

HOW OSHA CONDUCTS A CHEMICAL NEP INSPECTION

OSHA inspectors will select one or more PSM-covered process units at a facility and use dynamic lists of investigative questions to conduct a gap analysis and review PSM compliance. These dynamic lists are not disclosed publicly and they are changed periodically. Inspections will emphasize verification of PSM program implementation based on OSHA's inspection experience with refineries and chemical plants in the refinery NEP and the chemical facility pilot NEP where insufficient program implementation was sometimes found even though extensive program documentation existed. Inspectors will verify that the company's actual program is consistent with the written program.

Chemical NEP inspections will likely emphasize walk-arounds, visual inspections and random interviews rather than requests for documents to review. OSHA inspectors likely will arrive unannounced at chemical plants.

Each on-site inspection will begin with an opening conference. During the initial meeting, the inspectors will ask management representatives to provide an overview of the process, a description of worst-case catastrophic scenarios and information on controls in place to prevent them, etc. Access to documents will be requested including documents that are beyond what is required by the PSM standard. Contractors performing work at the facility will also be included in the inspection.

Inspections may be conducted by either a single OSHA employee or a team led by a Team Leader. OSHA Compliance Safety and Health Officers (CSHOs) must meet competence requirements in terms of training and experience. OSHA inspectors will follow the procedures given in OSHA Instruction CPL 02-00-148, *Field Operations Manual*, Chapter 3, except as modified and described below.

Each inspection will consist of:

1. An opening conference
2. A facility-led overview of the site's PSM programs
3. An initial walkaround
4. A compliance evaluation of a selected PSM-covered unit within the facility
5. An inspection of contractors working on or adjacent to the selected unit
6. Issuance of citations for any alleged PSM violations.

Opening Conference

The facility safety and health director, process safety manager, or other person capable of explaining the company's process safety management program will be asked to attend the opening conference. The conference will cover:

a. Verification of PSM Applicability

CSHOs will confirm that the facility has a PSM-covered process. They will request a list of the chemicals on site and their maximum intended inventories which they will use to determine if there are covered chemicals at or above threshold quantities. CSHOs may ask questions, conduct interviews, or conduct a walkaround to confirm the information on the list of chemicals and maximum intended inventories. If CSHOs determine that there are no covered chemicals present in sufficient quantities and the facility is not manufacturing explosives or pyrotechnics as defined in 1910.109, they will end the inspection.

CSHOs will confirm that the facility is not a retail facility, oil or gas well drilling or servicing operation, or normally unoccupied remote facility which are excluded from coverage under the PSM standard. CSHOs will also determine if other exemptions apply including covered chemical(s) that are:

- Hydrocarbon fuels used solely for workplace consumption as a fuel (e.g., propane used for comfort heating, gasoline for vehicle refueling), if such fuels are not a part of a process containing another highly hazardous chemical covered by the standard
- Flammable liquids stored in atmospheric tanks or transferred which are kept below their normal boiling point without the benefit of chilling or refrigeration.

If management believes that the process is exempt, CSHOs will ask the employer to provide documentation or other information that demonstrates why the process is exempt. CSHOs may ask questions, conduct interviews, or conduct a walkaround to confirm that the exemption applies. If, at this point, they determine that the facility is either not covered or covered but exempted, they will end the inspection.

b. Familiarization with Emergency Response Procedures and Alarms

CSHOs will need to understand the facility's procedures and alarms in the event there is an emergency while the CSHO is on-site in order to remain safe while conducting the inspection.

c. Process Overview

CSHOs will request that the management representative(s) provide them with an overview of the processes / units at the facility, including block flow and/or process flow diagrams indicating chemicals and processes involved.

d. Worst-Case Scenarios

In order to understand the basics of the employer's processes and the possible catastrophic scenarios that could occur, CSHOs will ask the management representative(s) to explain worst-case catastrophic release scenarios that might occur and what controls are in place to prevent them from happening.

e. Nature of the Process

CSHOs will determine the nature of the PSM-covered process as it determines the investigative questions that will be used. The dynamic lists of questions cover three categories: ammonia refrigeration, PSM general, and chemical processing.

Documentation to be Requested

CSHOs will request access to general and process-related documents (see list below). The list is not intended to limit the type and number of documents requested. CSHOs may request additional documents as they deem necessary. Some requests require the employer to provide a list of information. The intent of first requesting a list versus complete documentation is to limit the amount of documents that the employer may have to produce.

The following list represents documents typically compiled by employers with PSM-covered processes at their facilities. The PSM standard requires the employer to maintain some, but not all, of these documents. Therefore, employers may not have all of these documents. Documents specifically required by an OSHA standard or regulation are identified (*). Documents that will be requested after the selected unit is determined are identified (#). In some cases, documentation may have been produced by a consultant or contractor.

- a. *OSHA 300 logs for the previous three years for the employer and the process-related contractors.
- b. *All contract employee injury and illness logs as required by 1910.119(h)(2)(vi).
- c. A list of all PSM-covered process / units in the facility.

d. A list of all units and the maximum intended inventories* of all chemicals (in pounds) in each of the listed units.

Note: 1910.119(d)(2)(i)(C) requires the employer to have process safety information (PSI) for the maximum intended inventories of chemicals that are part of their PSM-covered processes.

e. A summary description of the facility's PSM program.

f. *Unit process flow diagrams.

g. *#Piping and instrumentation diagrams (P&IDs), including legends.

h. *Unit plot plans.

i. *#Unit electrical classification diagrams.

j. *Process narrative descriptions.

k. *#Descriptions of safety systems (e.g., interlocks, detection or suppression systems).

l. *#Design codes and standards employed for process and equipment in the selected unit (s).

m. #A list of all workers (i.e., hourly and supervisory) presently involved in operating the selected units(s) including names, job titles, work shifts, start date in the unit, and the name of the person(s) to whom they report (their supervisor).

n. The initial process hazard analysis* (PHA) and the most recent update / redo or revalidation* for the selected unit(s) including PHA reports*, PHA worksheets*, actions to address findings and recommendations promptly*, written schedules for actions to be completed*, and documentation of findings and recommendations*#.

o. *#Safe upper and lower operating limits for the selected unit(s).

p. A list by title and unit of each PSM incident report*; all PSM incident reports for the selected unit*#.

PSM Overview

Prior to beginning the initial walkaround inspections, the OSHA team will request an explanation of the company's PSM programs including, but not limited to:

a. A briefing on the PSM program components and how the facility implements them.

- b. Identification by name and position of personnel responsible for implementing the PSM standard's various elements.
- c. A description of company records used to verify compliance with standards.
- d. A review of the written summary description of the PSM program.

Personal Protective Equipment (PPE) and Camera / Video Use

In addition to normal inspection protective equipment, CSHOs will be provided with flame-retardant coveralls for protection from flash fires.

a. CSHOs must wear flame-retardant coveralls in all areas of the plant where there is potential for flash fires and as may be required by company policy. Clothing made of hazardous synthetic fabrics may melt, causing severe burns, and will not be worn underneath flame-retardant coveralls. All garments worn under flame-retardant coveralls will be made of 100% cotton or other non-synthetic fibers.

b. Prior to the initial walkaround inspections, CSHOs must review the employer's procedures for PPE selection and allowable electronic equipment in the selected unit(s) and/or areas of the facility CSHOs will be inspecting. CSHOs must ensure that these procedures and the associated PPE selection have been prepared in accord with the PSM standard as well as 1910, Subpart I, Personal Protective Equipment. The facility-required PPE and flame-retardant coveralls (where flash fires are possible) are the baseline PPE requirements for CSHOs conducting walkaround inspections. If the facility requires a respirator, or in a CSHO's judgment, a respirator should be worn, then each CSHO must receive proper training and qualification prior to using their respirator.

For electrically-classified areas, CSHOs must ensure that cameras (still or video) are intrinsically safe. CSHOs may use non-intrinsically safe cameras equipped with a telephoto lens from outside classified areas and/or still cameras without batteries or a flash. If the employer allows the use of non-intrinsically safe cameras in hazardous (classified) locations, CSHOs may use this type of equipment when: (1) the employer issues a hot work permit for the use of the camera, and (2) continuous combustible gas metering, which has been calibrated prior to use, is provided in the areas where the camera will be used. CSHOs must ensure that all electronic devices such as cell phones, PDAs, etc., are turned off.

Initial Walkaround

After the opening conference, the inspection may begin with a brief initial walkaround inspection of those portions of the facility within the scope of the PSM standard. During the initial walkaround CSHOs will:

- a. Look for differences between what was presented in the PSM overview discussion and actual conditions .
- b. Gather information to aid in the selection of the process unit(s) to be inspected.
- c. Obtain a basic overview of the facility's operations.
- d. Observe potential hazards including, but not limited to, pipe work at risk of impact, corroded or leaking equipment, unit or control room siting and trailer location, relief devices and atmospheric vents that discharge to atmosphere, and ongoing construction and maintenance activities.
- e. Solicit input from workers and their representatives and contract employees concerning potential PSM program deficiencies.

Additional walkaround activity will be necessary after the selected unit(s) is identified.

Selection of Unit

The OSHA Team Leader will select a PSM-covered process or processes to evaluate for compliance with the standard. For large continuous processes, the Team Leader may select a portion of the covered process, for example, a unit operation within the covered process. The selected process or portion thereof is referred to as the selected unit.

CSHOs may select more than one unit if they feel it is necessary to get a representative sample of the facility's covered processes based on the size and complexity of the facility. The selection will be based on the factors listed below, and will be documented in the case file:

- a. Nature (e.g., risk of releasing flammables, high toxicity substances present, high operating pressures and temperatures) and quantity of chemicals involved.
- b. Incident investigation reports, near-miss investigation reports, emergency shutdown records, and other history.
- c. Lead operator's input.
- d. Age of the process unit.

- e. Factors observed during the walkaround.
- f. Worker representative input.
- g. Number of workers present.
- h. Current hot work; equipment replacement; inspection, test and repair records; or other maintenance activities.
- i. Compliance audit records, including open and pending items.
- j. List of contractors.

Unit selection is not intended to be a resource-intensive activity. The criteria listed above are to be used as a guide. The Team Leader will attempt to identify the most hazardous process using these criteria. However, he/she can use discretion in choosing the selected unit.

Inspection of Contractors

If the facility is using contractors in PSM-covered operations, all contractors (including subcontractors) working on or adjacent to the selected unit will be inspected. CSHOs will use applicable questions in the dynamic list when evaluating contract employer compliance.

If there are no contractors working on or adjacent to the selected unit throughout the course of the inspection, the OSHA Team Leader will choose an additional PSM-covered process where contractors are known to be working and inspect those contractors.

Compliance Guidelines

Guidelines for assessing and verifying compliance with provisions of the PSM standard are provided in the dynamic lists. When conducting PSM compliance evaluations of the selected unit:

- a. CSHOs must use the guidance given in the dynamic lists. The dynamic list-based evaluation is a mandatory gap analysis formatted in a series of questions to facilitate the evaluation of various requirements of the PSM standard.
- b. Expanded Inspection. If, during the course of the evaluation, the OSHA Team Leader determines that deficiencies in the employer's PSM compliance may exist outside of the selected unit or dynamic list questions, he/she will consult with the OSHA Area Director and may expand the inspection to other units or areas. CSHOs will document

the basis for this determination and include supportive documentation in the case file.

c. Hazardous Conditions or Violations Not Addressed by Dynamic List. CSHOs may recommend citations for hazardous conditions or violations of OSHA standards or the General Duty Clause found during the inspection regardless of whether they are specifically addressed by the OSHA Chemical NEP.

Review of Inspection History and Abatement

During the course of the inspection, the CSHO will review abatement for all PSM citations issued within the previous 6 years to determine whether the hazard still exists. If a hazard exists, the CSHO will determine whether there has been a failure to abate in accordance with CPL 02-00- 148 – FOM, and issue a notice for failure to abate, as appropriate. In cases where a follow-up inspection has been completed since the abatement was in place, it is not necessary for the CSHO to review the abatement.

Citations

Citations for violations will be issued in accordance with CPL 02-00-148 – FOM. The following additional directions will be used for citations of PSM violations:

- a. The requirements of the PSM standard are intended to eliminate or mitigate catastrophic releases of HHC. The provisions of the standard present closely interrelated requirements, emphasizing the application of management controls when addressing the risks associated with handling or working near HHC.
- b. Any violation of the PSM standard is a condition that could kill or seriously harm workers.
- c. Violations of the PSM standard shall not normally be classified as “other-than-serious”.

Use of Dynamic Lists

The dynamic lists of questions cover three categories: ammonia refrigeration, PSM general, and chemical processing. Each dynamic list contains approximately 10 -15 primary and 5 secondary questions. CSHOs will choose the appropriate number of primary questions according to these guidelines:

If the process is ammonia refrigeration only, use the the first 10 questions from the ammonia refrigeration list and the first 5 questions from the PSM general list.

If the process is storage only, use all questions from the PSM general list.

If the process is chemical processing, and all other categories not listed above, use the first 10 questions from the chemical process list and the first 5 questions from the PSM general list.

CSHOs must use the appropriate dynamic list. The questions are designed to elicit “Yes”, “No”, or “N/A” answers for determination of PSM compliance. CSHOs must mark:

“Yes” when the employer has met the requirements of the question.

“No” when the employer does not meet the requirements of the question.

“N/A” if the question is not applicable.

A determination of “No” for any question may indicate noncompliance if the employer does not have an acceptable alternative in place. Therefore, any “No” answer will normally result in a citation for a violation of the indicated provisions, provided that the other prima facie elements (a hazard exists, an OSHA standard applies, employer knowledge of the hazard, and worker exposure to the hazard) of a violation are established. Each question lists one or more possible citations. However, CSHOs are not limited to this list. Based on the fact finding, other citations for violations may be more appropriate. CSHOs will thoroughly document each “No” determination in the case file.

Questions that are deemed not appropriate by the CSHO will be replaced with secondary questions from the appropriate list. CSHOs will use the secondary questions in the order that they are listed. Guidelines for assessing and verifying compliance with provisions of the PSM standard are provided in the dynamic lists.

Owing to the interrelationship of the PSM elements, CSHOs may find that under some circumstances more than one provision of the standard may be applicable. The following excerpt from CPL 02-02-045 demonstrates the interrelationship of the PSM elements:

An essential part of verifying program implementation is to audit the flow of information and activities among the elements. When information in one element is changed or when action takes place in one element that affects other elements, CSHOs will review a sample of the related elements to see if the appropriate changes and follow-up actions have taken place. The following example demonstrates the interrelationship among the elements:

During a routine inspection of equipment (Mechanical Integrity), a maintenance worker discovers a valve that no longer meets the applicable code and must be changed. Because the type of valve is no longer made, a different type of valve

must be selected and installed (Management of Change). The type of valve selected may mandate different steps for the operators (Operating Procedures) who will require training and verification in the new procedures (Training). The rationale for selecting the type of valve must be made available for review by employees and their representatives (Employee Participation). When the new valve is installed by the supplier (Contractors), it will involve shutting down part of the process (Pre-startup Safety Review) as well as brazing some of the lines (Hot Work Permit). The employer must review the response plan (Emergency Planning) to ensure that procedures are adequate for the installation hazards.

Although Management of Change provisions cover interim changes, after the new valve is in place, the Process Safety Information will have to be updated before the Process Hazard Analysis is updated or revalidated to account for potential hazards associated with the new equipment. Also, inspection and maintenance procedures and training will need to be updated (Mechanical Integrity).

In summary, 11 PSM elements can be affected by changing one valve. CSHOs would check a representative number of these elements to confirm that the required follow-up activities have been implemented for the new valve.

The interrelationship of the PSM elements works to help ensure that if the employer is deficient in one PSM element, the other elements, if complied with, prevent or mitigate a catastrophic incident. Consequently, the PSM standard uses a one hazard / multiple abatement approach to ensure that PSM-related hazards are adequately controlled. Abatement requirements include:

- Management system / program requirements
 - E.g., the employer must develop mechanical integrity program procedures that include piping inspection procedures, 1910.119(j)(2)
- Specific employer action / task abatement requirements
 - E.g., the employer must inspect the piping, 1910.119(j)(4).

Therefore, to ensure that all the employer's PSM systems / elements are being fully implemented, CSHOs will consider citing all applicable violations in different PSM elements. Grouping these violations may be appropriate (see CPL 02-00-148, FOM, Chapter 4 Section X).

In some cases, CSHOs may determine that the answer to a question is "No" because the employer uses other means to comply with the specific standards. In this case, the employer must demonstrate that its performance meets the requirements of the standard.