National Airport Fire-Extinguishing Agent Performance Test Facility

Improved firefighting training, techniques, and equipment are needed to support Federal Aviation Administration (FAA) airport safety and certification programs.

The objective of this research and development effort is to improve firefighting techniques and equipment. This program is focused primarily on advancing the state of the art in firefighting strategies and increasing passenger survivability under the extremely harsh conditions of a postcrash fire. This includes evaluating the effectiveness of an elevated waterway device and cabin skin penetration system for interior fires, cargo fires, and composite material fires, and the effectiveness of advanced airport firefighting extinguishing agents that are more environmentally acceptable so that ground water and air quality are protected.

Laboratory tests have not proved reliable to predict the performance of extinguishing agents in large postcrash fuel spill fires. Additionally, interior aircraft fire protection requirements can only be measured under actual full-scale interior fire conditions of flashover. Real-time firefighting strategies and fire protection requirements need to be established for new generation aircraft that have second-level passenger seating designs. In addition, the advanced composite materials used in these aircraft may introduce new challenges and specialized requirements for firefighters. This facility will address these new challenges.

The fire test facility consists of the following:

- A full-scale, environmentally protected facility to test new fire-extinguishing agents and collect toxic waste and spent fuel without endangering the environment.
- The FAA's advanced high-performance rescue research vehicle with a 55-foot elevated waterway and cabin skin penetration system.
- A large military surplus C-133 cargo aircraft that has been fire-hardened and configured to test agent distribution and fire performance in several unique fire scenarios, including interior fires, cargo fires, and second-level fires.

The fire test facility measures 200 x 120 feet and will be used to assess the performance of unique fire-extinguishing agents used for specialized airport fire protection needs. This facility will also be used to develop new performance standards for all classes of extinguishing agents, including dry chemical and halon-alternative clean agents. The facility is concrete protected with a 5000-gallon collection containment vault.

To find out more about the National Airport Fire-Extinguishing Agent Performance Test Facility, contact:

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