

Supply of Fresh Fuel

ISSUE:

The Alberta Fire Code (AFC) requires that liquid fuel storage tanks used to supply emergency generators and internal combustion engines used to power supplementary blowers required for air-supported structures shall have fuel drained and refilled every twelve months. This fuel replenishment has been an area of concern for some time and at times is not undertaken due to the fact that very few service companies have the capability of disposing of this drained fuel.

BACKGROUND:

The requirements of the AFC for the replacement of liquid fuel has been in the Code for a number of years and does not reflect today's economic and environmental concerns regarding this draining and replenishment. Although this draining and replenishment can be achieved by the replenishment of liquid fuel storage tanks during routine testing of emergency generating equipment and supplementary blowers these tests have, in most cases, been reduced to a level that does not use substantial amounts of fuel and therefore is considered impracticable.

As a result of the introduction of objective based codes the opportunity has arisen to apply the objectives and functional statements related to the supply of fresh fuel requirements in the AFC regarding this issue.

CODE REQUIREMENTS:¹

2.9.3.6. Blower Engines

1) Internal combustion engines used to power supplementary blowers required by the Alberta Building Code 2006 shall be operated and maintained in conformance with Section 6.5.

6.5.1.1. Inspection, Testing and Maintenance

1) Except as provided in Articles 6.5.1.2. to 6.5.1.5., emergency power systems shall be inspected, tested and maintained in conformance with CAN/CSA-C282, "Emergency Electrical Power Supply for Buildings."

6.5.1.5. Supply of Fresh Fuel

1) Liquid fuel *storage tanks* shall be drained and refilled with fresh fuel at intervals not greater than 12 months. (See Appendix A.)

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

A-6.5.1.5.(1) This can be achieved by replenishment as the result of the routine test program required by Article 6.5.1.1.

STANDARD REQUIREMENTS:

CAN/CSA-C282, "Emergency Electrical Power Supply for Buildings" (2005 edition) states in Table 5, "Annual Inspection, Test And Maintenance Requirements"

"Diesel fuel storage tank(s):

The fuel oil in any storage tank (and day tank, if used) shall be tested in accordance with Clause 11.5.5., and if the fuel oil fails the test, it shall be

- (a) drained and refilled with fresh fuel in accordance with Article 6.7.1.5. of the *National Fire Code of Canada*; or
- (b) full filtered to remove water, scale, bacteria, and oxidized gums/resins in order to minimize filter clogging and ensure diesel start up (see Clause B.20 for commentary)

When the fuel is filtered, it shall be treated with a suitable conditioner and stabilizer to minimize degradation while in storage.

Note: *The bottom(s) of the tank(s) shall also be tested chemically for water."*

Assigned Objectives and Functional Statements:

[F82-OP1.2], [F82-OP3.1], [F82-OS1.2,OS1.5], [F82-OS3.1,OS3.7]

Achieved Objectives and Functional Statements

[F82-OP1.2], [F82-OP3.1], [F82-OS1.2,OS1.5], [F82-OS3.1,OS3.7]

These objectives are satisfied by permitting liquid fuel to be filtered and conditioned which minimizes the risk of inadequate performance due to improper maintenance or lack of maintenance.

VARIANCE:

With regard to the inspection, test, and maintenance requirements for liquid fuel in storage tanks supplying emergency generating equipment and internal combustion engines used to power supplementary blowers required for air-supported structures, it is deemed acceptable to test liquid fuel, and if required,

- a) drain and replenish fuel in accordance with Article 6.5.1.3. of the Alberta Fire Code, or
- b) drain, filter and condition existing fuel in accordance with Table 5 of CAN/CSA-C282, "Emergency Electrical Power Supply for Buildings" (2005 edition).

Note: If option (b) is used the fuel is to be retested in accordance with Clause 11.5.5. of CAN/CSA-C282, "Emergency Electrical Power Supply for Buildings."

This variance applies throughout the province of Alberta.