

# HALLIBURTON

iCem<sup>®</sup> Service

## **VERDAD RESOURCES LLC-EBUS**

Ft. Lupton District, Colorado

**For: Tim Jones**

Date: Tuesday, February 28, 2023

**FAWN**

Weld County

FAWN 2833-02H 5.5' PRODUCTION

Job Date: Tuesday, February 28, 2023

Sincerely,

**Cody Haley**

### 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 FAWN 2833-02H 5.5' PRODUCTION. 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> 0908453647
<b>Customer:</b> VERDAD RESOURCES LLC-EBUS		<b>Customer Rep:</b> Tim Jones	
<b>Well Name:</b> FAWN 2833-02H,WELD		<b>Well #:</b> 9148532	<b>API/UWI #:</b> 05-123-51849-00
<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> Cody Haley	

**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>	18740ft		<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	2395	0	2395
Casing	0	5.5	4.778	20			0	18740	0	7272
Open Hole Section			8.5				2395	18755	2395	7272

**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	18740	<b>Bottom Plug</b>	5.5	1	HES
<b>Float Collar</b>	5.5	1	HES	18671	<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	3543
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	1390	sack	13.2	1.6	7.68	8	10676
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	15666
Cement Left In Pipe	Amount	50 ft		Reason			Shoe Joint		
Mix Water:	pH 7	Mix Water Chloride:	200 ppm		Mix Water Temperature:		65 °F		
Cement Temperature:		Plug Displaced by:	8.33 lb/gal		Disp. Temperature:				
Plug Bumped?	Yes	Bump Pressure:	2750 psi		Floats Held?		Yes		
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	00:30:00	Crew called out at 0030 on 2/28/2023 for a requested-on location time of 0630 on 2/28/2023.
2	Safety Meeting	03:55:00	Pre convoy safety meeting discussed route to location and hazards of driving.
3	Crew Leave Yard	04:00:00	Crew Leaves yard in convoy at 0400 hrs.
4	Arrive At Loc	04:50:00	Crew arrived on location at 0450 hrs. Meet with costumer TD 18755', 8.5 OH, TP 18740 5.5' 20#, FC 18692', TVD 7272', P/C 2395' 9.625 36#, OBM WEIGHT 9.6 PPG.
5	Safety Meeting - Pre Rig-Up	09:00:00	Discuss hazards around rig up area.
6	Rig-Up Completed	10:30:00	Rig up completed.
7	Safety Meeting - Pre Job	11:30:00	Pre job safety meeting discussed all hazards prior to job and reviewed job procedure.
8	Start Job	11:57:29	Start recording data.
9	Test Lines	11:59:25	Pressure tested HES lines to 4500 psi. electronic kick outs working,
10	Pump Spacer 1	12:07:18	<b>Pumped 100 bbls of Tuned prime spacer @ 11.5ppg, 3.83ft3, 24.27gal/sack. Pre calculated mix gallons was 3543 gal.</b>
11	Drop Bottom Plug	12:18:15	Bottom plug verified by DSR.
12	Pump Lead Cement	12:19:28	<b>Pumped 396 bbls (1390 sk) of ElastiCem lead cement @ 13.2ppg, 1.6ft3, 7.68gal/sack. Pre calculated mix gallons was 10676 gal. HOLC= 8436'. Estimated 36 bbls of cement to surface.</b>
13	Check Weight	12:29:56	Weight verified by mud scales.

14	Check Weight	12:43:26	Weight verified by mud scales.
15	Pump Tail Cement	13:07:17	<b>Pumped 421 bbls (1165 sk) of NeoCem tail cement @ 13.2 ppg, 2.03ft3, 9.72 gal/sack. Pre calculated Mix gallons was 11324 gal. HOTC= 10318', TOTC= 8436'.</b>
16	Shutdown	13:55:39	Shutdown swap to wash up pit and wash pumps and lines with 20 bbls of fresh water.
17	Drop Top Plug	14:04:25	Top Plug verified by DSR.
18	Pump Displacement	14:04:28	<b>Pumped 413 bbls of freshwater displacement. First 40 bbls had 20 gal of MMCR added. 15 gal of MC MX 820-6 &amp; 20 gal of Bellacide 300W mixed threw out the rest of displacement.</b>
19	Bump Plug	14:53:14	<b>FCP @4bpm was 2750 psi bumped up to 3300 psi.</b>
20	Other	15:00:39	<b>5 bbls back to pump truck floats holding.</b>
21	End Job	15:00:43	Stop recording data.
22	Safety Meeting - Pre Rig-Down	15:10:00	Discuss blow down and any new hazards that could have come up during job.
23	Rig-Down Completed	16:30:00	Rig down completed.
24	Pre-Convoy Safety Meeting	16:45:00	Fit for duty check and check road conditions.
25	Crew Leave Location	17:00:00	Crew departs location. Thank you for using Halliburton.

3.0 Attachments

3.1 Real Time iCem Job Chart

