

# HALLIBURTON

iCem<sup>®</sup> Service

## **CRESTONE PEAK RESOURCES**

Ft. Lupton District, COLORADO

**Sky Ranch 4-65 10-9-8-7 1BH Surface**

Job Date: Tuesday, September 26, 2023

Sincerely,

**Rafael Giorgana**

## 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.

## Table of Contents

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Cementing Job Summary .....	4
Executive Summary .....	4
Job Overview .....	5
Water Field Test .....	7
Actual Pump Schedule.....	7
Real-Time Job Summary .....	8
Job Event Log.....	8
Attachments.....	11
Case 1-Custom Results.png .....	11

## 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 - Job Type**. 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.

**This space is provided to enter in a brief summary of the job. Below are some important items to discuss:**

- **Quality of circulation – Prejob % , While pumping Cement % , While Pumping Displacement %**
- **Final Circulating Pressure and Pump Rate**
- **Returns to Surface**
- **Any deviation from plan**
- **Abnormalities on job chart**

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**

## 1.2 Job Overview

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Job Details	
API #:	05-005-07538
City, County:	WATKINS
SO#:	0908868806

Job Times		
	Date (mm/dd/yyyy)	Time (hh:mm)
Requested Time On Location:	9/25/2023	21:30
Called Out Time:	9/25/2023	15:30
Arrived On Location:	9/25/2023	21:00
Job Started:	9/25/2023	22:16
Job Completed:	9/26/2023	00:00
Departed Location:	9/26/2023	01:00

	Description	Units	Value
1	Surface temperature at the time of the job	degree F	59
2	Mud type (OBM, WBM, Synthetic, Water, Brine)	-	WBM
3	Mud density	ppg	8.9
4	Casing set depth (shoe)	ft	3,360
5	TVD	ft	3191
6	Float collar depth	ft	3,318
7	Length of rate hole	ft	10
8	Previous casing shoe depth	ft	80
9	Pre-job mud circulation time	hh:mm	21:30

10	Pre-job mud circulation rate	bpm	12.8
11	Pre-job mud circulation volume	bbls	384
12	Mud circulation pressure at start of cement	psi	600
13	Annual flow before the start of job	Y/N	YES
14	Pipe movement during cement job	Y/N	NO
15	Calculated displacement	bbls	256.5
16	Job displaced by	Rig/HES	HES
17	Estimated returns % during job	%	100
18	Fluid returns to surface	Spacer/Cement, bbls	54 BBLS Of Cement
19	Final circulation pressure, rate prior to plug bump	psi @ bpm	1,080
20	Number of Centralizers	-	26
21	Number of bottom plugs	-	0
22	Number of trucks used preparing/during job	-	4
23	Add hours? If Yes, put #	Y/N and hours	0
24	NPT? If Yes, put #	Y/N and hours	0

1.3 Water Field Test

	Recorded Value	Unit	Acceptable Limit	Potential Problems if Values Exceed the Limit
<b>pH</b>	7		6.0 - 8.0	Chemicals in water can cause severe retardation
<b>Temperature</b>	63	F	60 - 80 F	Can can pre-mature setting of cement
<b>Chlorides</b>	290	ppm	3000 ppm	Can shorten thickening time

1.4 Actual Pump Schedule

Stage 1

	Density (ppg)	Volume (bbls)	Yield (ft3/sk)	Water Requirement (gal/sk)	Bulk Sacks (sks)	Total Water (gals)
<b>Spacer Fluid</b>	8.33	20	N/A	N/A	N/A	840
<b>Cap Cement</b>						
<b>Lead Cement</b>	13.5	388	1.39	7.34	1567	11,502
<b>Tail Cement</b>						
<b>Top Plug</b>						
<b>Displacement Fluid</b>	8.33	256.5	N/A	N/A	N/A	10,773

2.0 Real-Time Job Summary

2.1 Job Event Log

Seq No.	Activity	Graph Label	Date	Time	Comments
1	Call Out	Call Out	9/25/2023	15:30:50	CIVITAS RESOURCES SKY RANCH #4-65 10-9-8-7 1BH 9 5/8" SURFACE CASING JOB - On location 09/25/23 @ 21:30 PM
2	Safety Meeting - Service Center or other Site	Safety Meeting - Service Center or other Site	9/25/2023	17:45:51	Review Journey Management And Route With Crew Members
3	Depart from Service Center or Other Site	Depart from Service Center or Other Site	9/25/2023	18:00:51	Depart From Yard
4	Arrive At Loc	Arrive At Loc	9/25/2023	21:00:52	Talk To Company Man ( ) : TD = 3,370', TP = 3,360', ST = 41.47', OH = 13.5", CSG = 9 5/8" 36#, Previous Casing 26" Set @ 80', WF = WBM @ 8.9#, Test Water = pH - 7, Chlorides - < 290 ppm, 62 F.
5	Safety Meeting - Assessment of Location	Safety Meeting - Assessment of Location	9/25/2023	21:05:53	Spot Equipment
6	Rig-Up Equipment	Rig-Up Plug Container	9/25/2023	21:10:59	Rig Up Plug Container And Rig Floor To Circulate With Rig Pumps. Rig Circulated From 21:30 PM To 22:00 PM At 540 GPM (12.8 BPM) With 600 psi, Good Returns.
7	Safety Meeting - Pre Rig-Up	Safety Meeting - Pre Rig-Up	9/25/2023	21:15:56	Review JSA With Crew Members
8	Rig-Up Completed	Rig-Up Completed	9/25/2023	21:25:58	Rigged Up All Iron And Hoses Needed For CMT Job With No Issues Or Incidents.

9	Rig-Up Equipment	Rig-Up Equipment	9/25/20 23	21:30:5 7	Rig Up Iron And Hoses Needed For Job
10	Safety Meeting - Pre Job	Safety Meeting - Pre Job	9/25/20 23	22:00:0 3	Review Job Procedure And JSA With Rig Hands, Co. Man, And HES Members
11	Start Job	Start Job	9/25/20 23	22:16:0 4	Start Job
12	Test Lines	Test Lines	9/25/20 23	22:18:5 7	Performed A 500 Kickout Test On Both Pumps The Tested Lines To 3000 psi, Good Test
13	Pump Spacer	Pump Spacer	9/25/20 23	22:21:3 5	Pumped 20 bbls Of Fresh Water With Green Dye At 3 BPM With 120 psi, Good Returns
14	Pump Cement	Pump Cement	9/25/20 23	22:26:3 4	Pump Cement 388 bbls 8.5 BPM With 630 psi, 1,567 Sacks With A Yield Of 1.39 And A Water Requirement Of 7.34 Gal/Sck (TOTAL MIX WATER IS 11,502 GALS) HOC=3,982 ft TOC= 0ft.
15	Check Weight	Check Weight	9/25/20 23	22:28:4 1	Performed A Weight Check With A Pressurized Mud Scale 13.5 PPG.
16	Drop Top Plug	Drop Top Plug	9/25/20 23	23:19:1 0	Drop Top Plug
17	Pump Displacement	Pump Displacement	9/25/20 23	23:19:5 2	Pumped Displacement Total Of 256.5 bbls Of Fresh Water
18	Pump Displacement	100 bbls Into Displacement	9/25/20 23	23:33:0 4	100 BBLS Gone Into Displacement 8.5 BPM With 800 psi, Good Returns
19	Pump Displacement	200 bbls Into Displacement	9/25/20 23	23:47:5 9	200 BBLS Gone Into Displacement 8. BPM With 1,190 psi, Good Returns
20	Cement Returns to Surface	Cement Returns to Surface	9/25/20 23	23:49:1 2	We got A Total Of 54 BBLS Of Good Cement Returns To Surface.
21	Bump Plug	Bump Plug	9/25/20 23	23:57:5 6	Bumped Plug With Calculated Displacement And Put 500 psi Over Final Circulating Pressure, Pressure Climbed From 1,080 To 1,600 psi.

22	Bleed Casing	Bleed Casing	9/25/20 23	23:58:0 4	Bled Pressure Back To Zero And Got 1.5 bbls Back
23	Check Floats	Check Floats	9/25/20 23	23:59:2 8	Floats Held Good.
24	End Job	End Job	9/26/20 23	00:00:5 3	End Job.
25	Safety Meeting - Pre Rig-Down	Safety Meeting - Pre Rig-Down	9/26/20 23	00:10:0 6	Review JSA With HES Crew Members
26	Rig-Down Equipment	Rig-Down Equipment	9/26/20 23	00:20:1 0	Rig Down Iron, Plug Container, And Hoses Used On Job
27	Rig-Down Completed	Rig-Down Complete	9/26/20 23	00:50:1 1	All Equipment Rigged Down With No Issues Or Incidents
28	Safety Meeting - Departing Location	Safety Meeting - Departing Location	9/26/20 23	00:55:1 2	Review Journey Management And Route With Crew Members
29	Depart Location	Depart Location	9/26/20 23	01:00:1 3	Depart location

3.0 Attachments

3.1 Case 1-Custom Results.png



