

1999 Process Hazard Analysis Follow-up

The following is the actions taken in response to the Process Hazard Analysis (PHA) recommendations from 1999.

1. *The chlorine gas detectors need to be tested periodically per the manufacturer's recommendations. All detectors are checked twice a month and documented.*
2. *Need to provide training for operation of the chlorination system. All operations and maintenance personnel are trained in all aspects of the system, including cylinder unloading and changing. The computerized maintenance management system (CMMS) will be programmed to send work orders to management as reminders for annual review of all procedures.*
3. *Need to certify the employees that have the knowledge, skills and ability to operate the chlorination system based on past experience before May 26, 1992. All employees can and do operate the chlorination system, however no documentation can be found at this time showing the training that was provided by the manufacturers and members of supervision at the time.*
4. *Need to provide training in emergency response and evacuations. Training will be provided annually and documented with work orders provided by CMMS.*
5. *Need to store cylinders with the valves in the 6 o'clock and 12 o'clock positions to reduce the possibility of a leak. Cylinders are placed on a rail and rolled to their storage position, so storage in the 6 o'clock and 12 o'clock position is not practical. They are stored with the transportation covers off so that the valves can be visually inspected.*
6. *Need to document that supplier parts are designated for chlorine use. Documentation of parts for chlorine use has not been documented because all repair parts are purchased from the manufacturer.*
7. *Should provide a chlorine gas detector in the basement below the chlorine room. A leak can enter the basement through a vent just outside the chlorine room. All chlorine cylinders in operation and in storage are inside with a gas detector that will sound before any gas can escape the chlorine room. This will provide an earlier warning than a detector in the basement.*
8. *No fire suppression equipment is provided in the chlorine room, but it may have met NFPA standards when the room was built. The new chlorine room should meet NFPA standards for fire suppression. Fire suppression standards are being researched and all applicable standards will be met.*

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9. *Cylinders in use and storage should be inspected at least daily to check for abnormal conditions that could lead to a leak. Shift operators check cylinders in use hourly and make checks on all cylinders regularly.*

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