SAFE SHEET #1

Summary of Accidental Fatality Evaluations

NIOSH

The SAFE fact sheet is designed to assist NIOSH in monitoring occupational fatalities. We are asking everyone concerned with occupational safety to notify us of any electrical-related fatal injuries or confined space fatalities, as well as other occupational fatalities of interest to you. Please call us at 1-304-291-4820 between 8:00 a.m. and 4:30 p.m. EST to provide information about such accidents. Sharing this information will improve surveillance and aid in our common goal: the reduction of occupational fatalities.

CONFINED SPACES

A confined space is a space with limited openings for entry and exit, unfavorable natural ventilation which could contain dangerous air contaminants, and which is not intended for continuous employee occupancy. Confined spaces may kill by hazardous atmospheres (asphyxiating, flammable, or toxic), or by general safety hazards. A confined-space fatality is any fatality which occurs in a confined space, regardless of the cause of death.

Examples of confined spaces are:

SEWER	***STORAGE TANK***	***SHIP'S HOLD***
SEPTIC TANK	***SILO***	***REACTION VESSEL***
SEWAGE DIGESTER	***VAT***	***BOILER***
PUMPING/LIFT STATION	***DUCT***	***PIPELINE***
SEWAGE DISTRIBUTION or HOLDING TANK	***UTILITY VAULT***	***PIT***

* **CASE #1**: (fatalities = 1 worker)

A 58 year-old steel worker died when he fell into an industrial waste pit containing light tars, light oils, water, and napthalene at 160-180 degrees Fahrenheit. He and three co-workers were removing a steam operated pump mounted in the center of the pit, while standing on an unsecured 1" grating which rested on two I beams. The grating slipped from the edge of the I beam and fell into the pit. The victim fell into the pit along with the grating; a co-worker standing beside the victim was able to straddle one of the I beams and avoid falling into the pit. The coroner determined the cause of death to be due to suffocation and burns.

* **CASE #2**: (fatalities = 1 worker + 1 rescuer)

A 22 year-old worker died inside a toluene storage tank that was 10 feet in diameter and 20 feet high while attempting to clean the tank. The worker entered the tank through the 16 inch diameter top opening using a 1/2 inch rope for descent. Although a self-contained breathing apparatus was present, the worker was not wearing it when he entered the tank. The worker was overcome and collapsed onto the floor of the tank. In an attempt to rescue the worker, fire department personnel began cutting an opening into the side of the tank. The tank exploded, killing a 32 year-old firefighter and injuring 15 others.

* **CASE #3**: (fatalities = 1 worker)

A crew foreman became ill and was hospitalized after using an epoxy coating, which contained 2-nitropropane and coal tar pitch, to coat a valve on an underground waterline in an enclosed service vault (12' x 15' x 15'). The victim was released from the hospital after 24 hours, then readmitted three days later. He lapsed into a coma and died one week after readmission from acute liver failure induced by inhalation of 2-nitropropane and coal tar pitch vapors. A co-worker was also hospitalized, but survived.

ELECTRICAL-RELATED FATALITIES

An electrical-related fatality is any fatality which results from inadvertent contact with electricity. The actual cause of death is not necessarily electrocution (e.g., death could result from a fall caused by electrical contact).

* **CASE #1**: (fatalities = 1; severe injuries = 1)

An 18 year-old part-time laborer at a manufacturing plant was electrocuted when a metal pole he was carrying contacted a 7200 volt power line. The victim was walking across the roof with a 13' metal pole attached to a small chimney scraper. He carried the pole on his left shoulder, as a soldier carries a rifle. When he walked under the high voltage line, which was 13' 3" above the roof, the pole he carried contacted the power line and the victim was electrocuted. A 17 year-old co-worker was seriously injured when he apparently tried to rescue the victim.

* **CASE #2**: (fatalities = 1)

A 50 year-old utility worker was electrocuted when he elevated his aerial bucket into a 7200 volt power line. The worker was holding a de-energized 240 volt line which led to a nearby house. While the aerial bucket was insulated, the 240 volt line contained a grounded neutral wire which provided a "path to ground" when the victim contacted the 7200 volt line. He died from complications of thermal burns resulting from contact with electrical energy. He was not wearing his insulated rubber gloves (rated at 20,000 volts) when the accident occurred.

OTHER FATALITIES REPORTED

CASE #1: (fatalities = 1)

A 50 year-old welder was killed in a mining equipment repair facility when struck by a block of ice weighing approximately 1000 pounds. A coal car was brought into the heated facility (50-60 degrees Fahrenheit) during the winter, when temperatures outside were below freezing. The coal car, which contained frozen material (ice mixed with dirt, coal, and slag), was turned on its side and a cutting torch used to remove the wheel assemblies. The victim was working at a grinder with his back to the open bed of the coal car. As he worked, a large (3.5 x 4.5 x 1') piece of the frozen material became dislodged from the upper half of the car, fell and struck the victim's back, and pinned him against the grinder. He received severe internal injuries from blunt abdominal trauma and died three days later. The medical examiner determined the cause of death to be heart failure and overwhelming infection associated with interruption of the intestinal blood supply.

CONTRIBUTORS

Reports are especially solicited from coroners, medical examiners, occupational physicians, OSHA personnel (state and federal), public health workers, and state industrial commission personnel. The cases will NOT be identified in the fact sheet by name of victim, date, or location.

With *your* help this fact sheet can disseminate information, supplement NIOSH research efforts, and enable participants to access NIOSH for technical assistance in selected cases. If you desire technical assistance, we may need a written request in addition to your telephone call. Additionally, we may ask you to assist us if the fatality can be included in research currently being conducted at NIOSH.

Credit will be given by listing the contributors at the end of each issue. Contributers to this issue of "SAFE" are listed below in alphabetical order:

1. Larry Etchechury; Director, Industrial Commission of Arizona.
2. Dr. James L. Frost; Deputy Chief Medical Examiner, State of West Virginia.
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* *Indicates the National Institute for Occupational Safety and Health (NIOSH) provided technical assistance in the evaluation of these cases. To obtain more detailed case histories, call us at* **1-304-291-4820.**

What is NIOSH?

The National Institute for Occupational Safety and Health (NIOSH) was formed to conduct research, develop educational and training resources, and develop recommended standards in the area of occupational safety and health. NIOSH is part of the Centers for Disease Control (CDC), and the Public Health Service under the Department of Health and Human Services in the executive branch of the Federal Government.

NIOSH employs about 500 administrators, scientists, engineers, technicians, and support staff at its headquarters in Atlanta, Georgia and its laboratories in Cincinnati, Ohio and Morgantown, West Virginia.

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