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Storage of Flammable and Combustible Liquids

Issue:

Alberta Municipal Affairs (AMA) is aware that oil field supply companies are storing flammable liquids and combustible liquids in aboveground storage tanks that are not in compliance with the requirements of the Alberta Fire Code (AFC).

The AFC lists specific situations which are exempt from the Part 4 requirements for the storage and handling of flammable liquids and combustible liquids. One exempt situation deals with the storage and handling of raw production liquids and the incidental storage and handling of flammable liquids and combustible liquids at upstream oil and gas exploration sites. These sites are under the jurisdiction of the Energy Resources Conservation Board (ERCB).

Flammable liquid and combustible liquid products, when used as part of well exploration and operation and which require storage at upstream oil and gas exploration and production sites, are regulated under ERCB regulations and specifically Directive 055, "Storage Requirements for the Upstream Petroleum Industry" (formerly Guide G-55).

However, the storage tank systems for these liquids are regulated under the AFC when these products are stored off of an oil and gas exploration or production well or other ERCB regulated site.

Background:

The tanks in question are constructed to an American Petroleum Institute (API) standard, API Specification 12F, "Specification for Shop Welded Tanks for Storage of Production Liquids." The scope of the API 12F standard is intended to provide the oil production industry with tanks of adequate safety and reasonable economy for the use in storage of crude petroleum and other liquids commonly used and stored by the production segment of the industry at well sites.

API 12F tanks are not considered appropriate for use under the AFC as they are not constructed to include all of the safety features required by the standards listed in Sentence 4.3.1.2.(1) of the AFC and, because of this, their use is restricted to oil and gas field exploration and production sites.

Code requirement: ¹

4.3.1.2. Atmospheric Storage Tanks

1) Except as permitted in Sentence (3) and in Section 4.10., *atmospheric storage tanks* shall be built in conformance with the following:

- a) API 650, "Welded Steel Tanks for Oil Storage,"
- b) ULC-S601, "Shop Fabricated Steel Aboveground Horizontal Tanks for Flammable and Combustible Liquids,"
- c) CAN/ULC-S602, "Aboveground Steel Tanks for the Storage of Combustible Liquids Intended to be Used as Heating and/or Generator Fuels,"
- d) ULC-S603, "Steel Underground Tanks for Flammable and Combustible Liquids,"
- e) CAN/ULC-S603.1, "External Corrosion Protection Systems for Steel Underground Tanks for Flammable and Combustible Liquids,"
- f) ULC-S615, "Reinforced Plastic Underground Tanks for Flammable and Combustible Liquids,"
- g) ULC-S630, "Shop Fabricated Steel Aboveground Vertical Tanks for Flammable and Combustible Liquids,"
- h) ULC-S643, "Shop Fabricated Steel Aboveground Utility Tanks for Flammable and Combustible Liquids,"
- i) ULC-S652, "Tank Assemblies for Collection of Used Oil,"
- j) ULC-S653, "Aboveground Steel Contained Tank Assemblies for Flammable and Combustible Liquids,"
- k) ULC-S655, "Aboveground Protected Tank Assemblies for Flammable and Combustible Liquids,"
- l) ULC/ORD-C58.10, "Jacketed Steel Underground Tanks for Flammable and Combustible Liquids,"
- m) ULC/ORD-C142.5, "Concrete Encased Steel Aboveground Tank Assemblies for Flammable and Combustible Liquids,"
- n) ULC/ORD-C142.18, "Rectangular Steel Aboveground Tanks for Flammable and Combustible Liquids," or
- o) ULC/ORD-C142.22, "Contained Steel Vertical Aboveground Tank Assemblies for Flammable and Combustible Liquids."

(See Appendix A.)

Upgrading Variance for API 12F Tanks:

Due to the prevalence of API 12F aboveground storage tanks being used by oil field service companies, AMA has introduced an upgrading Variance that will provide alternative solutions for existing API 12F storage tanks to remain in use.

For details of the Variance please consult Alberta Fire Code Variance "Upgrading Existing API 12F Tanks Under the Alberta Fire Code" April 2009 - AFC 4.3.1.2.(1).

¹ All references are to the Alberta Fire Code, Division B, unless otherwise stated