

MEMORANDUM

TO: Kurt Klapkowski
Director
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John Ryder
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FROM: Scott R. Perry *SRP*
Deputy Secretary
Office of Oil and Gas Management

DATE: May 13, 2021

SUBJECT: Use of Class L Cement Meets Section 78a.85(a) Standards

Background

DEP recently received a request regarding the use of newly formulated Class L cement in the construction and plugging of oil and gas wells. The following information was provided regarding Class L cement:

Joppa Class L is a low CO₂ (lower environmental impact) oil well cement designed for normal slurry applications for cementing oil and gas wells. In 2019, the American Petroleum Institute (API) added the Class L designation to Annex B of Specification 10A. Class L composite well cement is manufactured by inter-grinding Portland cement clinker and one or more forms of gypsum with pozzolanic material. Fly ash, silica fume, and natural pozzolans all qualify as pozzolanic materials. API also allows the addition of suspension agents in Class L cements. The API Monogram is pending.

Relevant Standards

Section 78a.1 and 78a.1 define “Cement” as “[a] mixture of materials for bonding or sealing that attains a 7-day maximum permeability of 0.01 millidarcies and a 24-hour compressive strength of at least 500 psi in accordance with applicable standards and specifications.”

Sections 78.85 and 78a.85 provide the following:

Cement standards.

- (a) When cementing surface casing or coal protective casing, the operator shall use cement that meets or exceeds the ASTM International C 150, Type I, II or III Standard or API Specification 10. The cement must also:
- (1) Secure the casing in the wellbore.
 - (2) Isolate the wellbore from fresh groundwater.
 - (3) Contain any pressure from drilling, completion and production.
 - (4) Protect the casing from corrosion from, and degradation by, the geochemical, lithologic and physical conditions of the surrounding wellbore. For wells employing coal protective casing, this includes, but is not limited to, formulating cement to withstand elevated sulfate concentrations and other geochemical constituents of coal and associated strata which have the potential to adversely affect the integrity of the cement.
 - (5) Prevent gas flow in the annulus. In areas of known shallow gas producing zones, gas block additives and low fluid loss slurries shall be used.

Determination

DEP has determined that the Class L blend of cement “meets or exceeds the ASTM International C 150, Type I, II or III Standard or API Specification 10” and also meets requirements of Section 78.85(a)(1)-(5) and 78a.85(a)(1)-(5) when used in accordance with the manufacturer’s specifications and standards for well cementing. This determination has been made based on a detailed review of laboratory testing data for the blend and a comparison of laboratory performance to Class A blends.

Accordingly, operators may use the Class L blend to meet the requirements of Sections 78.85 and 78a.85. This determination applies for use in Pennsylvania at any oil and gas well sites, either previously permitted, in the process of permitting, or at future permitted wells.