

HALLIBURTON

iCem[®] Service

VERDAD RESOURCES LLC

United States of America, COLORADO

For: Jason

Date: Monday, April 08, 2019

WELD

Operator Stephen Sandstrom Elite 11189145

Job Date: Monday, April 08, 2019

Sincerely,

Steve Markovich

Legal Notice

Disclaimer:

All information in this report is provided subject to the terms and conditions which govern the services provided by Halliburton. Halliburton personnel use their best efforts in gathering information and their best judgment in interpreting it, but any interpretation, research, analysis or recommendation furnished by Halliburton are opinions based upon inferences from measurements and empirical relationships and assumptions, which inferences and empirical relationships and assumptions are not infallible, and with respect to which professionals in the industry may differ. iCem 3D Displacement results are used to understand how fluids intermix during a cement job. Simulation and 3D displacement results are not intended as and should not be used as a replacement for bond logs in determining top of cement. Current 3D model calculations are known to model more volume than the input volume for standard cases due to known calculation improvements required. For rotational cases, the modeled volume will be impacted by the same calculations impacting the standard cases, as well as additional constraints imposed to make the calculation time required operationally feasible. Therefore, until further notice, 3D displacement results should not be used for replacement of a bond log, or used as an identifier of top of cement. HALLIBURTON IS UNABLE TO GUARANTEE THE ACCURACY OF ANY CHART INTERPRETATION, RESEARCH ANALYSIS, OR JOB RECOMMENDATION and any interpretation or recommendation is not for use of or reliance upon by any third party. The customer has full responsibility for any of its decisions which are based on the information provided in this report.

Table of Contents

1.0 Cementing Job Summary 4

 1.1 Executive Summary4

2.0 Real-Time Job Summary 8

 2.1 Job Event Log8

3.0 Attachments..... 11

 3.1 Timbro 9-59 8A-9-8-Custom Results.png11

1.0 Cementing Job Summary

1.1 Executive Summary

Halliburton appreciates the opportunity to perform the cementing services on the cement 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 0 bbls of cement 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 #: 380688		Ship To #: 3898700		Quote #:		Sales Order #: 0905611468					
Customer: VERDAD RESOURCES LLC				Customer Rep: Jason							
Well Name: TIMBRO 9-59			Well #: 8A-9-8		API/UWI #: 05-123-47562-00						
Field: WILDCAT		City (SAP): KEOTA		County/Parish: WELD		State: COLORADO					
Legal Description: SW NW-8-9N-59W-1867FNL-475FWL											
Contractor: H & P DRLG				Rig/Platform Name/Num: H & P 290							
Job BOM: 7523 7523											
Well Type: HORIZONTAL OIL											
Sales Person: HALAMERICA\HX38199				Srv Supervisor: Steven Markovich							
Job											
Formation Name											
Formation Depth (MD)		Top		Bottom							
Form Type				BHST							
Job depth MD		16439ft		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			0	1907		1907	
Casing		5.5	4.778	20			0	16439		0	
Open Hole Section			8.5				1907	16462	0	6379	
Tools and Accessories											
Type	Size in	Qty	Make	Depth ft		Type	Size in	Qty	Make		
Guide Shoe	5.5			16439		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	Rate bbl/min	Total Mix Fluid Gal

1	FDP-C1337-18	SBM FDP-C1337-18 CEMENT SPACER SYS	60	bbbl	12.5	2.78			
201.71 lbm/bbl		BARITE, BULK (100003681)							
0.25 gal/bbl		D-AIR 3000L, 5 GAL PAIL (101007444)							
6 lbm/bbl		SEM-94P, 35 LB SACK - (1023987)							
6 lbm/bbl		SEM-93P, 35 LB SACK - (1023977)							
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	SBM FDP-C1337-18 CEMENT SPACER SYS	60	bbbl	12.5	2.71			
0.70 gal/bbl		DUAL SPACER SURFACTANT B, 5 GAL PAIL (100003665)							
0.70 gal/bbl		MUSOL(R) A, 5 GAL PAIL (100064220)							
207.29 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	ElastiCem	ELASTICEM (TM) SYSTEM	630	sack	13.2	1.57		4	7.55
0.30 %		SCR-100 (100003749)							
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	NeoCem	NeoCem TM	463.3	bbbl	13.2	2.04		4	9.75
9.75 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
5	MMCR Displacement	MMCR Displacement	20	bbbl	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	Displacement		337	bbbl	8.34				
Cement Left In Pipe		Amount	0 ft		Reason			Wet Shoe	
Mix Water:		pH 7	Mix Water Chloride: 0 ppm			Mix Water Temperature:		61°F °C	

Comment Pump 357bbls of H2O. First 20 bbls with MMCR then 337 with biocide. Pumped at 9bbl/min and slowed rate with pressure increase. Spacer to surface at 283bbls away bringing 74bbls of Spacer to surface. Bumped plug at 357bbls away, final lift pressure was 2518psi. Took pressure 500psi over and held. WSS sheered at 4602psi, increased rate to 4bbl/min and pumped a 4bbl wet shoe. Estimated Top of Tail Cement 5114', Estimated Top of Lead Cement 960'

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)	Pump Stg Tot (bbl)	PS Pump Press (psi)	Comments
Event	1	Call Out	Call Out	4/7/2019	11:00:00	USER					Job called out at 1100 with an on location time of 1800.
Event	2	Crew Leave Yard	Crew Leave Yard	4/7/2019	15:00:00	USER					JSA with HES crew on directions and road hazards on the way to location
Event	3	Arrive At Loc	Arrive At Loc	4/7/2019	17:45:00	USER					Arrived on location rig was still running casing. 2000' to run.
Event	4	Assessment Of Location Safety Meeting	Assessment Of Location Safety Meeting	4/7/2019	17:50:00	USER					JSA and hazard hunt with HES crew
Event	5	Start Job	Start Job	4/7/2019	21:41:32	COM4	8.19	0.00	8.80	-67.00	TD 16297' TP 16284.30' FC 16238.2' WSS 16179.88' 5 1/2" 20# Production Casing, 8 1/2" Open hole, 9 5/8" 36# Surface Casing set at 1900', TVD 6329'.
Event	6	Test Lines	Test Lines	4/7/2019	21:54:52	COM4	8.26	0.00	11.60	-2.00	Set kick outs to 500psi and check low pressure kick outs, then bring pressure up to 5000psi and hold,
Event	7	Check Weight	Check Weight	4/7/2019	22:05:58	COM4	8.30	0.00	12.60	15.00	Weight verified by pressurized scales.
Event	8	Pump Spacer 1	Pump Spacer 1	4/7/2019	22:07:14	COM4	8.30	0.00	12.60	14.00	Pump 60bbls of 12.5ppg 2.78yield FDP Spacer with additives.
Event	9	Pump Spacer 2	Pump Spacer 2	4/7/2019	22:25:55	COM4	12.41	6.50	0.10	153.00	Pump 60bbls of 12.5ppg 2.71yield FDP Spacer without additives.

Event	10	Check Weight	Check Weight	4/7/2019	22:26:41	COM4	11.28	6.50	5.00	93.00	Weight verified by pressurized scales.
Event	11	Drop Bottom Plug	Drop Bottom Plug	4/7/2019	22:35:12	USER	12.41	6.00	56.50	96.00	Plug pre-loaded into HES head. Plugs loaded and dropped in front of the company rep.
Event	12	Pump Lead Cement	Pump Lead Cement	4/7/2019	22:57:38	COM4	12.98	8.30	0.10	426.00	Pump 176bbbls (630sks) of 13.2ppg 1.57yield Lead Cement, Pumped at 8bbl/min 368psi.
Event	13	Check Weight	Check Weight	4/7/2019	22:57:42	COM4	12.98	8.30	0.60	425.00	Weight verified by pressurized scales.
Event	14	Pump Tail Cement	Pump Tail Cement	4/7/2019	23:10:08	COM4	13.32	8.00	0.10	395.00	Pump 463bbbls (1275sks) of 13.2ppg 2.04yield Tail Cement. Pumped at 8bbl/min 483psi.
Event	15	Check Weight	Check Weight	4/7/2019	23:10:58	COM4	13.17	8.00	6.60	438.00	Weight verified by pressurized scales.
Event	16	Shutdown	Shutdown	4/8/2019	00:11:46	COM4	14.92	0.00	478.10	13.00	Shutdown and clean pumps and lines.
Event	17	Drop Top Plug	Drop Top Plug	4/8/2019	00:33:37	COM4	7.81	0.00	487.90	-8.00	Plug pre loaded into HES head. Plugs loaded and dropped in front of the company rep.
Event	18	Pump Displacement	Pump Displacement	4/8/2019	00:33:41	COM4	7.94	0.00	487.90	-8.00	Pump 357bbbls of H2O. First 20 bbls with MMCR then 337 with biocide. Pumped at 9bbl/min and slowed rate with pressure increase. Spacer to surface at 283bbbls away bringing 74bbbls of Spacer to surface.
Event	19	Bump Plug	Bump Plug	4/8/2019	01:22:01	COM4	8.34	3.00	368.70	2518.00	Bumped plug at 357bbbls away, final lift pressure was 2518psi. Took pressure 500psi over and held.

Event	20	Other	Other	4/8/2019	01:26:41	COM4	8.33	0.00	369.20	2915.00	Kicked in pumps at 2bbls/min to sheer WSS.
Event	21	Other	Other	4/8/2019	01:27:44	COM4	8.40	2.10	371.20	4602.00	WSS sheered at 4602psi, increased rate to 4bbl/min and pumped a 4bbl wet shoe.
Event	22	Check Floats	Check Floats	4/8/2019	01:29:04	USER	8.33	0.00	375.60	2256.00	Opened releae line to check floats, after 2.5bbls back floats held.
Event	23	End Job	End Job	4/8/2019	01:30:15	COM4	8.26	0.00	375.60	5.00	Thank you Steve Markovich and crew.

3.0 Attachments

3.1 Timbro 9-59 8A-9-8-Custom Results.png

