

## Bhopal – The Worst Industrial Disaster in History

**T**hirty years ago — just after midnight on Dec. 3, 1984 — a pesticide plant in Bhopal, India, released approximately 40 tons of highly toxic methyl isocyanate (MIC) into the atmosphere. There were thousands of fatalities, hundreds of thousands of injuries, as well as long term health, environmental, and economic impacts. This incident is widely considered to be the worst industrial disaster in history.

It is believed that water entered MIC storage tank E610 (1). An exothermic reaction resulted, generating heat and pressure that opened the tank relief valve. Some critical instruments in the field and control room (2) were not working properly. A refrigeration system (3) was out of service and the refrigerant had been removed. Gas from the relief valve flowed to a caustic scrubber (4) that was shut down for maintenance. From there, the gas flowed to a flare (5) that was also shut down awaiting replacement of corroded piping. The toxic gas was released to the atmosphere without treatment, exposing hundreds of thousands of people.

There were many failures in design, management, safety culture, and operation of the facility that contributed to the tragedy. You can find many good resources on the Internet that describe the incident in great detail, so take some time this month to learn about the incident and what it means to you in your job.



### What Can You Do?

Everybody in your organization, including executives, plant management, engineers and technical personnel, unit management, supervisors and foremen, operators, maintenance workers, and even office and service workers, should be able to answer the questions below. Obviously the answers will vary considerably depending on the person's job responsibility, but everybody must understand his or her role in preventing a major tragedy like the Bhopal disaster.

- What is the worst thing that can happen where I work and in my job?
- What are the systems in place to keep that from happening (preventive systems)?
- How do I know that these preventive systems are adequate and working properly?
- What are the systems in place to respond to that event if it does happen (mitigative systems)?
- How do I know that these mitigative systems are adequate and working properly?
- Are any of the preventive and mitigative systems bypassed or shut down as they were at Bhopal?
- What is my role in making sure that these preventive and mitigative systems are functioning properly?

Note: All pictures were taken in December 2004 at the plant in Bhopal.

▲ A sign in the plant control room.

**Do your part to prevent disaster!**

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