
Legal Description: SE SE-15-1N-66W-611FSL-1094FEL										
Contractor:				Rig/Platform Name/Num: Akita 522						
Job BOM: 7523 7523										
Well Type: HORIZONTAL GAS										
Sales Person: HALAMERICA\HX41066				Srvc Supervisor: Michael Herbig						
Job										
Formation Name										
Formation Depth (MD)		Top		Bottom						
Form Type				BHST						
Job depth MD		13610ft		Job Depth TVD						
Water Depth				Wk Ht Above Floor						
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		9.625	8.921	36		J-55	0	1894	0	1894
Casing		5.5	4.892	17	LTC	HCP110	0	13610	0	7522
Open Hole Section			7.875				1894	13610	1894	7522
Tools and Accessories										
Type	Size in	Qty	Make	Depth ft		Type	Size in	Qty	Make	
Guide Shoe	5.5			13610		Top Plug	5.5		HES	
Float Shoe	5.5					Bottom Plug	5.5		HES	
Float Collar	5.5					SSR plug set	5.5		HES	
Insert Float	5.5					Plug Container	5.5		HES	
Stage Tool	5.5					Centralizers	5.5		HES	
Fluid Data										
Stage/Plug #: 1										
Fluid #	Stage Type	Fluid Name			Qty	Qty UoM	Mixing Density lbm/gal	Yield ft3/sack	Mix Fluid Gal	Total Mix Fluid Gal
1	FDP-C1337-18	SBM FDP-C1337-18 CEMENT SPACER SYS			80	bbl	10.5	6.17		
1 lbm/bbl		FE-2 (100001615)								
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)								
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	7.62
0.90 %		SCR-100 (100003749)							
5.12 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
3	EconoCem	ECONOCEM (TM) SYSTEM	610	sack	13.5	1.68		6	7.98
0.10 %		SA-1015, 50 LB SACK (102077046)							
7.98 Gal		FRESH WATER							
0.40 %		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	0	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
5	Biocide Water	Biocide Water	0	bbl	8.34				
Cement Left In Pipe		Amount	11 ft			Reason		Shoe Joint	
Mix Water:		pH ##	Mix Water Chloride:## ppm			Mix Water Temperature:## °F °C			
Cement Temperature:		## °F °C		Plug Displaced by:## lb/gal kg/m3 XXXX			Disp. Temperature:## °F °C		
Plug Bumped?		Yes/No		Bump Pressure:#### psi MPa			Floats Held?Yes/No		
Cement Returns:		## bbl m3		Returns Density:## lb/gal kg/m3			Returns Temperature:## °F °C		
Comment									

2.0 Real-Time Job Summary

2.1 Job Event Log

Type	Seq. No.	Activity	Graph Label	Date	Time	Source	Comments
Event	1	Check Floats	Call Out	6/10/2019	18:00:00	USER	Crew notified at 18:00
Event	2	Event	Pre-Convoy safety meeting	6/10/2019	19:30:00	USER	All personnel present. Discuss driving hazards
Event	3	Crew Leave Yard	Crew Leave Yard	6/10/2019	20:00:00	USER	One elite, two 660's, One soft side, and one p/u leave yard for location.
Event	4	Arrive At Loc	Arrive At Loc	6/10/2019	20:30:00	USER	Rig running casing when crew arrived.
Event	5	Assessment Of Location Safety Meeting	assessment of location	6/10/2019	20:35:00	USER	TD 13610, FS 13599, FC 13597, CSG 5.5 17#, PC 9.625 36# 1920, OH 7.875, MUD 9.5.
Event	6	Pre-Rig Up Safety Meeting	Pre-Rig up Safety Meeting	6/10/2019	20:45:00	USER	All personnel present. JSA signed.
Event	7	Rig-Up Equipment	Rig-Up Equipment	6/10/2019	21:00:00	USER	Rig up pump and lines.
Event	8	Start Job	Start Job	6/11/2019	03:15:37	COM4	Start HES pumping unit.
Event	9	Test Lines	Test Lines	6/11/2019	03:19:01	COM4	Test lines 6500psi
Event	10	Pump Spacer 1	Pump Spacer 1	6/11/2019	03:30:24	COM4	Pump 60bbls spacer at 3.5bpm 270psi at 10.5ppg, 6.17yld, 39.6gal/sk. Weight verified using pressurized mud scale. Calculated TOS 668

Event	11	Pump Lead Cement	Pump Lead Cement	6/11/2019	03:48:29	COM4	Pumped 178 bbls lead cement at 7bpm 560psi. 13.2ppg, 1.56yld, 7.62gal/sk. Weight verified using pressurized mud scale. Calculated TOL 1920
Event	12	Check Weight	Check Weight	6/11/2019	04:01:19	USER	Check weight. Weight verified using pressurized mud scale.
Event	13	Pump Tail Cement	Pump Tail Cement	6/11/2019	04:14:03	COM4	Pumped 183 bbls tail cement at 7bpm 640psi. 13.5ppg, 1.68yld, 7.98gal/Sk. Weight verified using pressurized mud scale. Calculated TOT 7680.
Event	14	Shutdown	Shutdown, End cement	6/11/2019	04:47:25	USER	Shutdown, End cement.
Event	15	Clean Lines	Clean Lines	6/11/2019	04:48:33	USER	Clean lines.
Event	16	Drop Top Plug	Drop Top Plug	6/11/2019	04:49:59	USER	Drop top plug, Witnessed by company man.
Event	17	Pump Displacement	Pump Displacement	6/11/2019	04:51:12	COM4	Pump displacement 10bpm 300psi
Event	18	Resume	Caught cement	6/11/2019	04:59:00	USER	Caught cement 65bbls away 1360psi
Event	19	Slow Rate	Slow Rate	6/11/2019	05:24:39	USER	Slow rate prior to bump
Event	20	Bump Plug	Bump Plug	6/11/2019	05:30:11	COM4	Bump plug, 316bbls away 1980 to 3320psi held for 10minutes.
Event	21	Resume	Resume	6/11/2019	05:40:43	USER	Resume pumping 3bbl wet shoe.
Event	22	Check Floats	Check Floats	6/11/2019	05:43:58	USER	Check floats. 2bbls back.
Event	23	End Job	End Job	6/11/2019	05:44:59	COM4	End HES pumping unit.
Event	24	Pre-Rig Down Safety Meeting	Rig Down Lines	6/11/2019	06:00:00	USER	All personnel present. JSA signed.

Event	25	Rig-Down Equipment	Rig-Down Equipment	6/11/2019	06:15:00	USER	Rig down pump and lines.
Event	26	Event	Pre-Convoy safety meeting	6/11/2019	08:00:00	USER	All personnel present. JSA signed.
Event	27	Depart Location	Depart Location	6/11/2019	08:15:00	USER	Crew leave location.

3.0 Attachments

3.1 Job Chart

