

ACCIDENT SUMMARY

Accident Type: Flash fire from crude oil vapors
 Weather Conditions: Clear, sunny
 Type of Operation: Oil well servicing/Production
 Size of Work Crew: 3
 Worksite Inspection Conducted by Employer: No
 Competent Safety Monitoring on Site: No
 Safety and Health Program In Effect: Minimal
 Training and Education for Employees: Minimal
 Job Title of Deceased Employee: Laborer
 Age/Sex of Deceased Employee: 26/M
 Time on Job: 1 day
 Time at Task: 2 hours
 Short Service Employee (<1 Year): Yes
 Time Employed: 2 months



Cut end of pipe in trench.

BRIEF DESCRIPTION OF ACCIDENT

Three employees were working on a leaking crude oil flow line that connected a production well to its tank battery. They dug a trench to access the leaking flow line and cut out a 6-ft. long section from the pipe using a cold cutter. Two of the employees attempted to thread the cut on the flow line with a manual pipe threading machine (threader) but the dies on the threader were dull. Therefore, the workers asked the office to have new dies for the machine delivered to the site. Instead of installing the new dies in the manual pipe threader that was used earlier, the dies were installed in an electric pipe threader. Two of the employees got in the trench with the electric pipe threader and started to thread the exposed pipe when flammable vapors were ignited by the electric pipe threader. As a result, a flash fire engulfed the trench in flames. The third employee discharged two fire extinguishers to extinguish the fire. The two employees that were in the trench were hospitalized with second- and third-degree burns to their arms, neck and faces. One of these employees died at the hospital. The other burned employee was hospitalized and released at a later date.

ACCIDENT PREVENTION

1. Perform job hazard analyses (JHAs) prior to beginning work to determine potential hazards of the job and their controls such as leaking flammable vapors from equipment that had previously contained hydrocarbons, control of ignition sources, working in excavations, and lockout/tagout.
2. Do not use electrical tools and equipment that are not approved for the hazardous location where the work is to be performed, i.e., do not allow unapproved electrical tools and equipment to be an ignition source for flammable vapors.
3. Develop and implement a hot work permitting program that includes atmospheric monitoring for concentrations of flammable vapors and provide ventilation to limit the concentration of flammable vapors to below 10% of their LEL.

You Have a Voice in the Workplace

The *Occupational Safety and Health Act of 1970* affords workers the right to a safe workplace (see OSHA's **Worker Rights** page, www.osha.gov/workers.html). Workers also have the right to file a complaint with OSHA if they believe that there are either violations of OSHA standards or serious workplace hazards.

How OSHA Can Help

For questions or to get information or advice, to report an emergency, report a fatality or catastrophe, or to file a confidential complaint, contact your nearest OSHA office, visit www.osha.gov or call our toll-free number at 1-800-321-OSHA (6742), TTY 1-877-889-5627. It's confidential.

More Information

Upstream oil and gas safety and health:
www.osha.gov/SLTC/oilgaswelldrilling/index.html

OSHA standards and regulations:
www.osha.gov/law-regs.html

OSHA publications:
www.osha.gov/publications

OSHA's free On-site Consultation services:
www.osha.gov/consultation

Training resources:
www.osha.gov/dte/index.html



4. Provide and require the use of flame-resistant clothing (FRC) for workers who are exposed to flash-fire hazards.
5. Provide worker training emphasizing the following:
 - a. hazards related to working with piping and other equipment that has contained hydrocarbons;
 - b. the use of electrically approved tools and equipment for locations where flammable vapors might be present, i.e., hazardous atmospheres; and
 - c. hazards of working in trenches, for example, engulfment hazards and fire/explosion hazards due to the fact that flammable vapors accumulate and do not readily dissipate from trenches and other low-lying areas.

Note: The described case was selected as being representative of improper work practices which likely contributed to a fatality from an accident. The accident prevention recommendations do not necessarily reflect the outcome of any legal aspects of the incident case. OSHA encourages your company or organization to duplicate and share this information.



U.S. Department of Labor
www.osha.gov (800) 321-OSHA (6742)