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STATE OF MICHIGAN
DEPARTMENT OF
ENVIRONMENT, GREAT LAKES, AND ENERGY
LANSING



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TO: Water Well Drilling Contractors

FROM: Sara Pearson, Supervisor
Source Water Unit
Environmental Health Section
Drinking Water and Environmental Health Division

DATE: July 7, 2022

SUBJECT: Advisory on Use of Portland-Limestone Cement Type IL

Implementation of R 325.1640 (Rule 140) of the Michigan Water Well Construction and Pump Installation Code (Well Code), adopted under Part 127, Water Supply and Sewer Systems, of the Public Health Code, 1978 PA 368, as amended, (Part 127) has resulted in regulatory and industry concerns. Portland cement that meets Rule 140 requirements is either no longer manufactured and/or limited in availability.

Rule 140 of the Well Code requires that specific water well components, such as certain grouts and casing sealing materials, be in compliance or surpass the American Society for Testing and Materials (ASTM) Specification C 150-89 "Standard Specification for Portland Cement." ASTM C 150 ensures consistency in ingredients/chemical composition and provides test methods to verify the properties of the Portland cement. With public health in mind, the adoption of ASTM C 150 into Rule 140 was deemed appropriate and reasonable.

The concrete industry has switched their manufacturing of ordinary Portland cement (Type I) to Portland-limestone cement (Type IL) to reduce their carbon footprint over the last few years. Portland-limestone cement is intended to fully replace ordinary Portland cement with the largest cement plants in Michigan already ending production of the most common cement Type I near the end of 2021. Other major ordinary Portland cement types that meet ASTM Standard C 150 products such as Type II (moderate sulfate resistance), Type III (high early strength), Type IV (low heat of hydration), and Type V (high sulfate resistant), are specialized and not always easily accessible for purchase.

Portland-limestone cement Type IL is formulated with a higher limestone content (between 5% and 15%) and governed by ASTM Standard C 595 "Standard Specification for Blended Hydraulic Cements." The construction industry, including the Michigan Department of Transportation, accepts Type IL as a replacement due to its similar characteristics (strength, density, etc.) to Type I.

Although studies comparing Type I with Type IL as a well grouting material do not appear to be available, the Michigan Department of Environment, Great Lakes, and Energy (EGLE) and industry partners believe that current use in other sectors and research materials indicate Type IL would serve as an adequate substitute for grouting/plugging under Part 127. EGLE has

initiated the rulemaking process to modify rules R 325.1610 and 140 with the support of the water well industry to include acceptance of cements governed under ASTM C 595.

Until the rule promulgation process is concluded, EGLE recognizes the need for Portland cement as a grouting/plugging material especially in instances where flowing wells, methane, certain contaminants are present in soil/groundwater, and certain water quality issues are involved. Contractors must make the effort to locate and utilize Portland cement that meets ASTM Standard C 150 to meet the requirements of the Well Code. EGLE recognizes instances will occur where Portland cement meeting ASTM Standard C 150 will not be available for use at the time a cement-based grout is required for well completion and/or plugging.

During such instances and with adequate documentation, EGLE will exercise enforcement discretion.

Registered water well drilling contractors shall document on the water well and/or plugging record that Type IL was utilized as Type I was not available. This documentation is required under R325.1675. Contractors must continue to follow manufacturer's recommendations for use and mixtures, as stated in R 325.1602(3) and 325.1603a(1) of Part 127. This advisory does not imply the use of Type IL is authorized and approved by EGLE. Compliance with local Sanitary Codes and other aspects of the Well Code is still a requirement for contractors to maintain their certificate of registration.

If you have any questions, please contact me at 517-420-3219; pearsons@michigan.gov; or EGLE, Drinking Water and Environmental Health Division, P.O. Box 30817, Lansing, Michigan 48909-8311.

cc: Michigan Ground Water Association
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