



## Certificate of Test

Class G Well Cement  
Grade MSR

December 29, 2017

Lot 363

| Chemical Requirements - Table 1 |            |        | Physical and Performance Requirements – Table 2 |            |        |
|---------------------------------|------------|--------|---|------------|--------|
| Item                            | Spec Limit | Result | Item  | Spec Limit | Result |
| MgO                             | 6.0 max    | 1.1    | Free-Fluid Content, %                           | 5.9 max    | 4.8    |
| SO <sub>3</sub>                 | 3.0 max    | 3.0    | Compressive Strengths, PSI                      |            |        |
| Loss on Ignition                | 3.0 max    | 1.1    | 8 hours @ 38° C                                 | 300 min    | 1140   |
| Insoluble Residue               | 0.75 max   | 0.42   | 8 hours @ 60° C                                 | 1,500 min  | 2610   |
| C <sub>3</sub> S, %             | 48 to 58   | 58     | Schedule 5 Thickening Time, minutes             | 90 to 120  | 96     |
| C <sub>3</sub> A, %             | 8 max      | 6      |   |            |        |
| Equivalent Alkalies, %          | 0.75 max   | 0.59   |   |            |        |

This cement has been sampled and tested in accordance with API Specification 10A. Cement analysis are reported as oxides, in accordance with ASTM Test Method C114. This cement is manufactured at our Laramie, Wyoming facility. All test results are certified to comply with the type specification designated. We are not responsible for improper use or workmanship.

Bob Kersey  
Chief Chemist



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