

Dockman Drowns After Falling Off Pier into Water

DATE: May 27, 1993

SUMMARY

On the evening of November 28, 1992, a 58-year-old dock worker fell from a pier into a large river that divides two states. He had untied most of the lines that secured a barge to the dock when he was witnessed to fall from the pier into the water. His body was found the next day. NJDOH FACE investigators concluded that, in order to prevent similar incidents in the future, the following safety guidelines should be followed:

- **Employers should conduct a hazard assessment of all jobs, preferably with the assistance of employees.**
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- **Life vests should be worn at all times when working on docks or near water.**
- **Engineering or equipment changes should be implemented to prevent a worker from falling from a pier.**
- **Workers should not work alone on the dock or in other potentially hazardous areas.**
- **Employers and employees should be aware of the dangers of abuse of alcohol and other substances that may impair judgment or alertness at work.**

INTRODUCTION

On January 19, 1993, NJDOH FACE personnel learned about this work-related fall from the county medical examiner's Report of Investigation by Medical Examiner (RIME). The FACE site visit was conducted on March 24, 1993, after several weeks of waiting for the employer's representative to consent to a site visit. We were the first to report this fatality to OSHA and the investigation was conducted with the OSHA compliance officer. Information for this report was derived from the OSHA file, police report, medical examiner's report, and interviews with company employees and the employer's representative.

The employer was a family-owned company that cleans barge and ship storage tanks. The company has been in business at this site for 34 years and employed 18 non-unionized workers. They operate 24 hours a day with 15% of their work done on a weekend and 20% of their work done at night. No safety training was given to dock workers; there were no written operating procedures for this type of work. Several months prior to this incident two subcontract workers were overcome and hospitalized due to exposure in a confined space (ship's hull) to gasoline vapors.

INVESTIGATION

The site of the fatality was a pier on a large river dividing two states. The five acre compound is equipped with docks built to accommodate ships and barges in need of having their hulls or tanks cleaned. Various methods are employed to clean the vessels, depending upon the nature of the ship's contents. Two common types of cleaning are butterworthing and vacuuming. During the butterworthing method, the ship's crew uses hot water and steam to clean the inside of the hull. The hot water and hook-up devices are supplied by the tank cleaning company. During the vacuuming process, the ship's crew uses 3-inch vacuum hoses to remove residue in the hull or tank. The hoses are hooked to the tank cleaning company's vacuum lines and the residue from the ship is then stored by the company for recycling.

To carry out the vacuuming procedure, a dockman helps tie the barge or ship to the pier, transfers necessary papers, hands the crew 3-inch hoses for vacuuming, and connects the hoses to the company's vacuum lines. The dockman stays in the dock shed, a small building located on the pier, until the process is completed. He usually works alone. He then removes the vacuum hoses and unties the vessel, starting with the bow lines.

On the evening of the incident, a Saturday, a supervisor spoke with the victim at 6 p.m. and noted nothing unusual about the worker. During the evening, a barge with two crewmen was brought by a tug boat and tied up at the partially illuminated pier for vacuum cleaning. When the process was completed, after 9 p.m., the victim removed the vacuum hoses and released the bow lines. The end lines securing the stern of the barge to the pier were still on. Because it was empty, the barge rode high in the water. According to the barge crew members, they assessed the victim as being inebriated and told him they would remove the remaining lines. They witnessed the victim walk on the edge of the pier, lose his footing, and fall, catching himself between the dock and barge. He then fell into the water, after hitting his head on the barge, and drifted under the pier. The barge crew stated that there was debris all over the pier.

The worker was not wearing a life jacket. Since the bow lines had been released, the barge crew members were unable to leave their vessel to try to assist the injured dockman. It is unknown if they attempted to throw a life ring to the victim. The water in this area is reported to be about 30 feet deep at low tide. The weather was cold and windy and the tide was coming in.

Police were called and members of the fire department launched their boat to search for the victim. An underwater search unit also tried to find him. The search was called off at 10:40 p.m. because a change in the tide presented a danger to the searchers. The victim's body was found in the river around noon the following day.

CAUSE OF DEATH

The medical examiner determined that death was caused by drowning. The victim had a blood alcohol level of 0.211% and was considered by the state medical examiner to be under the influence of alcohol. The victim's blood alcohol level was twice the legal limit for operating motor vehicles in New Jersey.

RECOMMENDATIONS/DISCUSSIONS

Recommendation #1: Employers should conduct a hazard assessment of all jobs, preferably with the assistance of employees.

Discussion: A job hazard analysis is an important component of a comprehensive safety program. It is necessary to conduct a walk-through to assess each job, its environment, and its potential safety hazards, on each shift that job is performed. This is best conducted with the workers who know each job intimately. After the analysis is completed, necessary changes to eliminate hazards can be implemented.

A walk-through should include an assessment of job, task, and environmental hazards. Although it may not have had any association with the fatal fall, debris on the dock presents a slip and fall hazard. According to the barge crew men, the lights on the section of the pier that extends into the river were not functioning; lights on the remaining part of the pier were lit. There apparently was enough lighting in the area in which the victim fell for them to observe details of the event.

Recommendation #2: Life vests should be worn at all times when working on docks or near water.

Discussion: Because of the depth of the water in the area and the need to work at the edge of the pier, the employer should supply U.S. Coast Guard- approved life vests to all workers and ensure that they wear them. In the event of a worker falling into the water and becoming unconscious, an approved life vest would allow the worker to float with his face out of the water.

Although not required under OSHA marine standards, 29 CFR 1926.106 requires the use of U.S. Coast Guard-approved life jackets or buoyant work vests for workers engaged in construction over or near water, where the danger of drowning exists. OSHA should consider adoption of similarly protective standards for workers on docks and other locations who face the same danger from falling into water.

Recommendation #3: Engineering or equipment changes should be implemented to prevent a worker from falling from a pier.

Discussion: The dock area should be evaluated for fall protection implementation by a professional engineer who is knowledgeable about the type of work done in this environment. One type of fall protection that could be considered by the engineer is the use of nets that attach to the "dolphins," groups of upright timbers at the edge of the docks. This passive protection would not prevent a fall but may prevent a worker from falling into the water.

Recommendation #4: Workers should not work alone on the dock or in other potentially hazardous areas.

Discussion: Placing a worker on the dock alone, especially in the evening or night, with no means of communication or fall protection, is hazardous. Workers should not be working alone and should be equipped with some type of communication device.

Recommendation #5: Employers and employees should be aware of the dangers of abuse of alcohol and other substances that may impair judgment or alertness at work.

Discussion: The FACE investigation did not determine the extent that being under the influence of alcohol contributed to this incident. However, it is recommended that both employers and employees should be aware of the dangers that alcohol and other drugs (including prescription, non-prescription, legal, and illegal) may present in the workplace. Safety training should also include strong warnings about the use of any drugs or substances that may impair a worker's judgment, alertness, or physical abilities.

REFERENCE

Code of Federal Regulations, 29 CFR 1926.106, U.S. Government Printing Office, Office of the Federal Register, Washington, D.C.

FATALITY ASSESSMENT AND CONTROL EVALUATION (FACE) PROJECT

Staff members of the FACE project of the New Jersey Department of Health, Occupational Health Service, perform FACE investigations when there is a work-related fatal fall, electrocution, or confined space death reported. The goal of these investigations is to prevent fatal work injuries in the future by studying: the working environment, the worker, the task the worker was performing, the tools the worker was using, the energy exchange resulting in fatal injury, and the role of management in controlling how these factors interact.

To contact [New Jersey State FACE program personnel](#) regarding State-based FACE reports, please use information listed on the Contact Sheet on the NIOSH FACE web site. Please contact [In-house FACE program personnel](#) regarding In-house FACE reports and to gain assistance when State-FACE program personnel cannot be reached.