HALLIBURTON

iCem® Service

CRESTON PEAK RESOURCES

Ft. Lupton District, CO

Cosslett East 1I-22H-H168 Production

Job Date: Saturday, May 13, 2023

Sincerely,

Rafael Giorgana

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 1I-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.

Experienced losses 330 bbl into displacement, only spacer was received at 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 #:	123-51948
City, County:	Erie, Weld
Field:	Wattenburg
Legal Description:	NWNE S22 R1N T68W

Job Times		
	Date (mm/dd/yyyy)	**Time (hh:mm)**
Requested Time On Location:	05/12/2023	23:00
Called Out Time:	05/12/2023	17:00
Arrived On Location:	05/12/2023	22:30
Job Started:	05/13/2023	01:50
Job Completed:	05/13/2023	05:26
Departed Location:	05/13/2023	07:30

	Description	Units	Value
1	Surface temperature at the time of the job	degree F	50
2	Mud type (OBM, WBM, Synthetic, Water, Brine)	-	OBM
3	Mud density	ppg	9
4	Casing set depth (shoe)	ft	19,164’
5	TVD	ft	7,659’
6	Float collar depth	ft	19,154’
7	Length of rate hole	ft	5’
8	Previous casing shoe depth	ft	2,639’
9	Pre-job mud circulation time	hh:mm	01:30

10	Pre-job mud circulation rate	bpm	11
11	Pre-job mud circulation volume	bbls	800
12	Mud circulation pressure at start of cement	psi	400
13	Annual flow before the start of job	Y/N	No
14	Pipe movement during cement job	Y/N	No
15	Calculated displacement	bbls	425
16	Job displaced by	Rig/HES	HES
17	Estimated returns % during job	%	78%
18	Fluid returns to surface	Spacer/Cement, bbls	80 bbl of spacer
19	Final circulation pressure, rate prior to plug bump	psi @ bpm	2,300
20	Number of Centralizers	-	326
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	61	F	60 - 80 F	Can can pre-mature setting of cement
Chlorides	00	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)
Bottom Plug	1 Bottom Plug					
Spacer Fluid	11.5	120	3.835	24.17	176	4,247
Cap Cement	13	171	1.64	7.96	585	4,657
Lead Cement	13	239	1.57	7.32	855	6,259
Tail Cement	13.2	445	1.56	7.52	1600	12,032
Top Plug	1 Top Plug					
Displacement Fluid			N/A			

2.0 Real-Time Job Summary

2.1 Job Event Log

Seq. No.	Activity	Graph Label	Date	Time	Comments
1	Call Out	Call Out	5/12/2023	17:00:00	Crew was called out at 17:00 for an on-location time of 23:00 pm.
2	Depart Yard Safety Meeting	Depart Yard Safety Meeting	5/12/2023	21:50:00	Held a pre convoy safety meeting and 5 checks to go discussion with crew.
3	Crew Leave Yard	Crew Leave Yard	5/12/2023	22:00:00	Cement crew mobilized all equipment and supplies and departed for location.
4	Arrive at Location from Service Center	Arrive at Location from Service Center	5/12/2023	22:30:00	Arrived at location and crew performed a site assessment and hazard hunt. Check in with the Company Man and discussed job processes and well bore schematics. MD: 8.5” OH was drilled to 19,169’, TP: 5.5” 20# set @ 19,164’ Float Collar Set @ 19,154’, TVD: 7,659’, PC: 9.625” 36# Set @ 2,639’, mud: 9 ppg, centralizers: 326.
5	Pre-Rig Up Safety Meeting	Pre-Rig Up Safety Meeting	5/12/2023	22:40:00	Held a JSA with HES crew about rigging up safety. Set the expectations for SQ and designated roles and responsibilities.
6	Rig-Up Equipment	Rig-Up Equipment	5/12/2023	22:45:00	Crew rigged up all line, hoses, pump trucks, bulk vessels, and high-pressure discharge iron.
7	Pre-Job Safety Meeting	Pre-Job Safety Meeting	5/13/2023	01:40:00	Held a safety meeting with all HES and involved third party personnel.
8	Start Job	Start Job	5/13/2023	01:51:13	Pumped 3 bbl of fresh water at 3 bbl/min to fill lines.
9	Test Lines	Test Lines	5/13/2023	01:53:39	Pressure tested lines to 5,000 psi. Pressure held and test was good. Bled of pressure.
10	Drop Bottom Plug	Drop Bottom Plug	5/13/2023	01:57:00	HSE supervisor and company man loaded and dropped the bottom plug.

11	Pump Spacer 1	Pump Spacer 1	5/13/2023	01:57:20	Mixed and pumped 120bbls (176 sks) of Tuned Prime Spacer at 6 bbl/min with a density of 11.5 ppg, yield of 3.835 cu/sk. water requirement 24.17 gal/sk Density was verified by pressurized scales.
12	Check Weight	Check Weight	5/13/2023	02:09:12	Spacer weighed up at 11.5 ppg. Density was verified by pressurized scales.
13	Pump Cap Cement	Pump Cap Cement	5/13/2023	02:30:16	Mixed and pumped 171 bbls (585 sks) of cap cement at 7 bbl/min with a density of 13.2, yield of 1.64 cuft/sk, with a water requirement of 7.96 gsl/sk. Density was verified by pressurized scales.
14	Check Weight	Check Weight	5/13/2023	02:35:44	Cement weighed up at 13 ppg. Density was verified by pressurized scales.
15	Pump Lead Cement	Pump Lead Cement	5/13/2023	02:55:31	Mixed and pumped 239 bbls (855 sks) of lead cement at 9 bbl/min with a density of 13, yield of 1.57 cu/sk, and water requirement of 7.32 gsl/sk. Density was verified by pressurized scales.
16	Check Weight	Check Weight	5/13/2023	03:08:33	Cement weighed up at 13 ppg. Density was verified by pressurized scales.
17	Pump Tail Cement	Pump Tail Cement	5/13/2023	03:23:10	Mixed and pumped 445 bbls (1600 sks) of Tail cement at 9 bbl/min with a density of 13.2, yield of 1.56 cu/sk, and water requirement of 7.52 gsl/sk. Density was verified by pressurized scales.
18	Check Weight	Check Weight	5/13/2023	03:26:53	Cement weighed up at 13.2 ppg. Density was verified by pressurized scales.
19	Check Weight	Check Weight	5/13/2023	04:03:00	Cement weighed up at 13.2 ppg. Density was verified by pressurized scales.
20	Shutdown	Shutdown	5/13/2023	04:21:25	Pumped all cement away and shutdown.
21	Clean Lines	Clean Lines	5/13/2023	04:23:55	Pumped 20 bbl of fresh water to clean pumps and lines. Clean lines and pumps were verified by HES supervisor and customer representative.
22	Load Top Plug	Load Top Plug	5/13/2023	04:31:01	Shutdown to load and drop the Top plug. The customer loaded and
23	Drop Top Plug	Drop Top Plug	5/13/2023	04:32:59	HES and Company representative both witnessed and and dropped the top plug.
24	Pump Displacement	Pump Displacement	5/13/2023	04:33:22	Pumped 425 bbls of fresh water with MMCR in the first 20 bbls of displacement.

25	Spacer Returns to Surface	Spacer Returns to Surface	5/13/2023	04:59:06	Circulated spacer to surface 250 bbl into displacement.
26	Other	Other	5/13/2023	05:08:15	Lost circulation 330 bbl into displacement.
27	Bump Plug	Bump Plug	5/13/2023	05:22:59	Bumped the plug 500 psi over 2,300 psi at 4 bbl/min. Finale pressure was 2,940 psi.
28	Check Floats	Check Floats	5/13/2023	05:25:38	Bled off pressure to check floats. Floats held. Got 4.5 bbls of flow back to the truck.
29	End Job	End Job	5/13/2023	05:28:46	Circulated 80 bbl of spacer to surface. Based on pressures and returns, approximate TOT: 10,569', TOL: 4,709', TOC: 835'.
30	Pre-Rig Down Safety Meeting	Pre-Rig Down Safety Meeting	5/13/2023	05:35:00	Crew held a pre rig down safety meeting and JSA.
31	Rig Down Lines	Rig Down Lines	5/13/2023	05:40:00	Crew rigged down iron and stowed away all tool, iron, and equipment.
32	Safety Meeting - Departing Location	Safety Meeting - Departing Location	5/13/2023	06:55:00	Crew held a departing location safety meeting. Discussed rout of travel.
33	Depart Location	Depart Location	5/13/2023	07:00:00	Crew left location. Crew members started their ten-hour reset.

3.0 Attachments

3.1 iCem Real Time Job Chart