

HALLIBURTON

iCem[®] Service

CRESTONE PEAK RESOURCES

Ft. Lupton District, Colorado

COSSLETT EAST 1G-22H-H168 - Production

Job Date: Friday, May 05, 2023

Sincerely,

Rafael Giorgana

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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 1G-22H-H168 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 50 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 #:	05-123-51941
City, County:	Erie, Weld County

Job Times		
	Date (mm/dd/yyyy)	Time (hh:mm)
Requested Time On Location:	05/05/2023	11:30
Called Out Time:	05/05/2023	05:30
Arrived On Location:	05/05/2023	10:00
Job Started:	05/05/2023	12:37
Job Completed:	05/05/2023	16:07
Departed Location:	05/05/2023	17:30

	Description	Units	Value
1	Surface temperature at the time of the job	degree F	69
2	Mud type (OBM, WBM, Synthetic, Water, Brine)	-	OBM
3	Mud density	ppg	9.1
4	Casing set depth (shoe)	ft	18863
5	TVD	ft	7659
6	Float collar depth	ft	18859
7	Length of rate hole	ft	10
8	Previous casing shoe depth	ft	2599
9	Pre-job mud circulation time	hh:mm	1:00

10	Pre-job mud circulation rate	bpm	10
11	Pre-job mud circulation volume	bbls	800
12	Mud circulation pressure at start of cement	psi	250
13	Annual flow before the start of job	Y/N	Yes
14	Pipe movement during cement job	Y/N	Yes
15	Calculated displacement	bbls	416.00
16	Job displaced by	Rig/HES	HES
17	Estimated returns % during job	%	100
18	Fluid returns to surface	Spacer/Cement, bbls	120/50
19	Final circulation pressure, rate prior to plug bump	psi @ bpm	2534
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	7.0		6.0 - 8.0	Chemicals in water can cause severe retardation
Temperature	65	F	60 - 80 F	Can can pre-mature setting of cement
Chlorides	200	ppm	3000 ppm	Can shorten thickening time

1.4 Actual Pump Schedule

	Density (ppg)	Volume (bbls)	Yield (ft3/sk)	Water Requirement (gal/sk)	Bulk Sacks (sks)	Total Water (gals)
Spacer Fluid	11.5	120	3.83	24.17		4252
Cap Cement	13	170	1.64	7.96	585	4656
Lead Cement	13	239	1.57	7.32	855	6258
Tail Cement	13.2	432	1.59	7.52	1555	11693
Top Plug	1					
Displacement Fluid	8.33	416				

2.0 Real-Time Job Summary

2.1 Job Event Log

Seq No.	Activity	Date	Time	Source	Comments
1	Call Out	5/5/2023	05:30:00	USER	Crew called out at 0530 on 5/5/2023 for a requested-on location time of 1130 on 5/5/2023.
2	Safety Meeting	5/5/2023	09:15:00	USER	Pre convoy safety meeting discussed route to location and hazards of driving.
3	Crew Leave Yard	5/5/2023	09:30:00	USER	Crew Leaves yard in convoy at 0930 hrs.
4	Arrive At Loc	5/5/2023	10:00:00	USER	Crew arrived on location at 1000 hrs. Meet with costumer TD 18863', 8.5 OH, TP 18859 5.5' 20#, FC 18858', TVD 7659', P/C 2599' 9.625 36#, OBM WEIGHT 9.1 PPG.
5	Safety Meeting - Pre Rig-Up	5/5/2023	10:05:00	USER	Discuss hazards around rig up area.
6	Rig-Up Completed	5/5/2023	11:36:18	USER	Rig up completed.
7	Safety Meeting - Pre Job	5/5/2023	12:15:00	USER	Pre job safety meeting discussed all hazards prior to job and reviewed job procedure.
8	Start Job	5/5/2023	12:37:57	NONE	Start Recording data.
9	Drop Bottom Plug	5/5/2023	12:38:00	USER	Bottom plug verified by DSR.
10	Test Lines	5/5/2023	12:39:42	NONE	Pressure tested HES lines to 4500 psi, no leaks and electronic kick outs working properly.
11	Pump Spacer 1	5/5/2023	12:45:07	NONE	Pumped 120.00 bbls of Tuned Prime spacer @11.5ppg/3.83ft3/24.17gal/sack. Pre calculated mix gallons was 4,252 gal. Average rate was 9 bpm with 320 psi on the line.
12	Check Weight	5/5/2023	12:48:10	NONE	Weight verified by Mud Scales.

13	Check Weight	5/5/2023	12:56:19	NONE	Weight verified by Mud Scales.
14	Pump Cap Cement	5/5/2023	13:00:51	NONE	Pumped 170.00 bbls (585.00 sks) of ElastiCem Cap cement @13ppg/1.64ft3/7.96gal/sack. Pre calculated mix gallons was 4,656 gal. Average rate was 9 bpm with 600 psi on the line. HOCC=2,422' TOCC=0'.
15	Check Weight	5/5/2023	13:02:03	NONE	Weight verified by Mud Scales.
16	Check Weight	5/5/2023	13:08:01	NONE	Weight verified by Mud Scales.
17	Check Weight	5/5/2023	13:09:49	NONE	Weight verified by Mud Scales.
18	Pump Lead Cement	5/5/2023	13:20:16	NONE	Pumped 239.00 bbls (855.00 sks) of IsoBond Lead cement @13ppg/1.57ft3/7.32gal/sack. Pre calculated mix gallons was 6,258 gal. Average rate was 9 bpm with 900 psi on the line. HOLC=8,279', TOLC=2,422'.
19	Check Weight	5/5/2023	13:25:23	NONE	Weight verified by Mud Scales.
20	Pump Tail Cement	5/5/2023	13:47:25	NONE	Pumped 432.00 bbls (1555.00 sks) of ElastiCem Tail cement @13.2ppg/1.56ft3/7.52gal/sack. Pre calculated mix gallons was 11,693 gallons. Average rate was 7 bpm with 700 psi on the line. TOTC=8,279'.
21	Check Weight	5/5/2023	13:55:38	NONE	Weight verified by Mud Scales.
22	Check Weight	5/5/2023	14:01:18	NONE	Weight verified by Mud Scales.
23	Check Weight	5/5/2023	14:07:19	NONE	Weight verified by Mud Scales.
24	Check Weight	5/5/2023	14:28:42	NONE	Weight verified by mud scales.
25	Check Weight	5/5/2023	14:32:41	NONE	Weight verified by mud scales.
26	Shutdown	5/5/2023	14:52:23	NONE	Shutdown to swap over to wash up pit. Washed pumps and lines with 20 bbls of water.
27	Drop Top Plug	5/5/2023	15:02:38	NONE	Top plug verified by DSR.

28	Pump Displacement	5/5/2023	15:02:40	NONE	Pumped 416.00 bbls of freshwater displacement. first 20 bbls added 10 gal of MMCR, 10 gal of bellacide provided by rig threw out the rest of displacement.
29	Other	5/5/2023	15:52:16	NONE	Shutdown to swap gasket on standpipe due to leak.
30	Bump Plug	5/5/2023	16:04:59	NONE	FCP @4bpm was 2,543 psi bumped up to 3,000 psi.
31	Other	5/5/2023	16:06:20	NONE	4.5 bbls back to pump truck floats holding. 50 bbls of cement to surface.
32	End Job	5/5/2023	16:07:47	NONE	Stop recording data. Washed rig stack with 30 bbls of fresh water with 100 lbs of sugar added.
33	Safety Meeting - Pre Rig-Down	5/5/2023	16:30:00	USER	Discuss blow down and any new hazards that could have come up during job.
34	Rig-Down Completed	5/5/2023	17:00:00	USER	Rig down completed.
35	Pre-Convoy Safety Meeting	5/5/2023	17:15:00	USER	Fit for duty check and check road conditions.
36	Crew Leave Location	5/5/2023	17:30:00	USER	Crew departs location. Thank you for using Halliburton.

3.0 Attachments

3.1 Real Time Icem Job Chart

