



The National Institute for Occupational Safety and Health (NIOSH)

Promoting productive workplaces  
through safety and health research



# General Maintenance Person Asphyxiated Attempting to Repair Water Leak

FACE 8723

## Introduction:

The National Institute for Occupational Safety and Health (NIOSH), Division of Safety Research (DSR) is currently conducting the Fatal Accident Circumstances and Epidemiology (FACE) Project, which is focusing primarily upon selected electrical-related and confined space-related fatalities. The purpose of the FACE program is to identify and rank factors that influence the risk of fatal injuries for selected employees.

On October 21, 1986, a general maintenance person was asphyxiated when he became lodged in a water meter pit.

## Contacts/Activities:

Officials of the Occupational Safety and Health Program for the State of Indiana in cooperation with the National Institute for Occupational Safety and Health (NIOSH), Division of Safety Research (DSR) notified NIOSH of this fatality and requested technical assistance. This case has been included in the FACE Project. On February 3, 1987, a safety specialist conducted a site visit and met with representatives of the company which employed the victim. Interviews were conducted with the victim's foreman and a co-worker. The accident site was visited and photographs were taken.

## Background/Overview of Employer's Safety Program:

The victim worked as a general maintenance person for a construction company which employed 13 persons. The construction company provides construction-related maintenance for a local chain of restaurants. The safety functions at the construction company are managed by the Director of Operations. A written safety policy and a comprehensive safety program exist. Management personnel also conduct weekly staff meetings including discussions of safety-related matters.

## Synopsis of Events:

On the morning of October 21, 1986, a supervisor for the construction company instructed a maintenance person (the victim) to inspect and repair a leaking water valve. The water valve (a screw handle type) controlled the flow of water from the municipal water system to a local restaurant. After the supervisor instructed the victim, he then left the site of the restaurant to check on another job.

As there were no eye witnesses to the accident, the following scenario is based on inspection of the accident site and from interviews conducted with supervisors from the construction company and the state OSHA compliance officer.

Apparently the victim proceeded to the fiberglass water meter pit (14" diameter x 4' deep) approximately 25 feet from the side of the restaurant where the water valve was located. The water meter pit was buried in the ground and the top of the pit was at ground level. A metal cap was attached to the rim of the water meter pit and a water meter with an in-line shut off valve. A screw handle water valve, and the municipal water line were located in the pit. The valves were approximately 36 inches below the top of the pit (or ground level). The victim removed the metal cap covering the pit and placed the cap on the ground next to the pit opening. He then knelt beside the opening on both knees and reached into the pit until his head, both arms, and part of his shoulders were inside the water meter pit. Apparently, the victim became stuck upside down in the opening and could not free himself, causing asphyxiation due to positional deprivation of air.

NOTE: The victim was observed drinking alcoholic beverages before starting work on the morning of the accident. A blood alcohol analysis of postmortem blood found a concentration of ethanol of 188 mg/dl (0.18%). The legal intoxication level for Indiana is 0.10%. Of the 129 occupational electrical-related or confined space-related fatalities evaluated by NIOSH, as part of the FACE program, this is the second incident where the use of drugs or alcohol have been identified as contributory factors.

## Cause of Death:

The coroner's report listed the cause of death as positional asphyxia.

## Recommendations/Discussion:

**Recommendation #1: Supervisory personnel should routinely monitor employee performance to determine if employees have impaired physical and mental capabilities which may be related to the use of alcohol, illegal or over-the-counter drugs, or prescription medications.**

Discussion: This fatality occurred because the victim's physical and mental capabilities were impaired by the ingestion of alcohol. Supervisory personnel should be trained to recognize changes in job performance as they may relate to alcohol or drug use and in accepted and proven methods of dealing with these problems. Employees should not be assigned tasks when impaired physical and mental capabilities are observed, but should be taken to medical personnel who are trained to deal with these problems.

**Recommendation #2: Supervisory personnel should identify, evaluate, and address all possible hazards associated with the job site.**

Discussion: When employees are expected to work alone at job sites, the area should first be evaluated and all possible hazards identified and addressed by supervisory personnel. The location of the water valve inside the water meter pit required the use of extension tools, thereby eliminating the need to enter the water meter pit (even partially).

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