

# CHAPTER 13

## PROCESS SAFETY MANAGEMENT

### **PURPOSE**

The purpose of Process Safety Management (PSM) of highly hazardous chemicals, is to prevent the unwanted releases of hazardous chemicals into locations which could expose employees to serious hazards. An effective process safety management program requires a systematic approach to evaluating the whole process. Using this approach the process design, process technology, operational and maintenance activities and procedures, non-routine activities and procedures, emergency preparedness plans and procedures, training programs, and other elements which impact the process are all considered in the evaluation. The various lines of defense that have been incorporated into the design and operation of the process to prevent or mitigate the release of hazardous chemicals need to be evaluated and strengthened to assure their effectiveness at each level. Process safety management is the proactive identification, evaluation and mitigation or prevention of chemical release that could occur as a result of failures in process, procedures or equipment.

The process safety management standard targets highly hazardous chemicals that have the potential to cause a catastrophic incident. This standard as a whole is to aid employers in their efforts to prevent or mitigate episodic chemical releases that could lead to a catastrophe in the workplace and possibly to the surrounding community. To control these types of hazards, employers need to develop the necessary expertise, experiences, judgment and proactive initiative within their workforce to properly implement and maintain an effective process safety management program as envisioned in the OSHA standard (29 CFR 1626.64). This OSHA standard is required by the Clean Air Act Amendments, as is the Environmental Protection Agency's Risk Management Plan. Employers, who merge the two sets of requirements into their process safety management program, will better assure full compliance with each as well as enhancing their relationship with the local community.

### **HOST EMPLOYER RESPONSIBILITIES**

The host employer, when selecting a contractor, shall obtain and evaluate information regarding the contract employer's safety performance and programs.

The host employer shall inform contract employers of the known potential fire, explosion, or toxic release hazards related to the contractor's work and the process.

The host employer shall explain to contract employers the applicable provisions of the emergency action plan.

The host employer shall develop and implement safe work practices consistent with the requirements of the PSM standard, to control the entrance, presence and exit of contract employers and contract employees in covered process areas.

The employer shall periodically evaluate the performance of contract employers in fulfilling their obligations as specified in the PSM standard.

The employer shall maintain a contract employee injury and illness log related to the contractor's work in process areas.

### **CONTRACTOR RESPONSIBILITIES**

HTS AmeriTek employees must perform their work safely.

Considering that HTS AmeriTek employees often perform very specialized and potentially hazardous tasks such as confined space entry activities and non-routine repair activities, it is important that these activities be controlled while working on or near a covered process. HTS AmeriTek employees may not perform this type of work unless a work permit or authorization has been obtained from the host employer.

HTS AmeriTek employees will not perform any hot work unless a hot work permit has been obtained.

HTS AmeriTek shall assure that each employee is trained in the work practices necessary to safely perform his/her job.

HTS AmeriTek shall assure that each employee is instructed in the known potential fire, explosion, or toxic release hazards related to his/her job and the process, and the applicable provisions of the emergency action plan.

HTS AmeriTek shall document that each employee has received and understood the training required by this program. Training records will be maintained at the administrative office and will include the identity of the contract employee, the date of training, and the means used to verify that the employee understood the training.

HTS AmeriTek shall assure that each employee follows the safety rules of the facility and attends any specialized training, such as site-specific orientation, required by the host employer.

HTS AmeriTek shall advise the host employer of any unique hazards presented by the contract employer's work, or of any hazards found by the contract employer's work.

HTS AmeriTek employees must respect the confidentiality of trade secret information when the process safety information is released to them.

### **PROCESS SAFETY INFORMATION**

Complete and accurate written information concerning process chemicals, process technology, and process equipment is essential to an effective process safety management program and to a process hazards analysis. The compiled information will be a necessary resource to a variety of users including the team that will perform the process hazards analysis, those developing the training programs and the operating procedures; contractors whose employees will be working with the process; those conducting the pre-startup reviews; local emergency preparedness planner; and insurance and enforcement officials.

The information to be compiled about the chemicals, including process intermediates, needs to be comprehensive enough for an accurate assessment of the fire and explosion characteristics, reactivity hazards, the safety and health hazards to workers, and the corrosion and erosion effects on the process equipment and monitoring tools. Current material safety data sheet (MSDS) information can be used to help meet this requirement which must be supplemented with process chemistry information including runaway reaction and over pressure hazards if applicable.

HTS AmeriTek will rely on the host employer to provide information when it is required.

### **PROCESS HAZARD ANALYSIS**

A process hazard analysis (PHA), sometimes called a process hazard evaluation, is one of the most important elements of the process safety management program. A PHA is an organized and systematic effort to identify and analyze the significance of potential hazards associated with the processing or handling of highly hazardous chemicals. A PHA provides information that will assist employers and employees in making decisions for improving safety and reducing the consequences of unwanted or unplanned releases of hazardous chemicals. A PHA is directed toward analyzing potential causes and consequences of fires, explosions, releases of toxic or flammable chemicals and major spills of hazardous chemicals. The PHA focuses on equipment, instrumentation, utilities, human actions (routine and non-routine), and external factors that might impact the process. These considerations assist in determining the hazards and potential failure points or failure modes in a process.

## **EMPLOYEE TRAINING**

All HTS AmeriTek employees involved with highly hazardous chemicals need to fully understand the safety and health hazards of the chemicals and processes they work with for the protection of themselves, their fellow employees and the citizens of nearby communities. Training conducted in compliance with the OSHA Hazard Communication standard, will help employees to be more knowledgeable about the chemicals they work with as well as familiarize them with reading and understanding MSDS. However, additional training in subjects such as operating procedures and safety work practices, emergency evacuations & response safety procedures, routine and non-routine work authorization activities will also be conducted upon initial assignment, on an annual basis and whenever required due to the nature of work activities.

## **NON-ROUTINE WORK AUTHORIZATIONS**

Non-routine work, which is conducted in process areas, needs to be controlled by the host employer in a consistent manner. The hazards identified involving the work that is to be accomplished must be communicated to those doing the work, but also to those operating personnel whose work could affect the safety of the process. A work authorization notice or permit must be provided to the HTS AmeriTek employee before work can begin. The site safety representative will inform the supervisor of the procedure or steps the HTS AmeriTek employees need to follow to obtain the necessary clearance to get the job started. The work authorization procedures should reference and coordinate, as applicable, lockout/tagout procedures, line-breaking procedures, confined space entry procedures and hot work authorization. This procedure also needs to provide clear steps to follow once the job is completed in order to provide closure for those that need to know the job is now completed and equipment can be returned to normal.

## **MANAGING CHANGE**

Temporary changes have caused a number of catastrophes over the years, and employers need to establish ways to detect temporary changes as well as those that are permanent. It is important that a time limit for temporary changes be established and monitored since, without control, these changes may tend to become permanent. Temporary changes are subject to the management of change provisions. In addition, the management of change procedures is used to insure that the equipment and procedures are returned to their original or designed conditions at the end of the temporary change. Proper documentation and review of these changes is invaluable in assuring that the safety and health considerations are being incorporated into the operating procedures and the process.

## **INVESTIGATION OF INCIDENTS**

Incident investigation is the process of identifying the underlying causes of incidents and implementing steps to prevent similar events from occurring. The intent of an incident investigation is for employers to learn from past experiences and thus avoid repeating past mistakes. The incidents for which OSHA expects employers to become aware and to investigate are the types of events that result in or could reasonable have resulted in a catastrophic release. Some of the events are sometimes referred to as “near misses,” meaning that a serious consequence did not occur, but could have.

HTS AmeriTek employees must immediately report all accidents, injuries and near misses. HTS AmeriTek will investigate any and all accidents within 48 hours in accordance with the procedures set forth in Chapter 1 of our health and safety compliance manual. Resolutions and corrective actions will be documented and maintained for five years.

## **EMERGENCY PREPAREDNESS**

The host employer will inform HTS AmeriTek personnel of the actions HTS AmeriTek employees are to take when there is an unwanted release of highly hazardous chemicals. This will be accomplished either during site-specific orientation or through on site contractor orientation. HTS AmeriTek employees are expected to learn and understand the emergency procedures for the facility that they are assigned to.

## COMPLIANCE AUDITS

An effective audit includes a review of the relevant documentation and process safety information, inspection of the physical facilities, and interviews with all levels of plant personnel. Utilizing the audit procedure and checklist developed in the preplanning stage, the audit team can systematically analyze compliance with the provisions of the standard and any other corporate policies that are relevant. For example, the audit team will review all aspects of the training program as part of the overall audit. The team will review the written training program for adequacy of content, frequency of training, effectiveness of training in terms of its goals and objectives, as well as, to how it fits into meeting the standard's requirements, documentation, etc. Through interviews, the team can determine the employee's knowledge and awareness of the safety procedures, duties, rules, emergency response assignments, etc. During the inspection, the team can observe actual practices such as safety and health policies, procedures, and work authorization practices. This approach enables the team to identify deficiencies and determine their corrective actions or improvements are necessary.

An audit is a technique used to gather sufficient facts and information, including statistical information, to verify compliance with standards. Auditors should select as part of their preplanning a sample size sufficient to give a degree of confidence that the audit reflects the level of compliance with the standard. The audit team, through this systematic analysis, should document areas, which require corrective action, as well as those areas where the process safety management system is effective and working in an effective manner. This provides a record of the audit procedures and findings, and serves as a baseline of operation data for future audits.

Corrective action is one of the most important parts of the audit. It includes addressing not only the identified deficiencies, but planning, follow-up, and documentation. The corrective action process normally begins with a management review of the audit findings. The purpose of this review is to determine what actions are appropriate, and to establish priorities, timetables, resource allocations, requirements and responsibilities. In some cases, corrective action may involve a simple change in procedure or minor maintenance effort to remedy the concern. Management of change procedures needs to be used, as appropriate, even for what may seem to be a minor change. Many of the deficiencies can be acted on promptly, while some may require engineering studies or in-depth review of actual procedures and practices. There may be instances where no action is necessary and this is a valid response to an audit finding. All actions taken, including an explanation where no action is taken on a finding, needs to be documented as to what was done and why.

It is important to assure that each deficiency identified is addressed, the corrective action to be taken noted, and the audit person or team responsible be properly documented by the employer. To control the corrective action process, the employer should consider the use of a tracking system. This tracking system might include periodic status reports shared with affected levels of management, specific reports such as completion of an engineering study, and a final implementation report to provide closure for audit finding that have been through management of change, if appropriate, and then shared with affected employees and management. This type of tracking system provides the employer with the status of the corrective action. It also provides the documentation required to verify that appropriate corrective actions were taken on deficiencies identified in the audit.