

# HALLIBURTON

iCem<sup>®</sup> Service

**VERDAD RESOURCES LLC-EBUS**

Ft. Lupton District, CO

**For: Steve Wilson/Joe Madsen**

Date: Thursday, March 09, 2023

**FAWN 2833-01H**

WELD COUNTY

Job Date: Thursday, March 09, 2023

Sincerely,

**Mike Loughran**

### 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

---

Cementing Job Summary .....	4
Executive Summary .....	4
Job Overview .....	<b>Error! Bookmark not defined.</b>
Water Field Test .....	<b>Error! Bookmark not defined.</b>
Actual Pump Schedule .....	<b>Error! Bookmark not defined.</b>
Real-Time Job Summary .....	7
Job Event Log .....	7
Attachments .....	9
FAWN 2833-01H-JOB CHART.png .....	<b>Error! Bookmark not defined.</b>

## 1.0 Cementing Job Summary

---

### 1.1 Executive Summary

---

Halliburton appreciates the opportunity to perform the cementing services on the **FAWN 2833-01H**. 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 35 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 Rockies Cement Team**

*The Road to Excellence Starts with Safety*

<b>Sold To #:</b> 380688	<b>Ship To #:</b> 9148532	<b>Quote #:</b>	<b>Sales Order #:</b> 0908464876
<b>Customer:</b> VERDAD RESOURCES LLC-EBUS		<b>Customer Rep:</b> Steve Wilson/Joe Madsen	
<b>Well Name:</b> FAWN 2833-01H,WELD	<b>Well #:</b> 9148532	<b>API/UWI #:</b> 05-123-51845-00	
<b>Field:</b>	<b>City (SAP):</b> MEAD	<b>County/Parish:</b> WELD	<b>State:</b> COLORADO
<b>Legal Description:</b>			
<b>Contractor:</b> PRECISION DRLG		<b>Rig/Platform Name/Num:</b> PRECISION 464	
<b>Job BOM:</b> 7523 7523			
<b>Well Type:</b> OIL			
<b>Sales Person:</b> HALAMERICA\HX41066		<b>Srvc Supervisor:</b> Mike Loughran	

**Job**

<b>Formation Name</b>			
<b>Formation Depth (MD)</b>	<b>Top</b>		<b>Bottom</b>
<b>Form Type</b>			<b>BHST</b>
<b>Job depth MD</b>	19110ft		<b>Job Depth TVD</b>
<b>Water Depth</b>			<b>Wk Ht Above Floor</b>
<b>Perforation Depth (MD)</b>			<b>To</b>

**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	8.835	36			0	2462	0	2462
Casing	0	5.5	4.778	20			0	19110	0	7458
Open Hole Section			8.5				2462	19146	2462	7458

**Tools and Accessories**

Type	Size in	Qty	Make	Depth ft		Type	Size in	Qty	Make
<b>Guide Shoe</b>	5.5					<b>Top Plug</b>	5.5	1	HES
<b>Float Shoe</b>	5.5	1	HES	19110		<b>Bottom Plug</b>	5.5	1	HES
<b>Float Collar</b>	5.5	1	HES	19065		<b>SSR plug set</b>	5.5		HES
<b>Insert Float</b>	5.5					<b>Plug Container</b>	5.5	1	HES
<b>Stage Tool</b>	5.5					<b>Centralizers</b>	5.5		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/mi n	Total Mix Fluid Gal
1	Tuned Prime Cement Spacer	TUNED PRIME CEMENT SPACER SYS	100	bbl	11.5	3.83	0	6	3544
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
2	ElastiCem	SBM CEM ELASTICEM™ SYS	1445	sack	13.2	1.6	7.68	8	11098
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	NeoCem™ Cement	NeoCem TM	1165	sack	13.2	2.03	9.72	8	11324
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
4	MMCR Displacement	MMCR Displacement	40	bbl	8.33	0	0	8	1680
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
5	Treated Water	Treated Water	373	bbl	8.34	0	0	8.4	16016
Cement Left In Pipe	Amount	50 ft		Reason				Shoe Joint	
Mix Water:	pH 7	Mix Water Chloride:	200 ppm		Mix Water Temperature:		72 °F		
Cement Temperature:		Plug Displaced by:	8.33 lb/gal		Disp. Temperature:				
Plug Bumped?	Yes	Bump Pressure:	2600 psi		Floats Held? <b>Yes</b>				
Cement Returns:	35bbl	Returns Density:			Returns Temperature:				
<b>Comment</b>									

2.0 Real-Time Job Summary

2.1 Job Event Log

Seq No.	Activity	Time	Comments
1	Call Out	06:30:00	CREW CALLED OUT 3/8/2023 0630 HRS. REQUESTED ON LOCATION 3/8/2023 1100 HRS.
2	Pre-Convoy Safety Meeting	10:00:00	DISCUSS ROUTE AND HAZARDS OF DRIVING
3	Crew Leave Yard	10:30:00	CREW LEAVES YARD
4	Arrive At Loc	11:15:00	ARRIVE AT LOCATION. MEET WITH CUSTOMER TD 19147', 20# P-110 SHOE 19110', F/C 19065', HOLE 8.5", TVD 8200', 36# J-55 SHOE 2462', OBM 9.8 PPTG, WATER 70 DEGREES,
5	Pre-Rig Up Safety Meeting	11:40:00	DISCUSS RIG-UP AND ANY HAZARDS THAT MAY EXIST
6	Rig-Up Equipment	11:45:00	RIG-UP EQUIPMENT
7	Pre-Job Safety Meeting	19:20:00	DISCUSS JOB PROCEDURES AND HAZARDS OF JOB, PRESSURE AND HAZARDS OF HES EQUIPMENT. RIG CIRCULATES 7.5 BPM/760 PSI
8	Start Job	19:42:23	BEGIN RECORDING DATA
9	Test Lines	19:45:34	TEST HES LINES 4500 PSI
10	Pump Spacer 1	19:56:06	<b>100 BBLs TUNED PRIME SPACER. 11.5 PPG</b>
11	Shutdown	20:15:22	SHUTDOWN TO DROP BOTTOM PLUG/MIX LEAD
12	Drop Bottom Plug	20:17:05	HES BOTTOM PLUG VERIFIED BY JOE

13	Pump Lead Cement	20:21:30	<b>1445 SACKS ELASTICEM LEAD CEMENT. 411.77 BBLs. 13.2 PPG, 1.6 YIELD, 7.68 GAL/SACK, TOLC=0'</b>
14	Pump Tail Cement	21:23:10	<b>1165 SACKS NEO CEM TAIL CEMENT. 421.20 BBLs, 13.2 PPG, 2.03 YIELD, 9.72 GAL/SACK. TOTC=8811' PRE-JOB CALCULATIONS</b>
15	Shutdown	22:09:24	SHUTDOWN TO FIX DENSITY
16	Shutdown	22:16:06	SHUTDOWN TO FIX DENSITY
17	Shutdown	22:27:16	SHUTDOWN TO CLEAN LINES
18	Clean Lines	22:30:05	CLEAN PUMPS AND LINES. APPROX 18 BBLs
19	Shutdown	22:37:17	SHUTDOWN
20	Drop Top Plug	22:39:12	TOP PLUG VERIFIED BY DRILLER
21	Pump Displacement	22:39:15	<b>421.34 BBLs FRESH WATER DISPLACEMENT. 1ST 40 BBLs HAS 20 GALLONS MICRO MATRIX CEMENT RETARDER. REMAINING HAS 20 GALLONS BELLACIDE 300W AND 15 GALLONS MC MX 820-6</b>
22	Bump Plug	23:29:33	<b>FCP 2600 PSI/4 BPM BUMP PRESSURE 3100 PSI</b>
23	Check Floats	23:35:51	<b>FLOATS HOLD, 5 BBLs BACK</b>
24	End Job	23:36:42	STOP RECORDING DATA
25	Pre-Rig Down Safety Meeting	23:40:55	DISCUSS HAZARDS OF RIG-DOWN AND ANY OTHER HAZARDS THAT MAY EXIST
26	Rig-Down Equipment	23:45:56	RIG-DOWN EQUIPMENT
27	Rig-Down Completed	00:17:00	RIG-DOWN COMPLETED
28	Crew Leave Location	00:45:00	CREW DEPARTS LOCATION. THANK YOU FOR CHOOSING HALLIBURTON.

3.0 Attachments

3.1 Real Time iCem Job Chart

