

- NFPA 1600 *Standard on Disaster/Emergency Management and Business Continuity Programs*, 2010 edition
- National Response Team NRT-1 *Hazardous Materials Emergency Planning Guide*, 2001 edition
- OSHA *Best Practices for Hospital-Based First Receivers of Victims from Mass Casualty Incidents Involving the Release of Hazardous Substances*, 2005 edition

The basic steps in developing an effective spill prevention and response plan that incorporates industry-accepted best practices include performing a hazard assessment, identifying ways to eliminate or reduce the hazards, developing plans and procedures to be taken in the event of an emergency, and training personnel in their particular role in an emergency and in execution of the plan. To be effective, spill prevention and response plans should be site-specific. Because all facilities are not necessarily subject to all regulations, and because the regulations have varying requirements, it is not possible to provide one plan that fits all facilities and circumstances, but the plan elements discussed below will provide a good foundation for most facilities.

Hazard Prediction Model

General Behavior Model (GEBMO) is a hazard prediction model developed by Ludwig Brenner. Given a particular set of circumstances and conditions, predictable outcomes will result. GEBMO can be used to plan responses to virtually any situation: a broken syringe or vial in a biohazard lab, small-volume spills of low-hazard material, or large-volume spills of high-hazard material. As shown in Figure 1, GEBMO considers seven factors. GEBMO is a valuable tool for predicting outcomes when completing a hazard assessment.

Hazard Assessment

Hazards may be separated into three basic types: physical, chemical, and natural. Physical hazards are those that pose a threat to human physical well-being. Examples of physical hazards are fire, explosion, noise,

slips, falls, release of hazardous energy (e.g., electrical, steam, pressurized hydraulic or other fluids), entrapment, heat and cold, and others. Some physical hazards, such as fire or explosion, may cause a spill or release of hazardous materials or hinder response efforts.

Chemical hazards, radiation, and biological agents pose an external or internal physiological threat to one or more parts of the human body. Chemical hazards can cause short- and long-term health and physical effects, the severity of which depends on several factors, such as route of entry, toxicity, amount, and duration of exposure. Poisons, corrosive materials, anthrax, and asbestos are examples of chemical hazards. During emergency response and mitigation of a spill or release, personnel must take the appropriate precautions to protect themselves from the chemical hazards associated with all of the spilled or released material(s).

Natural hazards are those found in nature and that either affect such living things as animals and insects or are caused by or exacerbated by electrical storms, earthquakes, and wildfires. Natural hazards may cause or contribute to a spill or a release or may impede emergency response and clean-up efforts.

The hazard assessment should begin with a walk-through of the site or facility. Next, determine and

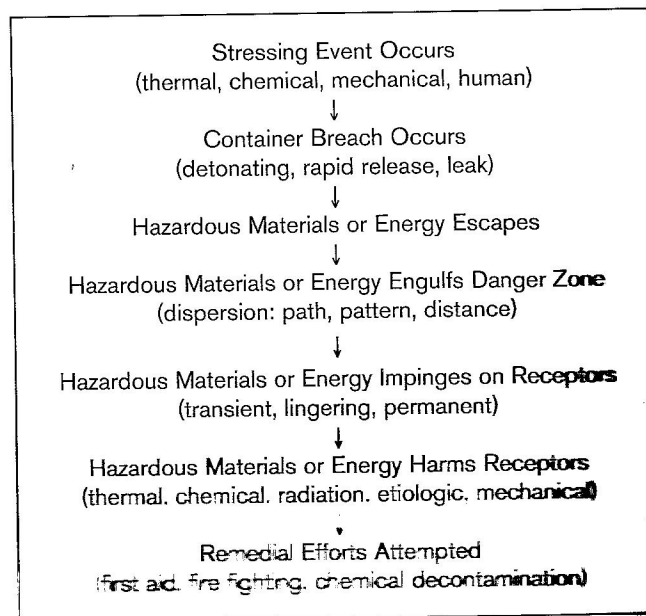


FIGURE 1. General Behavior Model (GEBMO)