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1.0 Cementing Job Summary

1.1 Executive Summary

Halliburton appreciates the opportunity to perform the cementing services on the **Barclay Farms 28-HZ** 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 20 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

The Road to Excellence Starts with Safety

Sold To #: 300466		Ship To #: 3959491		Quote #: 0022618417		Sales Order #: 0905932814					
Customer: ANADARKO PETROLEUM CORP-EBUS				Customer Rep: WILL DRAKE							
Well Name: BARCLAY FARMS			Well #: 28-1HZ			API/UWI #: 05-123-50092-00					
Field: WATTENBERG		City (SAP): PLATTEVILLE		County/Parish: WELD		State: COLORADO					
Legal Description: NE NE-28-3N-66W-319FNL-957FEL											
Contractor: AKITA DRLG				Rig/Platform Name/Num: AKITA 522							
Job BOM: 7523 7523											
Well Type: HORIZONTAL GAS											
Sales Person: HALAMERICA\HX41066				Srv Supervisor: Vitali Neverdasov							
Job											
Formation Name											
Formation Depth (MD)		Top		Bottom							
Form Type				BHST							
Job depth MD		18412ft		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	1932	0	1932	
Casing	0	5.5	4.892	17	LTC	HCP110	0	18412	0	7422	
Open Hole Section			7.875				1860	18422	1932	7422	
Tools and Accessories											
Type	Size in	Qty	Make	Depth ft		Type	Size in	Qty	Make		
Guide Shoe	5.5					Top Plug	5.5	1	WHED		
Float Shoe	5.5	1	NA	18412		Bottom Plug	5.5	1	WHED		
Float Collar	5.5	1	NA	18408		SSR plug set	5.5				
Insert Float	5.5					Plug Container	5.5	1	HES		
Stage Tool	5.5					Centralizers	5.5	265	NA		
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		5	
1 lbm/bbl		FE-2, 2000 LB BAG - (1005549)									
90.94 lbm/bbl		BARITE, BULK (100003681)									

0.75 gal/bbl		DUAL SPACER SURFACTANT B, 5 GAL PAIL (100003665)							
0.50 gal/bbl		D-AIR 3000L, 5 GAL PAIL (101007444)							
0.75 gal/bbl		MUSOL(R) A, 5 GAL PAIL (100064220)							
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	FDP-C1337-18 (No Surfactants)	SBM FDP-C1337-18 CEMENT SPACER SYS	55	bbl	10.5	6.19		5	
1 lbm/bbl		FE-2, 2000 LB BAG - (1005549)							
90.63 lbm/bbl		BARITE, BULK (100003681)							
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	7.61
0.55 %		SCR-100, 2000 LB BAG - (1005967)							
5.11 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	ECONOCHEM (TM) SYSTEM	1130	sack	13.5	1.69		8	8.08
0.10 %		SA-1015, 50 LB SACK (102077046)							
8.08 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			8	
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	407	bbl	8.34			8	
Cement Left In Pipe		Amount	0 ft			Reason		WET SHOE	
Comment: 20 BBLs OF SPACER BACK TO SURFACE. CALCULATED TOP OF LEAD @ 1751'. TOP OF TAIL @ 7405'.									

2.0 Real-Time Job Summary

2.1 Job Event Log

Type	Seq. No.	Activity	Graph Label	Date	Time	Source	PS Pump Press (psi)	DH Density (ppg)	Comb Pump Rate (bbl/min)	Pump Stg Tot (bbl)	Comments
Event	1	Call Out	Call Out	8/27/2019	07:30:00	USER					ON LOCATION @ 13:00.
Event	2	Depart from Service Center or Other Site	Depart from Service Center or Other Site	8/27/2019	11:15:00	USER					
Event	3	Arrive at Location from Service Center	Arrive at Location from Service Center	8/27/2019	11:55:00	USER					18 MILES. RIG IS RUNNING CASING. DISCUSS NUMBERS AND JOB PROCEDURE WITH CUSTOMER. NUMBERS PROVIDED BY CUSTOMER: 7 7/8 " PRODUCTION HOLE @ 18422'. 5 1/2" CASING SET @ 18412'. 5 1/2" WET SHOE SUB @ 18408'. TVD 7422'. MUD 9.6. 9 5/8" 36# SURFACE CASING @ 1932'.
Event	4	Other	SPOT TRUCKS	8/27/2019	12:05:00	USER					SPOT TRUCKS
Event	5	Pre-Rig Up Safety Meeting	Pre-Rig Up Safety Meeting	8/27/2019	12:15:00	USER					JSA PRIOR SPOTTING EQUIPMENT AND RIGGING UP
Event	6	Other	RIG UP	8/27/2019	12:20:00	USER					RIG UP ALL SURFACE LINES AND BULK TO THE BUFFER ZONE . PRIME UP CEMENT PUMP AND PRE OPEN SURFACTANS.
Event	7	Other	Veryfied cement and water	8/27/2019	12:30:00	USER					VERYFIED CEMENT AND WATER VOLUMES ON LOCATION.
Event	8	Casing on Bottom	Casing on Bottom	8/27/2019	19:55:00	USER					CASING LANDED. LOADED BOTH PLUGS VERYFIED BY

CUSTOMER. RIG UP
CEMENT HEAD AND
MANIFOLD FOR RIG TO
CIRCULATE THRU. VERIFIED
RATE AND PRESSURE WITH
DRILLER. 1902 PSI @ 11
BPM.

DISCUSS HAZARDS, JOB
PROCEDURE AND
CONTINGENCY PLAN WITH
ALL PERSONAL INVOLVED.

LOAD LINE WITH 3 BBLS OF
FRESH WATER AND TEST TO
6420 PSI.

BATCH/ WEIGHT/ PUMP
115 BBLS OF FDP SPACER @
10.5 PPG. FIRST 60 BBLS
WITH 45 GAL OF MUSOL
AND 45 GAL DUAL B. 451
PSI @ 5.0 BPM.

DROP BOTTOM PLUG AFTER
PUMPING SPACER
VERYIFIED BY CUSTOMER.

WEIGHT/ PUMP 640 SKS
(177.8 BBLS) OF GASSTOP
CEMENT@ 13.2 PPG USING
1600 GAL OF LATEX AND
3270.4 GAL OG WATER. 408
PSI @ 7 BPM. CALCULATED
TOP @ 1751'.

WEIGHT/ PUMP 1130 SKS
(340.1 BBLS) OF ECONOCEM
@ 13.5 PPG. 502 PSI @ 8.0

Event	9	Pre-Job Safety Meeting	Pre-Job Safety Meeting	8/27/2019	21:15:00	USER					
Event	10	Start Job	Start Job	8/27/2019	21:39:57	COM4	7.00	9.29	0.00	0.00	
Event	11	Pressure Test	Pressure Test	8/27/2019	21:44:00	USER	4181.00	8.95	0.00	3.70	
Event	12	Check Weight	Check Weight	8/27/2019	21:45:00	USER	6381.00	9.33	0.00	3.70	
Event	13	Pump Spacer	Pump Spacer	8/27/2019	21:50:00	USER	381.00	11.55	2.90	2.00	
Event	14	Drop Bottom Plug	Drop Bottom Plug	8/27/2019	22:16:00	USER	4.00	10.47	0.00	114.70	
Event	15	Pump Lead Cement	Pump Lead Cement	8/27/2019	22:18:00	USER	136.00	12.49	3.50	116.00	
Event	16	Check Weight	Check Weight	8/27/2019	22:23:44	COM4	545.00	13.28	6.40	20.20	
Event	17	Pump Tail Cement	Pump Tail Cement	8/27/2019	22:47:00	USER	399.00	13.27	7.00	178.80	

BPM. CALCULATED TOP OF
TAIL AT 7405'.

Event	18	Check Weight	Check Weight	8/27/2019	22:51:55	COM4	434.00	13.20	7.00	25.00	
Event	19	Shutdown	Shutdown	8/27/2019	23:36:00	USER	185.00	13.36	4.20	353.30	FINISHED PUMPING CEMENT.
Event	20	Clean Lines	Clean Lines	8/27/2019	23:39:00	USER	9.00	13.49	0.00	353.70	BLOW DOWN AND WASH PUMPS AND LINES PRIOR TO DISPLACEMENT.
Event	21	Drop Top Plug	Drop Top Plug	8/27/2019	23:48:00	USER	39.00	1.33	2.90	367.70	DROP TOP PLUG VERYFYED BY CUSTOMER.
Event	22	Pump Displacement	Pump Displacement	8/27/2019	23:50:00	USER	0.00	8.80	0.00	0.00	427.1 BBLS OF FRESH WATER DISPLACEMENT. FIRST 20 BBLS WIRH MMCR, REMAINING WITH BIOCID. LAST 50 BBLS FRESH WATER.
Event	23	Bump Plug	Bump Plug	8/28/2019	00:44:00	USER	2894.00	8.32	0.00	446.10	BUMP PLUG @ 2907 PSI .FINAL LIFT PRESSURE 2275 PSI.
Event	24	Other	SHIFT WET SHOE SUB	8/28/2019	00:47:00	USER	2627.00	8.36	0.00	446.10	WET SHOE SUB WAS SHIFTED BY IT SELF @ 3000 PSI WHILE HOLDING CASING PRESSURE TEST. PUMPED 3 BBLS WET SHOE.
Event	25	Shutdown	Shutdown	8/28/2019	00:48:00	USER	1788.00	8.31	0.00	446.10	
Event	26	Check Floats	Check Floats	8/28/2019	00:49:00	USER	2127.00	8.32	2.50	448.10	FLOATS HELD. 2.5 BBLS BACK.
Event	27	End Job	End Job	8/28/2019	00:52:28	COM4	4.00	8.34	0.00	0.00	
Event	28	Pre-Rig Down Safety Meeting	Pre-Rig Down Safety Meeting	8/28/2019	00:55:00	USER	4.00	8.37	0.00	0.00	HELD JSA PRIOR TO RIG DOWN WITH CEMENT CREW.

3.0 Attachments

3.1 BARCLAY FARMS 28-1HZ .png

