

# HALLIBURTON

iCem® Service

**MALLARD EXPLORATION LLC**

United States of America, COLORADO

**For: Larry Siegel**

Date: Monday, December 07, 2020

**Mallard Surface Blue Teal Fed 15-3-3HN**

Sincerely,

**Thomas Haas and Crew**

## Legal Notice

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### 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.

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## 1.0 Cementing Job Summary

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### 1.1 Executive Summary

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Halliburton appreciates the opportunity to perform the cementing services on the **Well Name and Number** cement **Job Type** 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 XX 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

# HALLIBURTON

Customer: MALLARD EXPLORATION LLC

Job: Mallard Surface Blue Teal Fed 15-3-3HN  
 Case: Mallard Surface Blue Teal Fed 15-3-3HN | SO#: 906839357

## 2.0 Real-Time Job Summary

### 2.1 Job Event Log

Type	Seq. No.	Activity	Graph Label	Date	Time	Source	DS Pump Press	DH Density	Comb Pump Rate	Pump Stg Tot	Comments
							(psf)	(ppg)	(bbl/min)	(bbl)	
Event	1	Arrive At Loc	Arrive At Loc	12/7/2020	08:25:09	USER					ON LOCATION FROM PREVIOUS JOB. MEET WITH CO. MAN TO DISCUSS JOB; SURFACE CASING: 36# 9.625" J-55 @ 1938', 42' SHOE JOINT, 13.5" OPEN HOLE, 8.5 PRG WELL FLUID, FRESH WATER DISPLACEMENT.
Event	2	Pre-Rig Up Safety Meeting	Pre-Rig Up Safety Meeting	12/7/2020	08:25:11	USER					HAZARD HUNT. DISCUSSED POSSIBLE HAZARDS ASSOCIATED WITH LOCATION, RIG UP AND WEATHER.
Event	3	Rig-Up Equipment	Rig-Up Equipment	12/7/2020	08:30:00	USER					CREW STAGED EQUIPMENT AND RIGGED UP BULK, IRON, AND WATER HOSES TO PERFORM JOB.
Event	4	Pre-Job Safety Meeting	Pre-Job Safety Meeting	12/7/2020	09:00:00	USER	-1.00	0.08	0.00	0.00	MEETING WITH HALLIBURTON AND RIG PERSONNEL. COMMUNICATED POTENTIAL SAFETY HAZARDS AND JOB DETAILS.
Event	5	Start Job	Start Job	12/7/2020	10:06:42	COM8	-8.00	8.49	0.00	0.00	START JOB DATA RECORDING.

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Event	Description	Date	Time	Code	Value	Rate	Balance	Notes
Event 6	Test Lines	12/7/2020	10:08:31	COM8	12.00	8.46	0.00	3.40
PRESSURE TESTED IRON TO 3600 PSI, KICKOUTS SET @ 500 PSI, KICKED OUT @ 500 PSI, 5TH GEAR STALL OUT @ 1900 PSI, IRON HAD A LEAK, FIXED RE-TESTED.								
Event 7	Pump Spacer 1	12/7/2020	10:14:23	COM8	8.00	8.42	0.00	3.70
PUMP 10 BBL OF FRESH WATER WITH RED DYE.								
Event 8	Pump Cement	12/7/2020	10:17:17	COM8	13.00	8.34	0.00	0.00
PUMP 600 SKS OF SWITCEM @ 13.5 LB/GAL, 1.74 YIELD, 9.17 GAL/SK, 186 BBLs, TOC @ SURFACE, DENSITY VERIFIED BY PRESSURIZED MUD SCALES.								
Event 9	Shutdown	12/7/2020	10:46:54	COM8	105.00	14.12	0.00	226.10
SHUTDOWN TO DROP TOP PLUG.								
Event 10	Drop Top Plug	12/7/2020	10:47:43	COM8	-38.00	-0.22	0.00	226.10
PLUG LEFT PLUG CONTAINER, VERIFIED BY COMPANY MAN.								
Event 11	Pump Displacement	12/7/2020	10:47:47	COM8	-39.00	-0.22	0.00	226.10
BEGIN PUMPING CALCULATED DISPLACEMENT OF 147 BBL FRESH WATER, 14 BBL OF CEMENT TO SURFACE.								
Event 12	Bump Plug	12/7/2020	11:09:47	COM8	1151.00	8.22	0.00	150.30
PLUG BUMPED AT CALCULATED DISPLACEMENT, FINAL CIRCULATING PRESSURE OF 600 PSI. BUMPED TO 1100 PSI.								
Event 13	Check Floats	12/7/2020	11:09:31	USER	1220.00	8.21	0.00	150.30
RELEASED PRESSURE BACK TO SURFACE, FLOATS HELD, .5 BBL BACK.								
Event 14	End Job	12/7/2020	11:10:02	COM8	-26.00	8.17	0.00	150.30
END JOB DATA RECORDING.								

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Customer: MALLARD EXPLORATION LLC  
 Job: Mallard Surface Blue Teal Fed 15-3-3HN  
 Case: Mallard Surface Blue Teal Fed 15-3-3HN | SO#: 906839357

Event	Description	Date	Time	User	Duration	Start Time	End Time	Notes
Event 15	Pre-Rig Down Safety Meeting	12/7/2020	11:15:00	USER	40.00	8:18	4:90	22.20 DISCUSSED POSSIBLE HAZARDS ASSOCIATED WITH WEATHER, LOCATION AND RIGGING DOWN IRON AND HOSES.
Event 16	Rig-Down Completed	12/7/2020	11:30:00	USER				ALL HALLIBURTON ITEMS WERE STOWED FOR TRAVEL.
Event 17	Pre-Convoy Safety Meeting	12/7/2020	11:40:00	USER				DISCUSSED ROUTES HAZARDS AND COMMUNICATION WITH CREW.
Event 18	Crew Leave Location	12/7/2020	12:00:00	USER				THANK YOU FOR USING HALLIBURTON - THOMAS HAAS AND CREW.



# HALLIBURTON

## 3.2 Mallard Surface Blue Teal Fed 15-3-3HN-Custom Results (1).png

Customer: MALLARD EXPLORATION LLC  
 Job: Mallard Surface Blue Teal Fed 15-3-3HN  
 Case: Mallard Surface Blue Teal Fed 15-3-3HN | SO#: 906893357

Mallard Surface Blue Teal Fed 15-3-3HN

Description	Actual Time (UTC-06:00:00)	D5 Pump Press (psi)	DH Density (ppg)	Comb Pump Rate (bbl/min)	Pump Stg Tot (bbl)
5 Start Job	10:06:42	-8.00	8.49	0.00	0.00
6 Test Lines	10:08:31	12.00	8.46	0.00	1.40
7 Pump Spacer 1	10:14:23	8.00	8.42	0.00	1.70
8 Pump Cement	10:17:17	13.00	8.34	0.00	0.00
9 Shutdown	10:46:54	705.00	14.32	0.00	236.10
10 Drop Top Plug	10:47:43	-188.00	-0.22	0.00	226.10
11 Pump Displacement	10:47:47	-19.00	-0.22	0.00	226.10
12 Bump Plug	11:09:17	715.00	8.22	0.00	150.30
13 Check Heads	11:09:31	1230.00	8.31	0.00	150.30
14 End Job	11:10:02	-26.00	8.17	0.00	150.30

Customer: MALLARD EXPLORATION LLC  
 Representative: Larry Siegel  
 Job Date: 12/7/2020  
 Sales Order #: 906893357

Well: Blue Teal Fed  
 Operator: Elise K. Belli 11045480

Created: 2020-12-07 09:23:11 (UTC-07:00) Version: 4.5.139

## Cementing Job Summary

The Road to Excellence Starts with Safety

Sold To #: 380921	Ship To #: 380921	Quote #:	Sales Order #: 0906839357
Customer: MALLARD EXPLORATION LLC-EBUS		Customer Rep: Larry Siegel	
Well Name: Mallard Blue Teal Fed	Well #: 15-3-3HN	API/UWI #:	
Field:	City (SAP): FT LUPTON	County/Parish: Weld	State: COLORADO
Legal Description:			
Contractor:		Rig/Platform Name/Num: Cartel 15	
Job BOM: 7521 7521			
Well Type: OIL & GAS WELL			
Sales Person: HALAMERICA\HB41307		Srcv Supervisor: Thomas Haas	

### Job

Formation Name	
Formation Depth (MD)	Top Bottom
Form Type	BHST
Job depth MD	1978ft Job Depth TVD 1938ft
Water Depth	Wk Ht Above Floor 6ft
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
Open Hole Section			13.5				0	1936	0	1936
Casing	0	9.625	8.921	36			0	1938	0	1938

### Tools and Accessories

Type	Size in	Qty	Make	Depth ft	Type	Size in	Qty	Make
Float Shoe	9.625	1	HES	1978	Top Plug	9.625	1	HES
					Plug Container	9.625	1	HES

### Fluid Data

Stage/Plug #: 1

Fluid #	Stage Type	Fluid Name	Qty	Qty UoM	Mixing Density lbm/gal	Yield ft <sup>3</sup> /sack	Mix Fluid Gal	Rate bbl/min	Total Mix Fluid Gal
1	Water with dye	Water with dye	10	bbl	8.34			5	

Fluid #	Stage Type	Fluid Name	Qty	Qty UoM	Mixing Density lbm/gal	Yield ft <sup>3</sup> /sack	Mix Fluid Gal	Rate bbl/min	Total Mix Fluid Gal
2	SwiftCem	SWIFTCEM (TM) SYSTEM	600	sack	13.5	1.74	9.17	8	5501
		9.17 Gal							FRESH WATER

## Cementing Job Summary

Fluid #	Stage Type	Fluid Name	Qty	Qty UoM	Mixing Density lbm/gal	Yield ft <sup>3</sup> /sack	Mix Fluid Gal	Rate bbl/mi n	Total Mix Fluid Gal	
3	Displacement	Displacement	147	bbl	8.34					
<b>Cement Left In Pipe</b>		<b>Amount</b>	42 ft		<b>Reason</b>			Shoe Joint		
<b>Mix Water:</b>		pH 7	<b>Mix Water Chloride:</b>		<300 ppm		<b>Mix Water Temperature:</b>			78 °F
<b>Cement Temperature:</b>		N/A	<b>Plug Displaced by:</b>		8.3 lb/gal F.W.		<b>Disp. Temperature:</b>			78 °F
<b>Plug Bumped?</b>		Yes	<b>Bump Pressure:</b>		600 psi		<b>Floats Held?</b>			Yes
<b>Cement Returns:</b>		14 bbl	<b>Returns Density:</b>		N/A		<b>Returns Temperature:</b>			N/A
<b>Comment</b> Plug bumped at calculated displacement, final circulating pressure of 600 psi, floats held, .5 bbl back to the truck. 14 bbl of cement to surface,										

# Summary Report

Crew: \_\_\_\_\_  
Job Start Date: 12/07/2020 10:00 AM

Sales Order #: 0906839357  
WO #: 0906839357  
PO #: N/A  
AFE #:

Customer: MALLARD EXPLORATION LLC-  
EBUS  
UWI / API Number:  
Well Name: Mallard Blue Teal Fed  
Well No: 15-3-3HN

Field:  
County/Parish: Weld  
State: COLORADO  
Latitude:  
Longitude:  
Sect / Twn / Rng: //

Job Type: CMT SURFACE  
CASING BOM  
Service Supervisor: Thomas Haas

Cust Rep Name: Larry Siegel  
Cust Rep Phone #:

Remarks:		
<b>The Information Stated Herein Is Correct</b>	Customer Representative Signature	Date
	Customer Representative Printed Name	