



June 1994

ALASKA FACE Facts

Department of Health and Social Services
Division of Public Health-Section of CHEMS
Occupational Injury Prevention Program

Welder's Helper Asphyxiated in Argon-Inerted Pipe

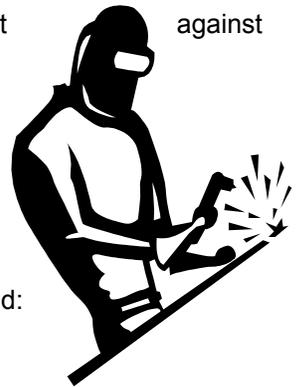
On April 29, 1994, a 22-year-old, male welder's helper (victim) was asphyxiated after entering an oil pipe section that had been filled with argon. The victim had been assisting in a welding operation to join two sections of pipe for a line currently under construction. The pipeline was being constructed to carry crude oil from an oil field to a flow station. An inerting agent (argon gas) was required to prevent the reactive components of air (oxygen, nitrogen, hydrogen) from contacting molten metal during the welding process. Contact with these gases results in the formation of oxides, nitrites, and undesirable gases. This chemical reaction can result in a weakened weld.

An oxygen purge system was set up in the section of pipes to be joined. This was accomplished by using a "dam system" or "pig" to isolate the pipe interfaces, filling the "pig" with argon, and welding the sections together when the oxygen was purged, as indicated by an oxygen analyzer (see figure 1). On the day of the incident, the work crew discovered that they were unable to maintain an adequate oxygen purge (possibly due to leaks and incidental oxygen in the analyzer's line hose). It is unclear if a member of the crew was assigned the sole duty of reading the oxygen analyzer. Statements by witnesses indicate that this was more likely a collective activity of the crew.

The work crew decided to replace the line to the oxygen analyzer with a shorter line connected through an access port recently welded onto the pipe (see figures 2 and 3). A welder's helper apparently entered the pipe to make this change

prior to adequate ventilation. Some time later, other work crew members could not locate the victim and became concerned when the victim's hard hat was noticed on a wooden platform beside the pipe entry point. At approximately 1:45 PM, they realized he was in the pipe and attempted a rescue. After ventilating the pipe, three workers entered a downward sloping segment of the pipeline and attached a rope to the victim. He was removed from the pipe, and CPR was initiated. He was transported to a nearby medical facility by EMTs, where he was pronounced dead at 2:28 PM. As a result of investigations by other agencies, criminal charges of manslaughter have been brought against two individuals in this case.

Based on the findings of the epidemiologic investigation, to prevent similar occurrences, employers and contractors should:



- ensure that all permit-required confined spaces are identified and that an appropriate system for entry/work is in place.
- ensure that all workers use appropriate confined space equipment and procedures. All workers entering a permit-required confined space must have an attached lifeline and a method for communicating with co-workers. Confined spaces must be properly ventilated prior to entry, and a "competent person" must monitor the confined space entry and work operation.
- ensure that workers entering confined spaces know the appropriate procedures to rescue an injured worker in a confined space.
- ensure that emergency medical technicians are fully trained and competent prior to assigning such employees to regular duties.

To view previous FACE reports please visit the Occupational Injury Prevention Program website:

http://www.hss.state.ak.us/dph/chems/occupation_injury

or

Call or fax your request to:

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