

HALLIBURTON

iCem[®] Service

CRESTONE PEAK RESOURCES-EBUS

Ft. Lupton District, CO

Cosslett East 1E-22H-H168 Production

Job Date: Thursday, April 27, 2023

Sincerely,

Meghan Van Zyl

Legal Notice

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1.0 Cementing Job Summary

1.1 Executive Summary

Halliburton appreciates the opportunity to perform the cementing services on the **Cosslett East 1E-22H-H168 – 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 5 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

1.2 Job Overview

Job Details	
API #:	05-123-51953
City, County:	BERTHOUD, WELD

Job Times		
	Date (mm/dd/yyyy)	Time (hh:mm)
Requested Time On Location:	4/26/2023	2030
Called Out Time:	4/26/2023	1400
Arrived On Location:	4/26/2023	1910
Job Started:	4/27/2023	0211
Job Completed:	4/27/2023	0600
Departed Location:	4/27/2023	0800

	Description	Units	Value
1	Surface temperature at the time of the job	degree F	40
2	Mud type (OBM, WBM, Synthetic, Water, Brine)	-	OBM
3	Mud density	ppg	9.1
4	Casing set depth (shoe)	ft	18558
5	TVD	ft	7781
6	Float collar depth	ft	18553
7	Length of rate hole	ft	2
8	Previous casing shoe depth	ft	2544
9	Pre-job mud circulation time	hh:mm	1:30
10	Pre-job mud circulation rate	bpm	10
11	Pre-job mud circulation volume	bbls	775

12	Mud circulation pressure at start of cement	psi	400
13	Annual flow before the start of job	Y/N	Y
14	Pipe movement during cement job	Y/N	N
15	Calculated displacement	bbls	411.3
16	Job displaced by	Rig/HES	HES
17	Estimated returns % during job	%	95
18	Fluid returns to surface	Spacer/Cement, bbls	120/5
19	Final circulation pressure, rate prior to plug bump	psi @ bpm	2100/4
20	Number of Centralizers	-	
21	Number of bottom plugs	-	1

1.3 Water Field Test

	Recorded Value	Unit	Acceptable Limit	Potential Problems if Values Exceed the Limit
pH	7		6.0 - 8.0	Chemicals in water can cause severe retardation
Temperature	52	F	60 - 80 F	Can pre-mature setting of cement
Chlorides	LESS 200	ppm	3000 ppm	Can shorten thickening time

1.4 Actual Pump Schedule

	Density (ppg)	Volume (bbls)	Yield (ft ³ /sk)	Water Requirement (gal/sk)	Bulk Sacks (sks)	Total Water (gals)
Spacer Fluid	11.5	120	3.385	24.17		4811
Cap Cement	13	170.87	1.64	7.96	585	4657
Lead Cement	13	229.29	1.57	7.32	820	6003
Tail Cement	13.2	429.27	1.56	7.52	1545	11619
Top Plug	1	1				
Displacement Fluid	8.33	411				

2.0 Real-Time Job Summary

2.1 Job Event Log

Seq No.	Activity	Date	Time	Comments
1	Call Out	4/26/2023	14:00:00	CREW CALLED OUT 4/26/2023 1400 HRS. REQUESTED ON LOCATION 4/26/2023 2030 HRS.
2	Pre-Convoy Safety Meeting	4/26/2023	18:00:00	DISCUSS ROUTE AND HAZARDS OF DRIVING
3	Crew Leave Yard	4/26/2023	18:15:00	CREW LEAVES YARD
4	Arrive At Loc	4/26/2023	19:10:00	ARRIVE AT LOCATION. MEET WITH CUSTOMER. TD 18560'; 20# P110 5.5" SHOE 18558; F/C 18553'; 8.5 HOLE; TVD 7781; PC 36# J55 SHOE 2544'; OBM 9.1PPG
5	Pre-Rig Up Safety Meeting	4/26/2023	22:00:00	DISCUSS RIG-UP AND ANY HAZARDS THAT MAY EXIST
6	Rig-Up Equipment	4/26/2023	22:05:00	RIG-UP EQUIPMENT
7	Pre-Job Safety Meeting	4/27/2023	01:45:00	DISCUSS JOB PROCEDURES AND HAZARDS OF JOB, PRESSURE AND HAZARDS OF HES EQUIPMENT. RIG CIRCULATES BOTTOMS UP. 10 BPM/1000 PSI
8	Start Job	4/27/2023	02:04:31	
9	Drop Bottom Plug	4/27/2023	02:11:04	CITADEL BOTTOM PLUG BY JOSH
10	Start Job	4/27/2023	02:11:07	BEGIN RECORDING DATA
11	Test Lines	4/27/2023	02:12:57	TEST HES LINES TO 4500 PSI
12	Pump Spacer 1	4/27/2023	02:16:52	120 BBLS TUNED PRIME SPACER. 11.5 PPG, 3.385 YIELD, 24.17 GAL/SACK. MIX D-AIR ON FLY

13	Pump Cap Cement	4/27/2023	02:42:43	585 SACKS ELASTICEM CAP CEMENT. 170.87 BBLS. 13 PPG, 1.64 YIELD, 7.96 GAL/SACK. TOCC=0'
14	Pump Lead Cement	4/27/2023	03:20:35	820 SACKS ISOBOND LEAD CEMENT. 229.29 BBLS. 13 PPG, 1.57 YIELD, 7.32 GAL/.SACK. TOLC=2438' PRE-JOB CALCULATIONS.
15	Pump Tail Cement	4/27/2023	03:49:10	1545 SACKS ELASTICEM TAIL CEMENT. 429.27 BBLS. 13.2 PPG, 1.56 YIELD, 7.52 GAL/SACK. TOTC=8039' PRE-JOB CALCULATIONS
16	Shutdown	4/27/2023	04:55:20	SHUTDOWN
17	Clean Lines	4/27/2023	04:57:35	CLEAN PUMPS AND LINES
18	Shutdown	4/27/2023	05:02:00	SHUTDOWN
19	Drop Top Plug	4/27/2023	05:03:14	TOP PLUG BY JOSH
20	Pump Displacement	4/27/2023	05:03:19	411.3 BBLS FRESH WATER DISPLACEMENT. 1ST 20 BBLS HAS 10 GALLONS MICRO MATRIX CEMENT RETARDER. REMAINING DISPLACEMENT HAS RIG PROVIDED BIOCIDES AND INHIBITOR. LIMITED RETURNS LAST 40 BBLS
21	Bump Plug	4/27/2023	05:55:47	FCP 2100 PSI/ 4 BPM, BUMP PRESSURE 2650 PSI
22	Check Floats	4/27/2023	05:57:50	FLOATS HOLD, 4 BBLS BACK. APPROX 5 BBLS CEMENT TO SURFACE.
23	End Job	4/27/2023	05:59:31	STOP RECORDING DATA. FLUSH RIG STACK 45 BBLS WATER AND 100 LBS SUGAR. USED Approx 1120 bbls water total job
24	Pre-Rig Down Safety Meeting	4/27/2023	06:15:00	DISCUSS HAZARDS OF RIG-DOWN AND ANY OTHER HAZARDS THAT MAY EXIST
25	Rig-Down Equipment	4/27/2023	06:20:00	RIG-DOWN EQUIPMENT
26	Rig-Down Completed	4/27/2023	07:00:00	RIG-DOWN COMPLETED
27	Crew Leave Location	4/27/2023	08:00:00	CREW DEPARTS LOCATION. THANK YOU FOR CHOOSING HALLIBURTON.

3.0 Attachments

3.1 Real Time iCem Job Chart

