

# HALLIBURTON

iCem<sup>®</sup> Service

**CRESTONE PEAK RESOURCES-EBUS**

Ft. Lupton District, Colorado

**Prosper Farms 4-65 2-1-6 3CH Production**

Job Date: Sunday, April 16, 2023

Sincerely,

**Meghan Van Zyl**

## Legal Notice

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### Disclaimer:

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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  
    Real Time iCem Job Chart ..... 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 **Prosper Farms 4-65 2-1-6 3CH - 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 55 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 #:        | 05-005-07518      |
| City, County: | Watkins, Arapahoe |

| Job Times                   |                   |              |
|-----------------------------|-------------------|--------------|
|                             | Date (mm/dd/yyyy) | Time (hh:mm) |
| Requested Time On Location: | 4/16/2023         | 03:00        |
| Called Out Time:            | 4/15/2023         | 21:00        |
| Arrived On Location:        | 4/16/2023         | 02:00        |
| Job Started:                | 4/16/2023         | 06:33        |
| Job Completed:              | 4/16/2023         | 10:42        |
| Departed Location:          | 4/16/2023         | 12:00        |

|    | 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      | 9.7 ppg |
| 4  | Casing set depth (shoe)                      | ft       | 23,600' |
| 5  | TVD                                          | ft       | 7,627   |
| 6  | Float collar depth                           | ft       | 23,595' |
| 7  | Length of rate hole                          | ft       | 9'      |
| 8  | Previous casing shoe depth                   | ft       | 3,329'  |
| 9  | Pre-job mud circulation time                 | hh:mm    | 16:30   |
| 10 | Pre-job mud circulation rate                 | bpm      | 11      |
| 11 | Pre-job mud circulation volume               | bbls     | 1,019   |

|    |                                                     |                     |                    |
|----|-----------------------------------------------------|---------------------|--------------------|
| 12 | Mud circulation pressure at start of cement         | psi                 | 1,250 psi          |
| 13 | Annual flow before the start of job                 | Y/N                 | No                 |
| 14 | Pipe movement during cement job                     | Y/N                 | No                 |
| 15 | Calculated displacement                             | bbls                | 523.809            |
| 16 | Job displaced by                                    | Rig/HES             | HES                |
| 17 | Estimated returns % during job                      | %                   | 100                |
| 18 | Fluid returns to surface                            | Spacer/Cement, bbls | 120 bbls / 55 bbls |
| 19 | Final circulation pressure, rate prior to plug bump | psi @ bpm           | 2,650 psi          |
| 20 | Number of Centralizers                              | -                   | 335                |
| 21 | Number of bottom plugs                              | -                   | 1                  |

### 1.3 Water Field Test

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|                    | 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> | 59             | F    | 60 - 80 F        | Can can pre-mature setting of cement            |
| <b>Chlorides</b>   | 0              | ppm  | 3000 ppm         | Can shorten thickening time                     |

### 1.4 Actual Pump Schedule

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|                           | Density (ppg) | Volume (bbls) | Yield (ft <sup>3</sup> /sk) | Water Requirement (gal/sk) | Bulk Sacks (sks) | Total Water (gals) |
|---------------------------|---------------|---------------|-----------------------------|----------------------------|------------------|--------------------|
| <b>Bottom Plug</b>        | 1             |               |                             |                            |                  |                    |
| <b>Spacer Fluid</b>       | 11.5          | 120           | 3.83                        | 24.16                      | 176              | 4,250              |
| <b>Cap Cement</b>         | 13            | 171           | 1.67                        | 8.25                       | 575              | 4743               |
| <b>Lead Cement</b>        | 13            | 232           | 1.55                        | 7.16                       | 840              | 6014               |
| <b>Tail Cement</b>        | 13.2          | 671           | 1.59                        | 7.78                       | 2370             | 18438.6            |
| <b>Top Plug</b>           | 1             |               |                             |                            |                  |                    |
| <b>Displacement Fluid</b> | 8.33          | 523.809       | N/A                         |                            |                  | 21999.978          |

2.0 Real-Time Job Summary

2.1 Job Event Log

| Seq No. | Activity                               | Date      | Time     | Comments                                                                                                                                                                                                                                                                                                                                                                                              |
|---------|----------------------------------------|-----------|----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1       | Call Out                               | 4/15/2023 | 21:00:00 | Crew was called out 6:30 for an on-location time of 14:00 pm.                                                                                                                                                                                                                                                                                                                                         |
| 2       | Depart Yard Safety Meeting             | 4/16/2023 | 00:45:00 | Held a pre convoy safety meeting and 5 checks to go discussion with crew.                                                                                                                                                                                                                                                                                                                             |
| 3       | Crew Leave Yard                        | 4/16/2023 | 01:00:00 | Cement crew mobilized all equipment and supplies and departed the yard for the well site location.                                                                                                                                                                                                                                                                                                    |
| 4       | Arrive at Location from Service Center | 4/16/2023 | 02:00:00 | Arrived at location and crew signed in at the sign in shack. Check in with the Company Man and discussed job processes and well bore schematics. MD: 23,609', 8.75" OH 0' to 11,031', 8.5" OH 11,031' to 23,609, TP: 5.5" 20# set @ 23,600' Float Collar Set @ 23,595', TVD: 7,627', PC: 9.625" 36# Set @ 3,329', Mud: 9.6 ppg. Started there casing run @ 11:00 am. and landed on bottom @ 03:30 am. |
| 5       | Assessment Of Location Safety Meeting  | 4/16/2023 | 02:05:00 | Crew held a 5 checks to go and assessed the location and work area for applicable hazards.                                                                                                                                                                                                                                                                                                            |
| 6       | Pre-Rig Up Safety Meeting              | 4/16/2023 | 02:15:00 | Held a JSA with HES crew about rigging up safety. Set the expectations for SQ and designated roles and responsibilities.                                                                                                                                                                                                                                                                              |
| 7       | Rig-Up Equipment                       | 4/16/2023 | 02:20:00 | Crew rigged up all line, hoses, pump trucks, bulk vessels, and high-pressure discharge iron.                                                                                                                                                                                                                                                                                                          |
| 8       | Pre-Job Safety Meeting                 | 4/16/2023 | 06:13:40 | Held a safety meeting with all HES and involved third party personnel.                                                                                                                                                                                                                                                                                                                                |
| 9       | Start Job                              | 4/16/2023 | 06:33:45 | Pumped 3 bbls at 3bbl/min. Pressure was 470 psi.                                                                                                                                                                                                                                                                                                                                                      |
| 10      | Test Lines                             | 4/16/2023 | 06:36:01 | Pressure tested lines to 5,000 psi. Pressured up to 5,200 psi and held pressure for 2 mins. Pressure held and test was good. Bled of pressure.                                                                                                                                                                                                                                                        |

|    |                   |           |          |                                                                                                                                                                                                  |
|----|-------------------|-----------|----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 12 | Pump Spacer       | 4/16/2023 | 06:47:55 | Mixed and pumped 120bbls (176 sks) of Tuned Prime Spacer at 7 bbl/min with a density of 11.5 ppg, yield of 3.83 Cu/sk. Density was verified by pressurized scales.                               |
| 13 | Pump Cap Cement   | 4/16/2023 | 07:06:59 | Mixed and pumped 171 bbls (575 sks) of cap cement at 9 bbl/min with a density of 13.0, yield of 1.67 cu/sk, with a water requirement of 8.25 gsl/sk. Density was verified by pressurized scales. |
| 14 | Check Weight      | 4/16/2023 | 07:10:46 | Cap weighted up at 13 ppg. Density was verified by pressurized scales.                                                                                                                           |
| 15 | Pump Lead Cement  | 4/16/2023 | 07:31:42 | Mixed and pumped 232 bbls (840 sks) of lead cement at 9 bbl/min with a density of 13.0, yield of 1.55 cu/sk, and water requirement of 7.16 gsl/sk. Density was verified by pressurized scales.   |
| 16 | Check Weight      | 4/16/2023 | 07:38:26 | Lead weighed up at 13 ppg. Density was verified by pressurized scales.                                                                                                                           |
| 17 | Pump Tail Cement  | 4/16/2023 | 08:03:30 | Mixed and pumped 671 bbls (2370 sks) of Tail cement at 9 bbl/min with a density of 13.2, yield of 1.59 cu/sk, and water requirement of 7.78 gal/sk. Density was verified by pressurized scales.  |
| 18 | Check Weight      | 4/16/2023 | 08:07:24 | Tail weighed up at 13.2 ppg. Density was verified by pressurized scales.                                                                                                                         |
| 19 | Check Weight      | 4/16/2023 | 08:41:56 | Tail weighed up at 13.2 ppg. Density was verified by pressurized scales.                                                                                                                         |
| 20 | Shutdown          | 4/16/2023 | 09:42:25 | Pumped all cement away and shutdown to wash pumps and lines. Pumped 15 bbls of fresh water until lines were and pumps were clean.                                                                |
| 21 | Drop Top Plug     | 4/16/2023 | 09:56:13 | Shutdown to load and drop the Top plug. The customer loaded and dropped the bottom plug. HES and Company Retentive both witnessed the plug drop.                                                 |
| 22 | Pump Displacement | 4/16/2023 | 10:01:03 | Pumped 524 bbls of fresh water with MMCR in the first 20 bbls for displacement.                                                                                                                  |
| 23 | Bump Plug         | 4/16/2023 | 10:05:12 | Bump the plug 500 psi over 2,650. Final bump pressure was 3,150 psi. Held for 2 minutes and pressure held.                                                                                       |
| 24 | Check Floats      | 4/16/2023 | 10:09:00 | Bled off pressure to check floats. Floats held. 6 bbls flowed back to the truck.                                                                                                                 |

|    |                                                  |           |          |                                                                                                             |
|----|--------------------------------------------------|-----------|----------|-------------------------------------------------------------------------------------------------------------|
| 26 | End Job                                          | 4/16/2023 | 10:42:00 | HES circulated 120 bbls of spacer and 55 bbls of cement back to surface. TOT: 7,515', TOL: 2,421', TOC: 0'. |
| 27 | Post-Job Safety Meeting (Pre Rig-Down)           | 4/16/2023 | 12:00:00 | Crew held a pre rig down safety meeting.                                                                    |
| 28 | Rig Down Lines                                   | 4/16/2023 | 12:30:00 | Crew rigged down iron and stowed away all tool, iron, and equipment.                                        |
| 29 | Depart Location Safety Meeting                   | 4/16/2023 | 13:00:00 | Crew held a departing location safety meeting. Discussed rout of travel.                                    |
| 30 | Depart Location for Service Center or Other Site | 4/16/2023 | 13:15:00 | Crew left location. Crew members started their mandatory ten hour reset.                                    |

3.0 Attachments

3.1 Real Time iCem Job Chart

