

FATALITY INVESTIGATION REPORT

FACE Facts

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The Massachusetts Department of Public Health, in cooperation with the National Institute for Occupational Safety and Health, conducts investigations of fatal work-related injuries. The project, known as FACE (Fatality Assessment and Control Evaluation), seeks to identify the factors that contribute to occupational fatalities. The Face Project will help in the development and use of improved safety measures for preventing fatal injuries in the future.

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Massachusetts Welders Killed In Explosions Caused by Torch Cutting Containers



Explosion Hazard

Background: Torch cutting on “empty” containers such as tanks, drums, barrels or pipes can be extremely dangerous. Small amounts of substances remaining in containers can create serious explosion hazards for welders. During the last two years (2000-2001) three welders in Massachusetts were fatally injured while torch cutting on metal containers at work.

Incident # 1: A 61-year-old male mechanic supervisor with over 30 years of welding experience was fatally injured while torch cutting a 55-gallon metal drum. The drum, which had previously contained diesel fuel conditioner, exploded while he was cutting off the lid to recycle the container. The explosion caused the drum lid to strike the victim in

the head and chest knocking him to the ground. He was rushed to a hospital where he was listed in critical condition and died seven days after the incident.

Incident # 2: A 48-year-old male welder with over 30 years of welding experience was fatally injured while using a torch to install a bung in a new oil delivery truck tank. The 5,000-gallon truck tank had contained approximately 2,800 gallons of fuel oil at the time of the incident. The explosion caused severe burns to the victim. He was transported to a local hospital where he died eight hours later.

Incident # 3: A 28-year-old male service manager with six years of experience was fatally injured while torch cutting a 55-gallon metal drum. The drum, which had previously contained windshield washer fluid concentrate, exploded while he was cutting off the lid. The explosion caused the lid to strike the victim and land approximately 250 feet away. He was rushed to a local hospital where he was pronounced dead on arrival.

Recommendations to prevent similar incidents:

- Treat every container to be torch cut as if it contains a flammable substance.
- Never weld, cut, or perform other hot work on a container unless the container has been cleaned and vented thoroughly.*
- Test the internal atmosphere of the container, after cleaning and venting and before performing hot work, with a calibrated direct-reading instrument for flammable gases and vapors.
- Use a hand held manual lid remover when removing a lid from a barrel or drum (instead of torch cutting or using a pneumatic tool, which produces sparks).
- Never use a container as a hot work bench.
- In addition, employers should provide annual training for welders that reinforces proper torch cutting procedures including equipment use, awareness of hazards and safe work practices.

* Occupational Safety and Health Administration (OSHA) Standard: 29CFR1910.252
General requirements. *Welding, Cutting, and Brazing.*
This standard can be found at: http://www.osha.gov/OshStd_data/1910_0252.html