

APPENDIX 1

CHEMICAL EXPOSURE INDEX REVIEW PROCESS

The following is a recommended procedure for the CEI review process.

When a plant or facility requires a further review, they should notify the site Loss Prevention contact and agree to an appropriate review schedule.

The review process should have three elements:

1. A Pre-Review Working Session
2. The Chemical Exposure Index Review Package
3. The Formal Review

Pre-Review Working Session

A one to two hour working session at least two weeks prior to the formal review is strongly recommended.

Purpose: This preliminary working session would let the actual review focus on what can and will be done to eliminate, reduce and/or mitigate potential releases.

This working session should have the following suggested agenda:

1. Review each chemical scenario, lines of defense, mitigation measures and plans for improvement with review team.
2. Discuss any past releases of acutely toxic material.
3. Interview an operator in the plant.
This interview should focus on the operator's awareness of the Chemical Exposure Index scenarios, use of emergency procedures and specific personal concerns related to the potential release of toxic chemicals.
4. Conduct a drill of a hypothetical CEI release scenario. This drill should be conducted by plant personnel with CEI review team members present and should be designed to evaluate the response to an emergency situation involving a major release of one of the chemicals with the largest CEI.
5. Inspect equipment and piping related to each scenario with the largest CEI.
This inspection will consider the condition of pipe and equipment, location of valves and mitigating devices, etc.
6. Review documentation pertaining to each CEI scenario.
The following documents are suggested as a minimum:
 - Past hypothetical exercise reports
 - Area monitoring system records
 - Maintenance checklists
 - Operating Discipline including: loading/unloading procedures, shutdown for releases, mitigation procedures, spill reporting procedure, etc.Completeness and quality will be used as a criterion for evaluating the documentation.

Written reports of the interview, drill, site inspection and documentation review should be prepared.

Chemical Exposure Review Package

At least one week before the review, the following information should be sent to each member of the review team:

1. Chemical Exposure Index Summary sheets for all chemicals and scenarios calculated.
2. A simplified process flowsheet for areas with chemicals having the largest CEIs.
Include: a) all vessels including description, designation, (i.e., storage tank VT-100) size and normal contents.
b) associated piping including size, approximate length between equipment and any automated block valves.
3. A description of the scenario for each chemical that results in the largest CEIs.
Include: a) description of any major changes made to this system since the last audit.
b) description of the lines of defense or actions to be taken if each scenario occurs.
c) description of any mitigation methods, including size of spill areas or dike areas.
4. An area map showing three circles that represent the hazard distance for ERPG-1, -2 and -3 concentrations.
5. A plot plan showing the location of gas monitors, spill detectors or other devices used to detect releases. Also include the type of device used to detect the release and the detection level for each type of device.
6. A completed containment and compliance checklist.
7. A list of the recommendations made in the previous review and the status of each recommendation.
8. A written report for the hypothetical exercise based on one of the Chemical Exposure Index scenarios. Include a description of the hypothetical release, a chronological list of actions taken and any recommendations for improvement. Include time it took to isolate the release.
Note: If the hypothetical exercise is to be done during the review, please include the written description of the exercise scenario in the package.
9. Written results of the employee interview.
10. A written report of the in-plant inspection of each Chemical Exposure Index scenario source site.

If a pre-review working session was not held, these last two items must be provided during the formal review.

Formal Review

The following four activities should be done prior to formal presentation if a pre-review working session was not held:

1. Hypothetical exercise
2. Employee interview
3. Site inspection of each scenario site
4. Documentation review

Suggested Review Agenda

1. Summarize the status of the recommendations made in the previous review.
2. Discuss incidents that have occurred involving chemicals being reviewed.
Include Spill History – incident reports and plant follow-up reports.
3. Summarize the results of CEI calculations. Include hazard distances for ERPG-1, -2, -3.

4. Review the release scenarios for the largest CEIs. Include plot plan showing hazard distances. Address the following items for each scenario:
 - a. Have there been any major changes or additions to this system since the last audit/assessment?
 - b. Discuss your lines of defense that would prevent this scenario release from occurring.
 - c. Discuss the mitigation procedures for each scenario.
5. Discuss results of hypothetical exercise held prior to audit.
6. Discuss results of employee interview held prior to audit.
7. Review results of site inspection of each CEI scenario sources site.
8. Discuss results of documentation review.
9. Discuss your plant's CEI related concerns generated from the audit/assessment preparation.
10. Discuss your plans for improving your operations from a CEI standpoint.
11. Are there any other specific concerns which should be addressed but were not identified in the CEI review?

A written response including action to be taken, person assigned, anticipated completion date should be reported to the Line Management and the Review Chairman within 45 days and maintained with your Chemical Exposure Index calculations.