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Use of Water Mist Systems to Suppress Fires in Machinery Spaces of Canadian Coast Guard Ships

Objective

To advise the Canadian Coast Guard on the suitability of water mist as a fire protection system for use in their ships' machinery spaces.

Background

The Canadian Coast Guard plans to replace existing halon fire extinguishing systems due to a production ban on ozone-depleting halons. Alternatives include halocarbon gaseous agents and water mist systems. Halocarbon agents are known to be effective, but they may produce toxic by-products and could also contribute to global warming, whereas water mist systems have good fire suppression capability, no environmental impact and no toxicity. Before making a decision the Coast Guard needs more information about the performance of water mist systems in compartmentalized and cramped engine rooms, their effectiveness on fuel spray fires, their costs and maintenance requirements.

Statement of Work

- Surveyed the layout of a ship's machinery space, noted obstructions and identified possible fire scenarios
- Obtained information on the suitability of water mist fire extinguishing systems in cramped environments which could incorporate high-voltage generators, enclosed electronic units such as cyclo-converters, bilges under the floor plates, and other obstacles.
- Determined the effectiveness of water mist systems on fuel spray fires.
- Compared costs of water mist systems to gaseous systems.

Outcome

A report on the feasibility of using water mist in ships' machinery spaces was delivered to the client.

Results

Water mist systems perform adequately for protecting machinery space on ships. However it is much more expensive to retrofit ships to use water mist systems rather than gaseous fire suppression systems.

Partner

Canadian Coast Guard

Start/Expected Completion Dates

This project began in August 2006 and was completed in March 2007.

Project Manager

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For more information, please see http://irc.nrc-cnrc.gc.ca/fr/pfdss/watermist_e.html

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