



UNITED STATES COAST GUARD

U.S. Department of Homeland Security

MARINE INVESTIGATIONS LESSONS LEARNED

Assistant Commandant for Marine Safety, Security and Stewardship

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Lesson Learned 03-10

PERSONAL COST OF POOR MAINTENANCE AND REPAIRS

This safety alert serves as a reminder to vessel Owners / Operators, Port Captains / Engineers, crewmembers, and marine inspection personnel of the importance of properly maintaining and repairing vessel electrical systems including those located in inaccessible or confined areas. In this casualty, a young mariner employed onboard a Great Lakes bulk carrier was electrocuted while working in a dark and confined cargo tunnel beneath the ship's cargo holds. Another crewmember discovered the fallen mariner, went to his aid and received an electric shock sustaining a serious injury.

The investigation of this incident revealed that both crewmembers' heads had contacted a broken lamp fixture. The fixture lacked a light bulb, a globe, and a guard. It appears that, at one time the fixture was separated from its connection box and a repair was made using electrical tape to cover some open wires without properly replacing the connecting fitting between the fixture and the box. It also appears that the connection box was ungrounded due to the use of tie wraps instead of solid metal fasteners.

The attached photo clearly illustrates the material condition of this fixture. This dangerous latent unsafe condition existed until the crewmember brushed his head against it and was killed. Likewise, the second mariner also brushed his head upon the fixture as he was responding to his fallen shipmate and was shocked. Fortunately, he survived.

All crewmembers must do their best to ensure their safety as well as the safety of their co-worker by reporting and acting to correct unsafe conditions. Further, it is critical that vessel and shoreside management personnel establish and maintain effective programs where unsafe conditions like this one can be reported, acted upon and effectively managed. Employees must not be hindered from or retaliated against for reporting and



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documenting such concerns. These principles have been widely adopted in maritime and other industries as Safety Management Systems.

Eliminating unsafe conditions also makes good business sense. The associated post accident costs to the Owner/Operator can potentially be very substantial. Further, there's a societal cost to deaths and injuries caused by these casualties that can't be fully measured. Ultimately, no lengthy cost benefit analysis was needed in this case as the issue was very clear. A hazardous condition was found but the repair was grossly inadequate and didn't eliminate the unsafe condition.

As a result of this casualty, the Coast Guard **strongly recommends** to vessel Owners / Operators, Port Captains / Engineers, crewmembers, and marine inspection personnel, especially those associated with older vessels, to be alert for such hazards and to take immediate action to report, properly document and correct any hazardous condition.

This safety alert is provided for informational purposes only and does not relieve any domestic or international safety, operational or material requirement. Developed by the Office of Investigations and Analysis, United States Coast Guard Headquarters, Washington, DC. Questions can be addressed to Mr. Ken Olsen at the email address below.

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Additional related information:

NIOSH ALERT - Preventing Fatalities of Workers Who Contact Electrical Energy

<http://www.cdc.gov/niosh/87-103.html>

Brief: Prompt emergency medical care can be lifesaving for workers who have contacted either low voltage or high voltage electric energy. Immediate cardiopulmonary resuscitation (CPR) followed by advanced cardiac life support (ACLS) has been shown to save lives.

2009 Safety Alert – found at <http://marineinvestigations.us> > safety alerts >engineering>
"Electric Shock Hazards"