

HALLIBURTON

iCem[®] Service

TRUE OIL LLC

Date: Monday, July 09, 2018

Thunder 5-64 15-16-1CHZ Production

Job Date: Monday, July 02, 2018

Sincerely,
Tyler Hill

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 Summary	4
2.0	Real-Time Job Summary	8
2.1	Job Event Log	8
3.0	Attachments.....	10
3.1	Thunder 5-64 15-16-1CHZ Production.png	10

1.0 Cementing Job Summary

1.1 Executive Summary

Halliburton appreciates the opportunity to perform the cementing services on the **Thunder 5-64 15-16-1CHZ** 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 28 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 Ft. Lupton

The Road to Excellence Starts with Safety

Sold To #: 306116	Ship To #: 3863325	Quote #: 0022459317	Sales Order #: 0904952226
Customer: TRUE OIL LLC		Customer Rep: MARK STONER	
Well Name: THUNDER		Well #: 5-64 15-16-1CHZ	API/UWI #: 05-005-07340-00
Field: WILDCAT	City (SAP): AURORA	County/Parish: ARAPAHOE	State: COLORADO
Legal Description: NE SE-15-5S-64W-2240FSL-440FEL			
Contractor: TRUE DRLG		Rig/Platform Name/Num: TRUE 33	
Job BOM: 7523 7523			
Well Type: HORIZONTAL OIL			
Sales Person: HALAMERICA\HB41307		Srvc Supervisor: Vitali Neverdasov	

Job

Formation Name			
Formation Depth (MD)	Top		Bottom
Form Type	BHST		
Job depth MD	17983ft	Job Depth TVD	7815
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	LTC	J-55	0	2141	0	2141
Casing	0	5.5	4.778	20	GB CD	P-110	0	17983	0	7815
Open Hole Section			8.5				2142	17991	2141	7815

Tools and Accessories

Type	Size in	Qty	Make	Depth ft	Type	Size in	Qty	Make
Guide Shoe	5.5				Top Plug	5.5	1	KLX
Float Shoe	5.5	1	N/A	17983	Bottom Plug	5.5	0	N/A
Float Collar	5.5	1	N/A	17957	SSR plug set	5.5		
Insert Float	5.5				Plug Container	5.5	1	HES
Stage Tool	5.5				Centralizers	5.5	195	N/A

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	Tuned Spacer III	Tuned Spacer III	60	bbl	12	3.16		4		
0.60 gal/bbl		MUSOL(R) A, 5 GAL PAIL (100064220)								
0.1250 gal/bbl		D-AIR 3000L, 5 GAL PAIL (101007444)								
176.58 lbm/bbl		BARITE, BULK (100003681)								

35.35 gal/bbl		FRESH WATER							
0.60 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	ElastiCem (Cap)	ELASTICEM (TM) SYSTEM	370	sack	13.2	1.573		8	7.52
0.90 %		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
3	ElastiCem (Super CBL)	ELASTICEM (TM) SYSTEM	730	sack	13.2	1.573		8	7.54
0.40 %		SCR-100 (100003749)							
0.25 lbm		POLY-E-FLAKE (101216940)							
0.10 %		SUPER CBL, 50 LB PAIL (100003668)							
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	1485	sack	13.2	2.036		8	9.71
0.08 %		SCR-100 (100003749)							
9.71 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	bbl	8.4			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	Displacement Fluid	Displacement Fluid	378	bbl	8.4			8	
0.25 gal/Mgal		CLA-WEB - BULK (101985043)							
0.15 lbm/Mgal		BE-6, 48 LB FIBER DRUM (100003800)							
Cement Left In Pipe	Amount	26 ft			Reason	Shoe Joint			

Comment : ESTIMATED TOP OF TAIL @ 4760'. TOP OF LEAD 2 @ 112'. CEMENT TO SURFACE 28 BBLS.

2.0 Real-Time Job Summary

2.1 Job Event Log

Type	Seq. No.	Activity	Graph Label	Date	Time	Source	DH Density <i>(ppg)</i>	Comb Pump Rate <i>(bbl/min)</i>	PS Pump Press <i>(psi)</i>	Comments
Event	1	Arrive at Location from Service Center	Arrive at Location from Service Center	7/2/2018	01:30:00	USER				47 MILES. Discussed numbers and job procedures with Customer. RIG IS RUNNING CASING. BROUGHT CEMENT HEAD AND MANIFOLD FOR RIG TO CIRCULATE THRU.
Event	2	Call Out	Call Out	7/2/2018	07:00:00	USER				CEMENT CREW @ 14:00
Event	3	Casing on Bottom	Casing on Bottom	7/2/2018	11:15:00	USER				CASING LANDED.
Event	4	Safety Meeting - Pre Rig-Up	Safety Meeting - Pre Rig-Up	7/2/2018	13:30:00	USER				JSA to discuss the hazards of rig-up
Event	5	Rig-Up Equipment	Rig-Up Equipment	7/2/2018	13:35:00	USER				Rig-up all surface lines and equipment.
Event	6	Pre-Job Safety Meeting	Pre-Job Safety Meeting	7/2/2018	15:15:00	USER	8.41	0.00	1.00	With all essential personnel, to discuss the hazards of pumping the job, and pump schedule.
Event	7	Start Job	Start Job	7/2/2018	15:38:55	COM4	8.43	0.00	2.00	
Event	8	Pump Spacer	Pump Spacer	7/2/2018	15:57:00	USER	11.92	3.20	139.00	BATCH/ WEIGH/PUMP 60 BBLS OF TUNED SPACER WITH SURFACTANS @ 12 PPG
Event	9	Check Weight	Check Weight	7/2/2018	16:07:21	COM4	11.95	4.00	79.00	
Event	10	Pump Cap Cement	Pump Cap Cement	7/2/2018	16:12:00	USER	13.23	5.90	193.00	BATCH/ WEIGHT PUMP 370 SKS (103.5 BBLS) OF ELASTICEM NO CBL @ 13.2 PPG

Event	11	Pump Lead Cement	Pump Lead Cement	7/2/2018	16:20:00	USER	13.04	6.00	186.00	BATCH/ WEIGHT/ PUMP 730 SKS (204.1 BBLS) OF ELASTICEM WITH CBL @ 13.2 PPG.
Event	12	Check Weight	Check Weight	7/2/2018	16:24:05	COM4	13.22	8.00	302.00	
Event	13	Pump Tail Cement	Pump Tail Cement	7/2/2018	16:58:00	USER	13.17	7.00	261.00	WEIGH/ PUMP 1485 SKS (539.5 BBLS) OF NEOCEM @ 13.2 PPG
Event	14	Shutdown	Shutdown	7/2/2018	18:11:00	USER	5.35	0.00	27.00	WASH/ PUMPS AND LINES
Event	15	Drop Top Plug	Drop Top Plug	7/2/2018	18:24:00	USER	8.31	0.00	18.00	loaded top plug in plug container.
Event	16	Pump Displacement	Pump Displacement - Start	7/2/2018	18:26:00	USER	8.29	8.00	131.00	399.2 bbls fresh water. FIRST 20 BBLS WITTH 10 GAL MMCR. REST OF DISPLACEMENT WITH CLA WEB AND BE 3.
Event	17	Slow Rate	Slow Rate	7/2/2018	19:16:00	USER	8.51	7.90	2738.00	SLOW RATE TO 3 BPM
Event	18	Bump Plug	Bump Plug	7/2/2018	19:23:00	USER	8.50	0.00	3028.00	BUMP PLUG @ 3037 PSI. 500 psi over final circulating pressure.
Event	19	Check Floats	Check Floats	7/2/2018	19:28:00	USER	8.47	0.00	1.00	Floats held. 4.5 bbls back
Event	20	End Job	End Job	7/2/2018	19:28:16	COM4	8.47	0.00	1.00	
Event	21	Pre-Rig Down Safety Meeting	Pre-Rig Down Safety Meeting	7/2/2018	19:35:00	USER	8.45	0.00	1.00	JSA to discuss the hazards of rig-down

3.0 Attachments

3.1 Thunder 5-64 15-16-1CHZ Production.png

