

Cement Mill Test Report

Date of Issue: January 12, 2022

Plant: Exshaw AB

Product: Portland Cement Type GU Manufactured: December 1-31, 2021

CHEMICAL ANALYSIS PHYSICAL ANALYSIS Item Spec limit **Test Result** Item Spec limit Test Result Rapid Method, X-Ray SiO2 (%) 19.7 Blaine Fineness (m2/kg) Al2O3 (%) 4.0 428 Fe2O3 (%) 3.7 CaO (%) 62.4 Retained 45 um (%) 28 max 1.0 4.4 MgO (%) 5.0 max SO3 (%) 3.0 max * 2.8 Autoclave expansion (%) 1.0 max 0.10 Loss on ignition @ 950 (%) 3.0 (3.5) max *** 2.5 Loss on ignition @ 550(%) 3.0 max 0.6 Compressive strength (MPa) 0.33 20.9 Insoluble residue (%) 1.5 max 1 day 3 day 14.5 min 33.0 20.0 min 37.7 7 day **Inorganic Process Addition** 5.0 max 28 day (November 2021 Results) 26.5 min 43.1 (Cement Kiln Dust) Time of setting (minutes) **Potential Phase Composition Vicat Initial** 45 - 375 115 C3S (%) 64.1 C2S (%) Mortar Bar Expansion (%) (C5)* 0.020 max 800.0 8.1 C3A (%) 4.3 C4AF (%) 11.4 Colour (For Information Purposes Only) 33

Other Chemical Information:

NaEq (%) Average Week Ending: 12/04 0.54 12/11 0.54 12/18 0.55 12/25 0.55

We certify that the above described data, at the time of shipment, meets the chemical and physical requirements of the applicable specification for Type GU.

CSA A3001-18 STANDARD SPECIFICATIONS FOR TYPE GU CEMENT.

Lafarge Canada Inc. - Exshaw Plant P.O. Box 160, Highway 1A, Exshaw AB TOL 2CO

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Certified By:

Lorraine Richards

Lorraine Richards
Quality Control Cordinator

^{*} Latest available value

^{**} May exceed 3.0% SO3 maximum based on our A3004-C5 results of <0.020% expansion at 14 days.

^{***} May exceed 3.0% LOI maximum based on our LOI at 550C <3.0%.