

To Permit or Should You Be

To permit or not to permit? Chances are, contractors working at your facility are asking themselves this question. As many contractors will attest, a wide variety of permit systems are being used throughout the chemical industry. For example, at some facilities, a contractor may need a permit to *obtain* the permit to begin working. At other sites, the only permits in use are those required by the Environmental Protection Agency.

Consider this scenario: Contractors installing a sprinkler system found that a site used only one permit for safe work practices. This seemed acceptable—until those involved realized it only covered hot work. Had other work been needed, no permit would have been required at all. Furthermore, the hot work permit issued was a lightweight, 5"x7" carbon copy that the craftsman folded and stuck in his pocket. Although this might sound like an exception, a number of companies employ such a system.

A COMPREHENSIVE PERMIT SYSTEM

This article explains a comprehensive permit system that covers general work, hot work, confined space entry and fire system repairs. It also advocates permitting *all* maintenance and contractor work activities conducted within a facility (except in those areas designated as permanent fabrication shops, which are typically isolated from process and storage areas that contain flammable and hazardous materials).

To ensure quick identification of the

type of work in progress—both in the office and in the field—permits can be color-coded (e.g., green for general work permits; red for hot work permits; fluorescent green for confined space entry permits; bright yellow for fire system repair permits). When prominently posted at the job site, these permits alert all plant personnel—as well as safety inspectors—to the activities in progress. Although an added expense, 8½"x11" permits are the most visible type. In addition, although the file copy can be lightweight, the field copy should be sturdy enough to withstand weather conditions.

SAFE WORK PERMITS

The general or safe work permit is the foundation of an effective permit system. Some companies prefer the term "safe" because it connotes the desired outcome. A safe work permit is the first step to starting any job. It must contain general information such as: 1) craftsman's name and name of company performing the work; 2) location of work to be performed (e.g., tank farm); 3) description or identification number of equipment involved (e.g., T-2317); 4) date and time of issue; 5) related work order; 6) verification that the contractor has completed required safety training (e.g. site-specific safety orientation); and 7) permit issuer's signature.

The safe work permit should address relevant elements of 29 CFR 1910.147 Lockout/Tagout; 29 CFR 1910.1200 HazCom and, where applicable, 29 CFR 1910.119 Process Safety Management (PSM). The permit should indicate that all associated equipment has been cleaned,

de-energized, tagged and locked out by appropriate operations personnel as well as those who will perform the work. While it is not required under 29 CFR 1910.147, it is recommended that all craftspeople sign the affected individual's log and that the installer's log indicate the location of all tags and locks.

If the process is covered by the PSM standard, the contractor must receive an overview of process hazards before beginning work. Hazards involved and required personal protective equipment (PPE) should be noted on the permit as well.

If chemical hazards are involved, the Hazardous Material Identification System (HMIS) ratings and threshold limit value (TLV) noted on the permit are quick references for craftspeople. For example, a craftsman trained in HazCom, will recognize that an HMIS rating of 3 or 4 and/or an extremely low TLV requires extra precautions. In addition, the safe work permit should also state that should an emergency alarm sound, all permits are void and must be reissued before work resumes.



Not to Permit?

ASKING THIS QUESTION?

By GERALD W. GAMMEL

In large chemical manufacturing facilities, many types of work activities can be in progress at one time, with multiple crafts involved. An effective permit system is crucial in such a facility. This article explains a comprehensive permit system that covers general work, hot work, confined space entry and fire system repairs. It also advocates permitting *all* maintenance and contractor work activities conducted within a facility.

HOT WORK PERMITS

Jobs that involve hot work (e.g., welding, burning, grinding) require a hot work permit as mandated by OSHA 29 CFR 1910.119 and 1910.252 Welding, Cutting and Brazing.

Although not required, it is useful to require both a safe work permit and a hot work permit. Often, some preparation work must be completed before hot work begins. In this system, only a safe work permit is needed to start the job; this ensures that hot work begins only when area personnel and supervisors are ready. Once all necessary precautions have been taken, the hot work permit is issued.

Although some information will be duplicated on the two documents, the dual-permit process ensures a second

review with craftspeople before hot work begins. This is key, because the welder often has not been involved in the prep work and, consequently, may be unaware of any special conditions that exist.

The hot work permit also: 1) verifies that a proper type of fire extinguisher is in place; 2) requires a trained fire watch (per 29 CFR 1910.252) who is familiar with the plant alarm system and location of the nearest activation switch; 3) contains a checklist of equipment being used (e.g., welding machine, gas torch, electric grinder) and PPE requirements, including clothing required by 29 CFR 1910.132; 4) verifies adequate ventilation; and 5) requires that a ground fault circuit interrupter be used at the source on all electrical cords.

Some sites note the wind direction on the permit and review it with craftspeople,

and require that the fire watch sign-off each time work stops (for breaks, etc.); notation of start/stop times on the permit ensures compliance with the 30-minute observation requirement as well.

In some cases, a site may also require that high-visibility barricade tape be used to identify/isolate the hot work area, and that different levels of hot work be noted on the permit to allow for downgraded conditions associated with small jobs that involve no "open flame" (e.g., electric drill that does not require a fire watch). It may also be useful to issue a public address announcement that hot work is in progress.

CONFINED SPACE ENTRY PERMIT

OSHA 29 CFR 1910.146 requires that a permit be issued prior to entry. Here again, a dual-permit system—which

requires both a safe work permit and an entry permit—is recommended. Separate issuance of these permits ensures additional review with involved personnel prior to entry. As with hot work, some prep work is required before entry activities begin. By issuing only a safe work permit initially, site management ensures that entry begins only when all involved are prepared.

The confined space entry permit should also include: 1) monitoring equipment calibration data and test results of atmospheric conditions in the space (e.g., oxygen content, lower flammable limit for combustibles, detection for toxins and name of person who conducted the tests); 2) names and signatures of attendant, entrant(s) and permit issuer; 3) PPE requirements (including fall protection if necessary); 4) an entrant roster to help the attendant track who is inside at any given time; 5) preparation and isolation techniques used to prepare equipment for entry; and 6) hazards of entry (e.g., hazardous characteristics of last contained chemical, including TLV).

In addition, a danger sign should be posted at the site and the area barricaded to prevent unauthorized entry; a rescue procedure must be in place for vertical entries; and a means of communications (e.g., radios) established between entrant and attendant, and between attendant and emergency responders. Periodic air monitoring of the confined space should also be performed. A sample permit is available in Appendix D of 1910.146 (at www.osha.gov).

EMERGENCY EQUIPMENT REPAIR PERMIT

This permit is also recommended subsequent to issuance of a safe work permit. Its primary purpose is to notify affected plant personnel—including emergency responders—that emergency equipment (such as sprinkler or deluge systems, underground mains, fire monitors and emergency alarm systems) has been taken out of service and that precautions must be taken to ensure the safety of affected personnel.

Portable equipment (e.g., portable foam units and fire monitors) should be placed in optimum locations to provide the necessary protection during the outage. Information that should be noted on the emergency equipment repair permit includes: 1) name of emergency equipment and reason for removing it from

service; 2) estimated downtime; 3) notification checklist for affected departments; 4) names of qualified personnel and list of necessary tools and equipment on hand prior to shutting down emergency equipment to minimize downtime where possible; 5) sign-off by supervision of the affected area and contractor supervision; and 6) completion signatures of affected area and contractor.

In addition, system isolations should be tagged and locked out pursuant to OSHA 29 CFR 1910.147; all hot work in the affected areas should be stopped; and affected areas notified before the system is shut down and when service returns.

ADVANTAGES RECAPPED

To recap, advantages of using a multi-permit system that employs large 8½"×11" color-coded permits include: 1) highly visible; 2) sufficient space to accommodate all required and desired information; and 3) multiple and thorough reviews with craftspeople and affected personnel to ensure complete understanding of all aspects of the job. In addition, the backside of the field copy can be used to restate company policy or procedures; provide relevant maps; list the required roster for the confined space entry attendant to track entrant activity; or provide a pre-start checklist for the permit issuer to review with relevant craftspeople.

CONCLUSION

Under the permit system detailed, jobs that involve hot work inside a confined space would require three of the permits described (safe work, hot work and confined space entry). All initial information required for the safe work permit (e.g., contractor and company name, involved equipment ID) is duplicated on the other permits. Each is not issued until the prescribed work is to begin. Although this may seem like overkill, strict control of work activities in a chemical facility is a critical element in the effort to prevent catastrophic events.

Clearly, the system described would be an added expense to facilities that currently use a single-permit system. System cost will vary greatly depending on quantities purchased. In some cases, ordering several thousand permits at one time could lower the cost per permit considerably, while ordering smaller quantities could lead to a high per-permit price

(50 to 60 cents per piece). This is quite expensive when one considers that smaller 5"×7" permits can typically be purchased for as little as 10 cents each, depending on whether it is generic or site-specific; a generic permit can be purchased in tablet form for less than five cents per permit.

For small facilities that employ only a few personnel onsite at any given time, the lightweight permit may be sufficient. In such cases, it is possible that all plant personnel would either be involved in or made aware of any maintenance work in progress as well as of any contractors working onsite. Such is not the case in larger facilities, however, where many types of work activities can be in progress at one time, with multiple crafts involved. An effective permit system is crucial in such a facility.

The safety professional must know the site and weigh the advantages and disadvantages of the different types of permits. Cost is always a consideration, but the ultimate goal is to prevent injuries and incidents. The added expense is well worth it if one incident involving injuries, fatalities or major damage is prevented. ■

REFERENCES

Occupational Safety and Health Administration. "Confined Space Pre-Entry Checklist." 29 CFR 1910.146 Appendix D. Washington, DC: U.S. Dept. of Labor, OSHA, 1993.

National Paint & Coatings Assn. *Hazardous Materials Identification System*. 2nd ed. Washington, DC: NPCA, 1996.

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