Inadvertent activation of condensed aerosol fire extinguishing system leads to a fatality

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The UK Marine Accident Investigation Branch (MAIB) has issued Safety Bulletin SB1/2020 highlighting a potentially serious hazard, associated with condensed aerosol firefighting suppressant particles after a fatal accident on fishing vessel *Resurgam*.

What happened?

Fishing vessel *Resurgam* was alongside undergoing maintenance.

An engineer and an apprentice from the owners shore-based support team were working on the main engine in the engine room.

Also working in the engine room were two contractors who were installing a new FirePro condensed aerosol fire extinguishing system.

During the installation, the fire extinguishing system partially and inadvertently discharged without warning, filling the engine room with a dense cloud of aerosol fire suppressing particles.

Both the installation contractors and the company's engineer managed to evacuate, but the apprentice collapsed in the engine room. He was later recovered by the local fire and rescue service, but found not breathing, and could not be resuscitated.

What were the causes? What went wrong?

The MAIB notes that "*the exact causes and circumstances of this accident are still being investigated, and the findings will be published by the MAIB in a full investigation report. However, during the inadvertent discharge, it is evident that the apprentice inhaled a high concentration of the suppressant particles and this contributed significantly to the fatality.*"

The manufacturer's *"Installation and User Manual and its product's material safety data sheets had recognised the inadvertent discharge of the system, particularly during installation and maintenance, as a hazard. However, the loss of life was not identified as a potential outcome; therefore, the risk associated with inhaling or ingesting a large volume of the suppressant particles was not fully appreciated or protected against."*

Actions

The MAIB recommends that *"vessel owners, operators and those contracted to install FirePro and other similar condensed aerosol fire extinguishing systems should be fully aware of the potential risk to life from exposure to the aerosol particles.*

Safety precautions should be put in place to ensure that personnel are not exposed to this hazard:

- Prior to intentional discharge of a condensed aerosol system, there should be visible and audible alarms to alert personnel. Checks should also be made to ensure the protected compartment has been evacuated before the system is activated.
- When condensed aerosol fire extinguishing systems are being installed or maintained the system should be fully isolated to guard against inadvertent activation, non-essential personnel should be clear of the area and an enclosed space rescue plan should be in place.Fishing vessel *Resurgam* was alongside undergoing maintenance. An engineer and an apprentice from the owners shore-based support team were working on the main engine in the engine room. Also working in the engine room were two contractors who were installing a new FirePro condensed aerosol fire extinguishing system. During the installation, the fire extinguishing system partially and inadvertently discharged without warning, filling the engine room with a dense cloud of aerosol fire suppressing particles. Both the installation contractors and the company's engineer managed to evacuate, but the apprentice collapsed in the engine room. He was later recovered by the local fire and rescue service, but found not breathing, and could not be resuscitated.

Members may wish to refer to:

- Failure of fixed high expansion foam [MAIB]
- Fixed CO2 fire extinguishing systems – US Coast Guard alert