

To The Point

Process Safety Management

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Numerous companies have suffered catastrophic accidents as a result of inadequate process safety management (PSM) implementation. A number of these incidents could have been prevented, or at least minimized, with continual observance and adherence to process safety management requirements and operational best practices.

Since complex processes can be very sensitive to even small changes, proper management of change to industrial facilities and processes is recognized as critical to safety. The U.S. Occupational Safety and Health Administration (OSHA) has regulations that govern how changes are to be made and documented. In addition, the prevention program portion of the U.S. Environmental Protection Agency (EPA) 40 CFR 68 Risk Management Program (RMP) regulation outlines specific provisions that address PSM.

PSM Best Practices

- Develop formalized policies on PSM programs in accordance with OSHA CFR 1910.119. The policies should outline the required actions to take when considering any process change (equipment, piping, controls and associated set points, etc.) in addition to process or control re-validation procedures and review frequencies.
- Establish and implement written procedures to manage changes (except for “replacements in kind”) to process chemicals, technology, equipment and procedures, and changes to facilities that affect a covered process. The procedures should address the following considerations prior to any change:
 - The technical basis for the proposed change
 - Impact of change on safety and health
 - Modifications to operating procedures
 - Necessary time period for the change
 - Authorization requirements for the proposed change

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Prevents catastrophes through design, monitoring, and control

- If a change is warranted that effects the process safety information or a change to the operating procedures or practices, the safety information and/or safe operating procedures and practices should be updated accordingly.
- On average, every five years after the completion of an initial Process Hazard Analysis (PHA), the PHA should be updated and revalidated by a team with expertise in engineering and process operations. The team should include at least one employee who has experience and knowledge specific to the process being evaluated. Also, one member of the team must be knowledgeable in the specific process hazard analysis methodology being used. Once completed initially, it becomes much easier to perform PHAs in the future.
- Establish a system to promptly address the team's findings and recommendations, and:
 - Ensure that the recommendations are resolved in a timely manner and that the resolution is documented
 - Document what actions are to be taken
 - Complete actions as soon as possible
 - Develop a written schedule of when these actions are to be completed
 - Communicate the actions to operating, maintenance and other employees whose work assignments are in the process and who may be affected by the recommendations or actions
- Develop and implement written safe operating procedures that provide clear instructions for safely conducting activities involved in each covered process consistent with the process safety information. The operating procedures should be reviewed as often as necessary to assure that they reflect current operating practice, including changes in process chemicals, technology, equipment and facilities. The employer should certify annually that these operating procedures are current, accurate, and continually adhered to.

Conclusion

A thoroughly conducted and regularly updated Process Hazard Analysis will discover the workplace hazards that personnel will potentially encounter while operating any process. Many plants have also seen the results as helping streamline the operation, adding or deleting features which help them not only from a loss prevention point of view, but also from an operational point of view, especially older plants with inherent inefficiencies.

Resources

EPA 40 CFR 68
www.ecfr.gov/cgi-bin/text-idx?c=ecfr&SID=7ddb801e53fb4b5597549dcb1e215f23&tpl=/ecfrbrowse/Title40/40cfr68_main_02.tpl

OSHA CFR 1910.119
www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=9760

BP America Texas City Refinery Explosion Investigative Report, Chemical Safety Board
www.csb.gov/bp-america-refinery-explosion/

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