



Prevention through comprehensive research and investigation

INVESTIGATION/RESEARCH CASE# 03MI080: PYROTECHNICIAN STRUCK IN HEAD BY FIREWORK

- In 2003, 41-year-old male independent fireworks shooter and the "pyrotechnician in charge" of a fireworks display died when struck in the back of the head by a 4-inch Lampare firework shell that used a 45-second delay fuse and a quick match fuse.
- The display was set up in a gravel pit that had three "levels" with shells placed and lit at each level.
- The victim used a propane torch to manually light his zone of shells on the lowest level and was found lying in the sand later in the show by an assistant.
- He did not have a spotter or communication device.
- Autopsy results showed a blood alcohol level of 0.2464%.

IN ORDER TO PREVENT SIMILAR INCIDENTS IN THE FUTURE

- Do not be in the discharge area if you are under the influence of alcohol, narcotics or medication that could adversely affect your judgment, mobility or stability.
- Bury mortars in the ground to a depth of at least $\frac{2}{3}$ to $\frac{3}{4}$ of their length and ensure they are appropriately angled and prevented from being driven into the ground or re-angled when fired.
- Light all fireworks at greater than arm's length with an appropriate lighting device, such as a portfire.
- All personnel working in the display area must wear head, eye, hearing and foot protection. Appropriate clothing, such as cotton, wool or similarly flame-resistant, long sleeved, long-legged clothing, and safety shoes, or at the very least, leather shoes or work boots must also be worn.
- Ensure members of the shoot team can communicate with each other.
- Have an appropriate number of trained "spotters" at the display site.
- Ensure that all assistants are fully trained in the proper performance of their assigned tasks.
- Authorities having jurisdiction (AHJs) should be properly trained to identify display-site violations and ensure that appropriate corrections are made before allowing the shoot to proceed.

DID YOU KNOW?

- $\frac{2}{3}$ of annual firework-related injuries occur between June 20 & July 20 (CPSC 2003 Fireworks Annual Report)
- In 2002, a person working in the display area was killed by an exploding mortar
- In serious firework accidents, usually several, not just one, safety rules are ignored and broken
- Parts of the body most often injured are hands, eyes, and the head/face/ear region
- Flashlights, electric lights, or other approved illumination devices should be used to illuminate the firing site-fusees should be used only at the mortar line

Full MIFACE investigation report #03MI080
www.chm.msu.edu/oem Click on MIFACE icon

CPSC: www.cpsc.gov

American Pyrotechnics Association:
www.americanpyro.com

Pyrotechnics Guild International: www.pgi.org

OSHA: www.osha.gov/SLTC/pyrotechnic/index.html

NFPA: www.nfpa.org/Research/NFPAFactSheets/Fireworks/fireworks.asp

Fireworks Ed. Safety & Training: www.fest.bz

Hazard Alert #3 10/12/04

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**MICHIGAN FATALITY ASSESSMENT &
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