

## Permitted Work — A Special Cause of Increased Risk

On Nov. 9, 2010, a contractor was welding new support brackets on a tank at a chemical plant in Buffalo, NY. The tank had contained a water-based polymer slurry, but had been emptied, cleaned, and approved for hot work. Before and during the hot work, the area outside of the tank had been monitored for flammable vapors, but the inside of the tank had not. Sparks from the hot work ignited flammable vapors that were present inside the tank and caused it to explode. The explosion killed one person (the welder) and injured another.

Several factors contributed to the incident, including an overflow connection to other tanks with flammable vapors that was overlooked and a piping leak inside the tank. Most importantly, the inside of the tank had not been monitored for flammable vapors before and during the hot work. (Read U.S. Chemical Safety Board (CSB) Report No. 2011-01-I-NY for more information on this incident.)

Activities that are not performed on a regular basis may require a work permit. Permits provide a checklist to verify that the unique hazards are properly understood and managed before, during, and after the activities. Work that typically requires a permit includes confined space entry (CSE), hot work, lockout/tagout (LOTO), and breaking a line or opening equipment. Some companies use permits for other nonstandard activities, such as moving and setting cranes, using vacuum trucks, and disabling safety systems. Serious incidents in the chemical process industries (CPI) often involve these or other permitted activities.



▲ The aftermath of a fatal explosion and flash fire that occurred during permitted hot work at a chemical plant. Image courtesy of the CSB.

### Did You Know?

- Some nonstandard activities require safeguards to be removed or disabled during the work. The usual alarms may not be active or a safety system may not be available.
- During nonstandard work, valves may be placed in different positions because of changed process conditions, which should be noted on the permit.
- Contractors may perform work as part of the permit and may not understand a process and its risks.

### What Can You Do?

- Recognize when activities require a permit and follow the permit procedures.
- Do not take any shortcuts when preparing to perform permitted work or when completing the permit. If contractors are performing the work, make sure they are aware of conditions and properly perform their part of the work.
- After activities are completed, verify that the work-site is ready to return to service and all of the safety systems are functional.
- If you are assigned a role in a permitted activity, take it seriously. Your life and that of others may depend on it.

***Use work permits as if your life depends on them, because it may!***

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