

FLAMMABLE VAPORS EXPLODE

The Story

On June 5, 1979, there was an explosion in the forepeak area of a U.S. containership moored at Terminal 5, Seattle, Washington. Two men engaged in spray painting the forepeak ballast tank of the ship were killed as a result of the explosion. There was no structural damage to the vessel or release of oil to the environment.

The proximate cause of the explosion was the ignition of an accumulation of flammable mixture of air and paint fumes which was present in the forepeak tank and possibly in the 3rd Deck Bosun's Stores compartment of the vessel. The explosion resulted in the deaths of two men. The accumulation of flammable vapors was the result of the spray painting operation, the presence of an open can of solvent (methyl ethyl ketone), and the lack of forced ventilation adequate to disperse the vapors. The specific source of ignition cannot be determined, but the most likely source appears to be one of the non-explosion-proof portable electric lights, perhaps damaged as it was being moved.

The explosion did not result in any structural damage to the forepeak tank or adjacent spaces of the vessel.

Lesson Learned

This accident was jointly investigated by the Occupational Safety and Health Administration and the Coast Guard. As a result of their investigation, the Bellevue Area Office of OSHA cited the vessel owners for violation of 29 CFR 1915.24(b)(1), 29 CFR 1915.24(b)(7), 29 CFR 1915.24(b)(8), and 29 CFR 1910.134(d)(2)(ii). These regulations require certain special precautions to be taken when flammable solvents with a flash point below 80 degrees F are being used; these include exhaust ventilation, frequent testing to determine vapor concentration, and the use of explosion-proof lights. Proposed penalties for these violations total about \$25,000.

Prevention Through People



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