

# HALLIBURTON

iCem® Service

## EXTRACTION OIL & GAS-EBUS

### SCHLOTTHAUER 23E-20-3N

Surface Casing

Job Date: Sunday, October 18, 2020

Sincerely,

**MIKE LOUGHRAN**

## 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 .....

7

2.1

Job Event Log .....

7

3.0

Attachments.....

9

3.1

Job Chart.....

9

## 1.0 Cementing Job Summary

---

### 1.1 Executive Summary

---

Halliburton appreciates the opportunity to perform the cementing services on the Schlotthauer 23E-20-3N surface casing. 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 18 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*

<b>Sold To #:</b> 369404		<b>Ship To #:</b> 3919047		<b>Quote #:</b>		<b>Sales Order #:</b> 0906762933				
<b>Customer:</b> EXTRACTION OIL & GAS-EBUS				<b>Customer Rep:</b> BLAINE DUNLAVY						
<b>Well Name:</b> SCHLOTTHAUER			<b>Well #:</b> 23E-20-3N			<b>API/UWI #:</b> 05-123-48591-00				
<b>Field:</b> WATTENBERG		<b>City (SAP):</b> SEVERANCE		<b>County/Parish:</b> WELD		<b>State:</b> COLORADO				
<b>Legal Description:</b> SW SW-23-7N-67W-352FSL-1252FWL										
<b>Contractor:</b>				<b>Rig/Platform Name/Num:</b> Cartel 15						
<b>Job BOM:</b> 7521										
<b>Well Type:</b> HORIZONTAL OIL										
<b>Sales Person:</b> HALAMERICA\HX41066				<b>Srv Supervisor:</b> Michael Loughran						
<b>Job</b>										
<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>		1623ft		<b>Job Depth TVD</b>						
<b>Water Depth</b>				<b>Wk Ht Above Floor</b>						
<b>Perforation Depth (MD)</b>		<b>From</b>			<b>To</b>					
<b>Well Data</b>										
<b>Description</b>	<b>New / Used</b>	<b>Size in</b>	<b>ID in</b>	<b>Weight lbm/ft</b>	<b>Thread</b>	<b>Grade</b>	<b>Top MD ft</b>	<b>Bottom MD ft</b>	<b>Top TVD ft</b>	<b>Bottom TVD ft</b>
Open Hole Section			13.5				0	1623		
Casing		9.625	8.921	36			0	1623		
<b>Tools and Accessories</b>										
<b>Type</b>	<b>Size in</b>	<b>Qty</b>	<b>Make</b>	<b>Depth ft</b>		<b>Type</b>	<b>Size in</b>	<b>Qty</b>	<b>Make</b>	
<b>Float Shoe</b>	9.625			1623		<b>Top Plug</b>	9.625	1	HES	
<b>Float Collar</b>	9.625			1578		<b>Bottom Plug</b>	9.625	0	HES	
						<b>Plug Container</b>	9.625	1	HES	

Fluid Data									
Stage #: 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	Water with dye	Water with dye	20	bbl	8.34			5	
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	SwiftCem	SWIFTCEN (TM) SYSTEM	550	sack	13.5	1.74	9.17	8	5044
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	Displacement	Displacement	122	bbl	8.34			9	
Cement Left In Pipe		Amount	45 ft		Reason			Shoe Joint	
Mix Water:		pH 7	Mix Water Chloride:		LESS 200 ppm		Mix Water Temperature:		55 °F
Cement Temperature:			Plug Displaced by:		8.33 lb/gal		Disp. Temperature:		
Plug Bumped?		Yes	Bump Pressure:		1200 psi		Floats Held?		Yes
Cement Returns:			Returns Density:				Returns Temperature:		
Comment TOC=0"									

## 2.0 Real-Time Job Summary

## 2.1 Job Event Log

Type	Seq. No.	Activity	Graph Label	Date	Time	Source	Cmb Pump Rate (bbl/min)	Pump A Pressure (psi)	Dwnhole Density (ppg)	Cmb Stg Total (bbl)	Comments
Event	1	Crew Leave Yard	Crew Leave Yard	10/17/2020	16:30:00	USER					CREW PICKS UP CEMENT
Event	2	Arrive At Loc	Arrive At Loc	10/17/2020	17:30:00	USER					ARRIVE AT LOCATION, TD 1623', 9.625" CASING 1623', 13.5" HOLE, F/C 1578' WATER 55 DEGREES, PH 7, CHLORIDES AND SULFATES LESS THAN 200 PPM
Event	3	Call Out	Call Out	10/17/2020	18:00:00	USER					CREW CALLED OUT WHILE ON LOCATION AT 1800 HRS.
Event	4	Pre-Rig Up Safety Meeting	Pre-Rig Up Safety Meeting	10/17/2020	22:00:00	USER					PRE-RIG UP SAFETY MEETING
Event	5	Rig-Up Equipment	Rig-Up Equipment	10/17/2020	22:05:00	USER					RIG UP ALL IRON AND HOSES TO BUFFER ZONE
Event	6	Pre-Job Safety Meeting	Pre-Job Safety Meeting	10/17/2020	23:00:00	USER	0.00	-7.75	8.40	0.00	DISCUSS JOB HAZARDS AND HAZARDS WITH HALLIBURTON EQUIPMENT
Event	7	Start Job	Start Job	10/17/2020	23:16:31	NONE	0.00	-9.54	7.64	0.00	BEGIN RECORDING DATA
Event	8	Test Lines	Test Lines	10/17/2020	23:17:58	NONE	0.00	46.71	8.46	2.43	TEST LINES 3000 PSI
Event	9	Pump Spacer 1	Pump Spacer 1	10/17/2020	23:21:02	NONE	0.00	30.01	8.44	0.00	20 BBL SPACER WITH 1/3 BOTTLE GREEN DYE
Event	10	Pump Cement	Pump Cement	10/17/2020	23:25:36	NONE	1.61	113.08	8.39	0.01	550 SACKS SWIFTCEN, 170.44 BBL. 13.5#, 1.74 YIELD, 9.17 GAL/SACK
Event	11	Shutdown	Shutdown	10/17/2020	23:48:39	NONE	0.00	121.88	13.76	157.00	SHUTDOWN
Event	12	Drop Top Plug	Drop Top Plug	10/17/2020	23:49:41	NONE	0.00	-7.49	31.24	157.00	VERIFIED BY CUSTOMER
Event	13	Pump Displacement	Pump Displacement	10/17/2020	23:49:57	NONE	1.64	4.52	20.30	0.01	122 BBL. FRESH WATER DISPLACEMENT
Event	14	Bump Plug	Bump Plug	10/18/2020	00:06:20	NONE	4.23	613.75	7.52	119.64	FCP 580 PSI @ 4 bpm, 1200 PSI BUMP PRESSURE. 18 BBL. CEMENT TO SURFACE. TOC=0"
Event	15	Check Floats	Check Floats	10/18/2020	00:06:51	USER	0.00	1326.14	7.55	120.35	FLOATS HOLD .5 BBL. BACK

Event	16	End Job	End Job	10/18/2020	00:07:23	NONE	0.00	36.27	7.47	120.35	STOP RECORDING DATA
Event	17	Pre-Rig Down Safety Meeting	Pre-Rig Down Safety Meeting	10/18/2020	00:08:00	USER	0.00	-5.40	7.48	120.35	JSA SAFE RIG DOWN
Event	18	Rig-Down Equipment	Rig-Down Equipment	10/18/2020	00:13:00	USER	0.00	-9.17	-0.95	14.62	RIG DOWN EQUIPMENT
Event	19	Crew Leave Location	Crew Leave Location	10/18/2020	01:00:00	USER					THANKS FOR CHOOSING HALLIBURTON!



3.0 Attachments

3.1 Job Chart

