HALLIBURTON

iCem® Service

PDC ENERGY EBUS

Date: Wednesday, December 20, 2017

High Plains 25A-341 Production

Job Date: Tuesday, November 28, 2017

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 **High Plains 25A-341** 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 #: 304535	**Ship To #:** 3806232	**Quote #:** 0022377922	**Sales Order #:** 0904455695
Customer: PDC ENERGY-EBUS		**Customer Rep:** Antonio Barrientos	
Well Name: HIGH PLAINS	**Well #:** 25A-341		**API/UWI #:** 05-123-44976-00
Field: WATTENBERG	**City (SAP):** KERSEY	**County/Parish:** WELD	**State:** COLORADO
Legal Description: NW NW-25-5N-65W-1024FNL-748FWL			
Contractor: ENSIGN DRLG		**Rig/Platform Name/Num:** ENSIGN 158	
Job BOM: 7523 7523			
Well Type: HORIZONTAL OIL			
Sales Person: HALAMERICA\HX38199		**Srvc Supervisor:** Luke Kosakewich	

Job

Formation Name				
Formation Depth (MD)	**Top**		**Bottom**	
Form Type			**BHST**	
Job depth MD	17880ft		**Job Depth TVD**	6836
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			0	1679	0	1679
Casing		5.5	4.778	20			0	17878	0	6836
Open Hole Section			8.5				1679	17880	1679	6836

Tools and Accessories

Type	Size in	Qty	Make	Depth ft		Type	Size in	Qty	Make
Guide Shoe						**Top Plug**	5.5	1	Weatherford
Float Shoe	5.5			17878		**Bottom Plug**			
Float Collar	5.5			17846		**SSR plug set**			
Insert Float						**Plug Container**	5.5	1	HES
Stage Tool						**Centralizers**			

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	Mud Flush III (Powder)	Mud Flush III	70	bbl	8.4			6	

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	Mud Flush III 2x	Mud Flush III	30	bbl	8.4			6	

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	13.2# ElastiCem	ELASTICEM (TM) SYSTEM	2590	sack	13.2	1.57		8	7.52

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	MMCR Displacement	MMCR Displacement	20	bbl	8.34			8	

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 fluid	Fresh Water	376.2	bbl	8.34			10	

Cement Left In Pipe	**Amount**	0 ft	Reason	**Wet Shoe**

Comment There was full returns throughout the job. Got 56 bbls. of Mud Flush III spacer to surface. Floats held. Got 2 bbls. of fluid back to truck. Estimated TOC is 919'. Pumped a 5 bbls. wet shoe.

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	11/27/2017	15:00:00	USER	Crew was called out at 15:00 for an on location time of 20:00.
Event	2	Depart Location Safety Meeting	Depart Location Safety Meeting	11/27/2017	18:30:00	USER	Crew held a pre journey safety meeting and JSA.
Event	3	Depart Shop for Location	Depart Shop for Location	11/27/2017	18:35:00	USER	Started journey management with dispatch and left location.
Event	4	Arrive at Location from Service Center	Arrive at Location from Service Center	11/27/2017	19:30:00	USER	Crew performed a site assessment and hazard hunt on location. Checked in with the customer and discussed the job procedures, rig up and well bore schematics to calculate the job. The rig was runing casing.
Event	5	Other	Other	11/27/2017	19:45:00	USER	W
Event	6	Pre-Rig Up Safety Meeting	Pre-Rig Up Safety Meeting	11/27/2017	20:00:00	USER	The crew held a pre rig up safety meeting and JSA.
Event	7	Rig-Up Equipment	Rig-Up Equipment	11/27/2017	20:10:00	USER	The crew rigged up all lines, hoses and equipment for the job.
Event	8	Safety Meeting	Safety Meeting	11/27/2017	22:00:00	USER	All personnel on location held a pre job safety meeting and JSA.
Event	9	Start Job	Start Job	11/28/2017	01:55:06	COM4	Pumped 5 bbls. of fresh water to fill lines and establish circulation.
Event	10	Test Lines	Test Lines	11/28/2017	01:59:47	COM4	Pressure tested lines to 4,900 psi. with a 500 psi. electronic kick out test.
Event	11	Pump Spacer 1	Pump Spacer 1	11/28/2017	02:04:38	COM4	Pumped 70 bbls. of Mud Flush III. Pumped 30 bbls. of Mud Flush III with double concentration.
Event	12	Pump Cement	Pump Cement	11/28/2017	02:45:05	COM4	Pumped 724 bbls. (2590 sks.) of Elasticem mixed at 13.2 ppg.,Yield: 1.57 ft3/sks, 7.52

							gal/sks. Density was verified by pressurized scales.
Event	13	Check Weight	Check weight	11/28/2017	03:03:54	COM4	Cement weight up at 13.2 ppg.
Event	14	Check Weight	Check weight	11/28/2017	03:50:15	COM4	Cement weight up at 13.2 ppg.
Event	15	Check Weight	Check weight	11/28/2017	04:14:22	COM4	Cement weight up at 13.2 ppg.
Event	16	Shutdown	Shutdown	11/28/2017	04:56:07	COM4	Shutdown and the rig blew the iron down to the wash up pit.
Event	17	Clean Lines	Clean Lines	11/28/2017	04:58:26	COM4	Washed pumps and lines until clean.
Event	18	Drop Top Plug	Drop Top Plug	11/28/2017	04:58:30	COM4	Dropped the top plug, which was witnessed by the customer.
Event	19	Pump Displacement	Pump Displacement	11/28/2017	05:12:19	COM4	Pumped 396.2 bbls. of fresh water with MMCR in the first 20 bbls. and Biocide throughout the rest of displacement.
Event	20	Bump Plug	Bump Plug	11/28/2017	06:08:44	COM4	B
Event	21	Pressure Up Well	Pressure Up Well	11/28/2017	06:12:43	COM4	Pressured up the well to 3,908 psi. to burst the plug. Pumped 5 bbls. for a wet shoe.
Event	22	Other	Other	11/28/2017	06:14:51	COM4	Bled off pressure to check floats. Floats held. Got 2 bbls. of fluid back to the truck.
Event	23	End Job	End Job	11/28/2017	06:15:57	COM4	Washed pumps and lines until clean.

Event	24	Pre-Rig Down Safety Meeting	Pre-Rig Down Safety Meeting	11/28/2017	17:38:42	USER	Halliburton cement crew held a pre rig down safety meeting and JSA.
Event	25	Rig-Down Equipment	Rig-Down Equipment	11/28/2017	17:38:50	USER	Rigged down all lines, hoses and equipment.
Event	26	Depart Location Safety Meeting	Depart Location Safety Meeting	11/28/2017	17:39:00	USER	Held a pre journey safety meeting with the crew.
Event	27	Depart Location for Service Center or Other Site	Depart Location for Service Center or Other Site	11/28/2017	17:39:04	USER	Started journey management with dispatch and left location.