

HALLIBURTON

iCem[®] Service

CRESTONE PEAK RESOURCES-EBUS

Ft. Lupton District, CO

Cosslett East 1D-22H-H168 Production

Job Date: Sunday, April 23, 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 1D-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 40 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 #:	05-123-51951
City, County:	BERTHOUD, WELD

Job Times		
	Date (mm/dd/yyyy)	Time (hh:mm)
Requested Time On Location:	04/23/2023	0100
Called Out Time:	04/22/2023	1900
Arrived On Location:	04/23/2023	03:00
Job Started:	04/23/2023	0456
Job Completed:	04/23/2023	0826
Departed Location:	04/23/2023	1015

	Description	Units	Value
1	Surface temperature at the time of the job	degree F	32
2	Mud type (OBM, WBM, Synthetic, Water, Brine)	-	OBM
3	Mud density	ppg	9.1
4	Casing set depth (shoe)	ft	18455
5	TVD	ft	7856
6	Float collar depth	ft	18450
7	Length of rate hole-	ft	12
8	Previous casing shoe depth	ft	2520
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	771

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	409
16	Job displaced by	Rig/HES	HES
17	Estimated returns % during job	%	100
18	Fluid returns to surface	Spacer/Cement, bbls	120/40
19	Final circulation pressure, rate prior to plug bump	psi @ bpm	2600@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	82	F	60 - 80 F	Can 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	3.835	24.17		4247
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	419.54	1.56	7.52	1510	11,356
Top Plug	1					
Displacement Fluid	8.33	409				

2.0 Real-Time Job Summary

2.1 Job Event Log

Seq No.	Activity	Date	Time	Comments
1	Call Out	4/22/2023	19:00:00	CREW CALLED OUT 4/22/2023 1900 HRS. REQUESTED ON LOCATION 4/23/2023 0100 HRS.
2	Pre-Convoy Safety Meeting	4/22/2023	22:00:00	DISCUSS ROUTE AND HAZARDS OF DRIVING
3	Pre-Rig Up Safety Meeting	4/23/2023	01:00:00	DISCUSS RIG-UP AND ANY HAZARDS THAT MAY EXIST
4	Rig-Up Equipment	4/23/2023	01:10:00	RIG-UP EQUIPMENT
5	Crew Leave Yard	4/23/2023	02:00:00	CREW LEAVES YARD
6	Arrive At Loc	4/23/2023	03:00:00	ARRIVE AT LOCATION. MEET WITH CUSTOMER. TD 18477.5', 20# P-110 SHOE 18455', F/C 18450, 8.5" HOLE, TVD 7856', 36# J-55 SHOE 2520', OBM 9.12 PPG
7	Pre-Job Safety Meeting	4/23/2023	04:30:00	DISCUSS JOB PROCEDURES AND HAZARDS OF JOB, PRESSURE AND HAZARDS OF HES EQUIPMENT
8	Start Job	4/23/2023	04:45:48	
9	Start Job	4/23/2023	04:56:02	BEGIN RECORDING DATA
10	Drop Bottom Plug	4/23/2023	04:56:06	CITADEL BOTTOM PLUG BY JOSH
11	Test Lines	4/23/2023	04:58:23	TEST HES LINES TO 4600 PSI
12	Pump Spacer	4/23/2023	05:13:06	120 BBLS TUNED PRIME SPACER 11.5 PPG, 3.835 YIELD, 24.17 GAL/SACK. MIX D-AIR ON FLY

13	Pump Cap Cement	4/23/2023	05:33:16	585 SACKS ELASTICEM CAP CEMENT. 170.87 BBLs. 13 PPG, 1.64 YIELD, 7.96 GAL/SACK. TOCC=0'
14	Pump Lead Cement	4/23/2023	05:53:33	820 SACKS ISOBOND LEAD CEMENT. 229.29 BBLs., 13 PPG, 1.57 YIELD, 7.32-GAL SACK. TOLC=2555' PRE-JOB CALCULATIONS
15	Pump Tail Cement	4/23/2023	06:24:57	1510 SACKS ELASTICEM TAIL CEMENT. 419.54 BBLs., 13.2 PPG, 1.56 YIELD, 7.52 GAL/SACK. TOTC=8175' PRE-JOB CALCULATIONS
16	Shutdown	4/23/2023	07:27:59	SHUTDOWN
17	Clean Lines	4/23/2023	07:31:01	CLEAN PUMPS AND LINES. APPROX 15 BBLs
18	Shutdown	4/23/2023	07:35:05	SHUTDOWN
19	Drop Top Plug	4/23/2023	07:36:25	CITADEL TOP PLUG BY JOSH
20	Pump Displacement	4/23/2023	07:36:28	409 BBLs FRESH WATER DISPLACEMENT. 1ST 20 BBLs HAS 10 GALLONS MICRO MATRIX CEMENT RETARDER. REMAINING DISPLACEMENT HAS 10 GALLONS RIG PROVIDED BIOCID/INHIBITOR
21	Bump Plug	4/23/2023	08:23:39	FCP 2600/4 BPM, BUMP PRESSURE 3100 PSI. 40 BBLs CEMENT TO SURFACE. USED 55 GALLONS D-AIR TOTAL JOB
22	Check Floats	4/23/2023	08:25:07	FLOATS HOLD/5 BBLs BACK
23	End Job	4/23/2023	08:26:41	STOP RECORDING DATA. FLUSH RIG STACK W/40 BBLs AND 100 LBS SUGAR
24	Pre-Rig Down Safety Meeting	4/23/2023	08:45:00	DISCUSS HAZARDS OF RIG-DOWN AND ANY OTHER HAZARDS THAT MAY EXIST
25	Rig-Down Equipment	4/23/2023	08:50:00	RIG-DOWN EQUIPMENT
26	Rig-Down Completed	4/23/2023	09:30:00	RIG-DOWN COMPLETED
27	Crew Leave Location	4/23/2023	10:15:00	CREW DEPARTS LOCATION. THANK YOU FOR CHOOSING HALLIBURTON.

3.0 Attachments

3.1 Real Time iCem Job Chart

