

PRIMATECH WHITE PAPER

REGULATORY REQUIREMENTS FOR PHA RECOMMENDATIONS

There are no requirements in paragraph (e), Process Hazard Analysis (PHA), of 29 CFR 1910.119 that govern the wording of PHA recommendations. Indeed the paragraph does not specifically require that recommendations be developed by the PHA team. The only references that are made to PHA recommendations are in paragraphs e(5) and e(7). They deal with addressing recommendations.

Historically, the primary purpose of PHA has been the identification of problems, not necessarily their solution through the development of recommendations. It has not been unusual for a PHA team to identify hazard scenarios for a process and for a second team to review the results of the PHA to develop needed solutions. In some cases the PHA team may identify solutions they consider to be obvious but leave the development of recommendations for more challenging problems to a second team that is better qualified to develop them. Indeed, as written, OSHA's Process Safety Management (PSM) standard would allow a PHA team to identify hazard scenarios for a process and a different team to develop recommendations for risk reduction based on the PHA.

AIChE's *Guidelines for Hazard Evaluation Procedures* (2nd. Edition, p. xxv) defines hazard analysis as "The analysis of the significance of hazardous situations associated with a process or activity. Uses qualitative techniques to pinpoint weaknesses in the design and operation of facilities that could lead to accidents". This definition does not include the development of recommendations. Similarly, the international standard, IEC 61882:2001, Hazard and Operability Studies (HAZOP studies) - Application Guide, states "Solutions to identified problems are not a primary objective of the HAZOP examination". The development of recommendations during the PHA is considered to be optional.

The principal requirements in OSHA's PSM standard for PHA recommendations are contained in paragraph (e)(5):

"The employer shall establish a system to promptly address the team's findings and recommendations; assure 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."

Paragraph (e)(7) includes requirements for the documentation of recommendation resolutions:

"Employers shall retain process hazards analyses and updates or revalidations for each

process covered by this section, as well as the documented resolution of recommendations described in paragraph (e)(5) of this section for the life of the process.”

There is no requirement that any part of this management of recommendations be done within PHA worksheets. Indeed many companies extract recommendations from the PHA worksheets and place them into a separate tracking system. The key is that the regulatory requirements for recommendations management be met, not that the PHA worksheets necessarily be used for that purpose, although columns can be added to PHA worksheets for recommendations management. OSHA’s PSM standard does not specify that either approach be used. Both approaches comply with AIChE’s Guidelines for Hazard Evaluation Procedures (2nd. Edition, p. 215) which are referenced by the PSM standard. The choice of approach is up to individual companies since the PSM standard is performance based.

OSHA’s Instruction CPL 2-2.45A CH-1, 29 CFR 1910.119, Process Safety Management of Highly Hazardous Chemicals - Compliance Guidelines and Enforcement Procedures, also contains information pertinent to PHA recommendations in Appendix B, Clarifications and Interpretations of the PSM Standard:

(e)(5) Timeliness

Employers must "promptly" address the problems identified in the PHA in a "timely manner," and complete actions "as soon as possible." What time frame did OSHA intend here?

The standard's intent is for the employer to take corrective action as soon as possible. As soon as possible means that the employer shall proceed with all due speed, considering the complexity of the recommendation and the difficulty of implementation. OSHA expects employers to develop a schedule for completion of corrective actions, to document what actions are to be taken, and to document the completion of those actions as they occur.

(e)(5) Addressing PHA team's findings and recommendations

Paragraph (e) of the standard requires that a team with expertise in engineering and process operations conduct a process hazard analysis, containing specific findings and recommendations for each covered process. The employer is then required to promptly "address" and "resolve" the team's findings, document the actions taken, and communicate these actions to the affected employees. 29 CFR 1910.119(e)(5).

OSHA considers an employer to have "resolved" the team's findings and recommendations when the employer either has adopted the recommendations, or has justifiably declined to do so. Where a recommendation is rejected, the employer must communicate this to the team, and expeditiously resolve any subsequent

recommendations of the team.

An employer can justifiably decline to adopt a recommendation where the employer can document, in writing and based upon adequate evidence, that one or more of the following conditions is true:

1. The analysis upon which the recommendation is based contains material factual errors;
2. The recommendation is not necessary to protect the health and safety of the employer's own employees, or the employees of contractors;
3. An alternative measure would provide a sufficient level of protection; or
4. The recommendation is infeasible.

The term "recommendation" carries connotations of favoring, advising or counseling an action. Typically, what are called "Recommendations" in a PHA would perhaps be better called "Suggestions" with the meaning of "proposing a possibility". Indeed, PHA recommendations are defined as "Suggestions for design changes, procedural changes, or areas for further study" in AIChE's Guidelines for Hazard Evaluation Procedures (2nd. Edition, p. 133). Consequently, the expression of PHA recommendations using the imperative mood of verbs (such as "Install a relief valve") is inappropriate since the imperative *commands* that an action be taken. Use of the imperative means the action is "absolutely necessary", "urgent" and "compelling" (Websters New World Dictionary) and "a binding requirement" and "of vital importance" (Oxford English Dictionary). Generally, PHA recommendations should be expressed as suggestions (such as "Consider installing a relief valve"). Only after recommendations have been resolved do they become action items for which the consistent use of the imperative is usually appropriate.

There are several specific reasons that mandate against the use of the imperative for PHA recommendations owing to this semantic issue:

- 1) OSHA expects that PHA recommendations will be "resolved" by management, and resolution can include the rejection of recommendations. Thus, the use of qualifying words such as "consider" supports OSHA's recommendations management process. Use of the imperative would require that recommendations be implemented and this is not consistent with the consideration of recommendations by management in order to resolve them.
- 2) The use of qualifying words such as "consider" may help avoid legal liability that may be incurred by the use of the imperative for recommendations that end up not being implemented after recommendations have been resolved. Even though a written justification is provided for the rejection of a recommendation, if there is

ever an accident in the process, rejection by a company of a recommendation expressed using the imperative may be used as evidence that the company was negligent since it did not take an action that its engineers on the PHA team arguably considered to be “absolutely necessary”.

- 3) Individual PHA recommendations may solve one problem but create problems elsewhere in the process or facility, or they may conflict with other recommendations. Thus, piecemeal consideration or implementation of recommendations is not appropriate. The full set of problems identified by the PHA should be considered when developing solutions. Therefore, the use of the imperative for recommendations as they are generated during the PHA should usually be avoided until the full set of problems identified in the PHA can be considered with possible solutions.
- 4) While PHA team members should be qualified to identify hazard scenarios, they may not necessarily be qualified to develop recommendations to reduce the risks identified. Indeed the two processes arguably require different skill sets. Thus, PHA teams may be unable to develop appropriate recommendations, or if they do so, the recommendations may need appropriate review to determine their suitability. Thus, qualifying words usually should be employed for recommendations and the imperative avoided.
- 5) Usually in a PHA, time is not available to research recommendations for each problem identified. The process of developing and refining recommendations for each problem identified would detract from the principal PHA objective of identifying problems and may lead to an incomplete PHA. Consequently, brainstorming of problem solutions is better left until the PHA has been completed. Thus, PHA teams often only make recommendations for risk reduction that they consider to be obvious. However, even those recommendations may be found later to be inappropriate and therefore they should usually not be expressed using the imperative.

These potential difficulties with PHA recommendations are commonly avoided by the use of qualifying words like “consider”, “investigate the need for”, “evaluate”, etc. and it is only for the most straightforward situations where the imperative is used. OSHA’s PSM standard does not specify requirements for how recommendations should be worded and there is no prohibition against using such qualifying words with recommendations.