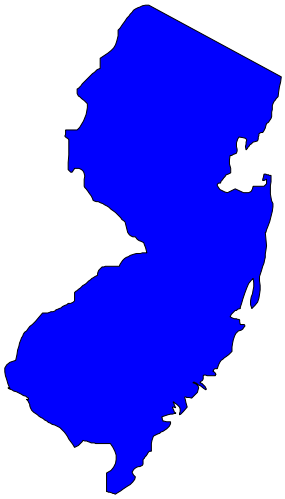
F.A.C.E.
INVESTIGATION REPORT

Fatality Assessment and Control Evaluation Project

FACE #94-NJ-092-01
Iron Worker Drowns After
Falling Off Barge into River



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TO: Division of Safety Research
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FROM: Fatality Assessment and Control Evaluation (FACE) Project
New Jersey Department of Health (NJDOH)

SUBJECT: FACE Investigation #94-NJ-092-01
Iron Worker Drowns After Falling Off Barge into River

DATE: February 9, 1994

SUMMARY

On June 22, 1994, a 45 year-old iron worker fell from a barge into a large river that divides two states. The victim was last seen working on the barge which had been docked at a shipyard for repairs. He and a co-worker were making a template for a welding job and were leaving the barge to start work on a steel rib. The victim apparently fell into the river as he jumped from the barge to the dock and drowned in the river. The co-worker, who did not see the incident, soon noticed that the victim was missing and reported this to the authorities. After a thorough search, the victim's body was recovered three days after the incident. NJDOH FACE investigators concluded that, in order to prevent similar incidents in the future, these safety guidelines should be followed:

o Gang planks should always be used to climb on and off barges and other vessels from the pier.

o Employers and employees must ensure that personal protective gear such as life vests are worn at all times when working near water.

o Employers should ensure that safety officers receive the proper training and support to do their jobs effectively.

o Employers and employees should conduct a job hazard analysis to identify and control potential safety hazards. o Employers should consider hiring a professional safety engineer to evaluate the dock and barge areas.

INTRODUCTION

On June 27, 1994, NJDOH FACE personnel learned about this work-related fall from an OSHA compliance officer. A site-visit was conducted concurrently with the OSHA inspection on June 30, 1994. At that time FACE investigators interviewed a management representative and photographed the scene. Additional information for this report was derived from the OSHA file, Coast Guard report, police report, and death certificate. The autopsy report was not available for this investigation.

The employer was a marine repair yard that performed repairs on barges and similar commercial vessels. The company had been in business for over 85 years and had been at this site for about 10 years. The company employed about 70 workers, 15 of which were welders with the job title of iron worker. The personnel director acted as the site safety officer and devoted about 10-15 % of his time to safety. The company did not have a written safety program. The victim was a union iron worker (welder) who had worked for the company since 1972.

INVESTIGATION

The incident occurred at the company shipyard located on a large river that divides two states. The river is a center for commercial shipping in the area and home to a variety of shipyards and industrial sites. The shipyard was equipped with three piers and five floating drydocks. The wooden piers were sturdy and in good condition and equipped with life rings located in regular intervals along the pier. Barges and other vessels waiting to be worked on were docked directly to the pier or tied side-by-side to one another.

The barge involved in the incident was a large, 35 year-old "deck scow", a flat barge that is surrounded with steel walls (or combing) running along the sides of the deck. The barge was approximately 110 feet long and was used to carry gravel. The barge had been tied near the end of the pier towards the river. Also tied to the pier behind the barge was a floating dry dock with a vessel in it. In the next pier beside the barge was a large tanker.

The day of the incident was a clear Wednesday afternoon with temperatures of 84 degrees and winds from the NW at 10 knots. The waters were calm, with currents ranging from 1.6 knots (ebb) to 1.9 knots (flood). The water temperature was 63 degrees. The victim and a co-worker were assigned as a welding crew to do repairs in the void of the barge's hull. The 12 foot deep empty voids (which were not used for storage) were accessed through a bolted hatch at each end of the barge. Because of the low morning tide, the crew used a gang plank to get on the barge. They opened the stern hatch and started to ventilate the space with a portable electric blower. After entering the space, they started work on a template needed to fabricate a steel rib to repair the barge.

There were no witnesses to the incident. At about 1 p.m., the victim and his co-worker were both in the barge completing the templates. The co-worker climbed out of the barge and helped the victim pass the templates through the hatch. At this time, the tide had shifted and the barge was approximately 2 feet from the pier. As the gang plank had been removed, the co-worker stepped off the barge onto the dock and started to talk with another employee. The victim was last seen standing on the barge near the hatch opening. The area around the hatch was cluttered with ropes, wires, hoses, and gravel; it was noisy because of the running ventilation blower and welding machine. After a few minutes, the co-worker went back to work and soon realized that the victim was missing. After searching the area, he began to suspect that the victim may have fallen into the water and called the Coast Guard and harbor police. A full search of the river was started within the hour but the victim could not be found. A search by a private diving company was initiated the next day. The body was found three days later by a tugboat captain about a mile down river.

Apparently the victim fell into the water as he jumped from the barge to the pier and was swept away by the outgoing tide. Due to the noise of the ventilator blower and welding machine, no one heard him hit the water or make any other sounds. Neither worker was wearing a work vest (life preserver), although a vest was noted near the hatch on the barge. This vest may not have been used because the workers were near the dock and it may have interfered with their climbing through the narrow hatch opening. It was stated by co-workers that the victim could not swim.

CAUSE OF DEATH

The death certificate listed the cause of death as drowning.

RECOMMENDATIONS/DISCUSSIONS

Recommendation #1: Gang planks should always be used to climb on and off barges and other vessels from the pier.

Discussion: The height and distance between a docked vessel and the pier is constantly changing due to tides and water currents. The risk of falling is reduced if a gang plank is consistently used to climb aboard vessels from the pier. The gang plank should be fitted with handrails and designed to move with the movements of the vessel.

Recommendation #2: Employers and employees must ensure that personal protective gear such as life vests are worn at all times when working near water.

Discussion: The victim, who could not swim, was not wearing a life vest when he fell into the water. To prevent incidents such as this, the FACE Project recommends that workers always wear a life vest when working near water (e.g., on a barge or a pier). In the event of a worker falling overboard, a coast guard approved life vest would keep the worker afloat and with his face out of the water should he become unconscious. In conjunction with the life vest, the use of a device that emits a flashing light and loud horn may also help in locating a worker in the water.

Recommendation #3: Employers should ensure that safety officers receive the proper training and support to do their jobs effectively.

Discussion: The company personnel director was only able to dedicate 10 to 15% of his time to safety due to his other responsibilities. He also received only minimal safety training. FACE recommends that safety officers should be properly trained to deal with shipyard hazards and have the support needed to to do their job effectively. This would include the time needed to conduct inspections and the authority to implement and enforce safety policies.

Recommendation #4: Employers and employees should conduct a job hazard analysis to identify and control potential safety hazards.

Discussion: To increase awareness of potential safety hazards, it is recommended that employers and employees should conduct a joint job hazard analysis of the worksite. This is done by conducting a walkthrough of the work site to assess each job, its environment, and any potential safety hazards. After the analysis, appropriate controls and safety training can be used to eliminate the hazards.

Recommendation #5: Employers should consider hiring a professional safety engineer to evaluate the dock and barge areas.

Discussion: There may be engineering controls to prevent workers from falling from docked barges. It may be useful to have the barges and dock area evaluated by a professional safety engineer who is familiar with this type of work environment.