IDENTIFY WHO CAN ADVANCE OR ENFORCE HAZARD REDUCTION

- Facility owners and operators
- Federal, state and local regulators
- Community action organizations
- Local fire departments
- Labor unions and community labor coalitions
- Local Emergency Planning Committees (LEPC's)
- Insurance companies
- State and local lawmakers

In the following segments, we discuss opportunities for various individuals, officials and entities to take action to advance the cause of hazard reduction. In practice, it may be necessary to recruit some of these players in establishing and pursuing the reassessment process. While we focus on how these actors may promote implementation of hazard reduction, as we noted earlier, you may have already engaged many of them in the reassessment process as well as in the process of implementation of hazard reduction measures.

Facility owners and operators

The first responsibility for hazard reduction clearly rests with facility owners and operators. Facility owners and operators have a general duty under the Clean Air Act, section 112 (r) to "design and maintain a safe facility taking such steps aras are necessary to prevent releases, and to minimize the consequences of accidental releases which do occur." This should be understand as including the duty to redesign facilities to ensure inherent safety, given the relative ineffectiveness of other measures in preventing community vulnerabilities.

Facility owners and operators have a General Duty under two federal laws to reduce chemical hazards to the public, workers, and the environment, including safe facility design. State liability laws also impose such a duty. But often a lack of awareness of hazards, or of safer alternatives, impedes a shift to much safer options.

How can facility owners and operators be induced to act? Sometimes all that is needed to prompt companies to engage in better hazard management is for hazards and alternatives to be brought to light by suppliers, government, or neighbors.

For instance, the OSHA requirement for companies to provide workers with material safety data sheets indicating product hazards caused many companies to reassess chemicals. A survey published in 1992 by the General Accounting Office of employers covered by the OSHA Hazard Communication Standard found that 30 percent of employers were replacing hazardous chemical used in work places with less hazardous ones because of information they received on the Material Safety Data Sheets (MSDS's). Notably, a third of employers also said that they had not replaced substances because they did not know

whether or not a replacement existed for the substances in question.[1]

Industries have typically made gestures toward in a limited amount of hazard reduction on a voluntary basis. For instance, after September 11, 2001, chemical industry trade associations published voluntary site security guidelines.[2] These guidelines these lack binding standards or timelines, or even measurable hazard reduction goals. While compliance with the guidelines was made a precondition of membership in the American Chemistry Council,[3] the requirements are vague and ignore many crucial issues.

Most significantly, the industry's guidelines do not focus on reassessing inherent safety, but instead on security measures to keep out criminally-minded intruders. They do not weigh the resultant security costs against the costs of safer design.

They also have other significant gaps in logic and coverage. They seem to assume that add-on safeguards will not be disabled (e.g., by an airplane crash). They do not address head-on the added security risks posed by contract workers. They do not apply margins of safety. They do not include accounting methods to help identify theft. They do not address internet sales and needed knowledge and clearance of customers.

Communities concerned with security and safety in the face of chemical vulnerabilities will need to ensure that local facilities go beyond the industry's guidelines to ensure effective solutions. Concerned citizens and officials who conduct local reassessments can hold forums on the availability of safer substitutes, engage in ongoing facility assessments and dialogues, and utilize regulatory programs and enforcement as needed to ensure effective hazard reduction.

Ultimately, effective public policies and enforcement will be necessary to curtail chemical vulnerabilities. Just as voluntary security measures in the air industry proved inadequate to prevent cutting of corners in airport screening and airline design, it may be unrealistic to expect facilities storing and using chemicals to redesign operations and facilities to reflect the new understanding of vulnerabilities. Various agencies and officials will need to play a role in providing incentives, education and enforcement to encourage effective hazard reduction by facility owners and operators.

Federal, state and local regulators

As noted above, under the Federal Clean Air Act Amendments of 1990, chemical facility owners and operators were given a General Duty of Hazard Reduction. Businesses which produce, process, handle, or store extremely hazardous substances were given a "General Duty" to design safe facilities and prevent releases.[4] Where a facility is failing to comply with this duty, the EPA is authorized to bring enforcement action. Unfortunately, the EPA has failed to do very much enforcement of this duty, and to our knowledge, has never enforced it to require facilities to apply inherent safety measures. Local citizens who observe apparent violations of this obligation may wish to ask the EPA to take enforcement action. OSHA also has its own General Duty clause, and can bring enforcement actions regarding failure of a site owner to deploy known safety options to eliminate recognized hazards.

In many states, state-level environmental agencies have been similarly empowered by state law to prevent releases of toxic materials to the environment.

A few states passed laws in the aftermath of Bhopal with a more extensive focus on extremely hazardous substances. Most notable is the **New Jersey Toxic Catastrophe Prevention Act**, which requires industry to engage in risk management planning and to engage in "state of the art" reviews which include assessment of inherent safety; it authorizes the New Jersey Department of Environmental Protection to order the owner and operator of the facility to prepare and implement a risk reduction plan for extraordinarily hazardous substances. Such an order

identifies the risks which must, within the limits of practicality and feasibility, be abated and a reasonable timetable be set for implementation of the plan.

The **Massachusetts Toxic Use Reduction Act (TURA)** TURA mandates that manufacturers evaluate opportunities to reduce the use of toxic chemicals. This Act was the first of its kind in the United States and has spearheaded a new approach to reducing environmental harms. As a result of the Act, Massachusetts' companies have:

- Reduced 190 toxic chemicals by 40%.
- Cut toxic waste in half.
- Reduced toxic chemical emissions by 83%.
- Saved companies $15 million while using less toxic materials.

A **Contra Costa County** Industrial Safety Ordinance (section 450-8.016(D)(3)) requires major facilities to study, select and implement inherently safer systems to eliminate process safety hazards to the greatest extent feasible. If a facility operator concludes that inherent safety is not feasible, the basis for this conclusion must be documented, to demonstrate to the County's satisfaction that the financial impacts would be so severe as to render the changes impractical.

In **New York City** the city's environmental department administers a law requiring regulated companies to undertake Technology Options Analysis to identify inherently safer alternatives. The law states, "A responsible party shall make the following considerations...an examination of alternative substances and equipment to reduce the use of extremely hazardous substances or regulated toxic substances, and a timetable for implementing alternatives that are technically and economically feasible."

In many communities, the **public health department or Board of Health** is the agency with the broadest interest in, and willingness to act, to protect against hazards like those presented by chemical storage sites. Check with your local health officials to ascertain their potential involvement.

Local fire departments

Local fire departments engage in an array of fire prevention activities, and are typically also the "first responders" in the event of a hazardous materials incident, regardless of whether there is a fire involved.

Fire officials can engage in both education and enforcement activities. As educators, they often conduct preventive-focused training programs, and can work with local businesses to alert them to the existence of safer alternatives and low-volume storage approaches. Fire officials also conduct inspections for compliance with fire codes, and issue flammable storage licenses, which can, in some instances, be withheld until safer alternative designs are in place.

Existing state and local laws require regulated companies to examine alternative substances and equipment to reduce the use of extremely hazardous substances or regulated toxic substances and to establish a timetable for implementing alternatives that are technically and economically feasible.

Some communities have amended their fire codes with specific reference to prevention. For instance, in the Silicon Valley of California, a Toxic Gas Ordinance (TGO) was enacted in Palo Alto. This ordinance requires the best practicable controls to ensure safe storage, use and handling of toxic gases. These controls can include secondary containment, automatic shut off, seismic protection, fail-safe-to-close valves, monitoring and alarm systems, and treatment systems should a release occur. Facilities using toxic gases are required to have adequate training programs for all staff handling the gases, emergency response plans, as well as annual testing and maintenance programs for the monitoring and treatment systems. The 1990 TGO requirements complement requirements for storage of other hazardous materials that have been in effect since the 1983 development and adoption of the Model Hazardous Materials Storage Ordinance. Most of the requirements in both of these ordinances have since been incorporated into Article 80 of the Uniform Fire Code (UFC) and so are applicable where ever the UFC is used.

Labor unions and community labor coalitions

Labor unions and workers inside of facilities can promote preventive approaches and clean production. Tools available to the unions include OSHA process safety rules, unions' collective bargaining power, and the detailed working knowledge available to members of the workforce.

One source of information that can be accessible to workers is produced by companies under Occupational Safety and Health Administration (OSHA) rules. The OSHA Process Safety Management (PSM) standard for Highly Hazardous Chemicals (HHC'S), 29 CFR 1910.119, is intended to prevent or minimize the consequences of a catastrophic release of toxic, reactive, flammable or explosive HHC's from a process.

It requires companies to compile written **Process Safety Information (PSI)** including hazard information on HHC's, technologies and equipment, and a written plan of action regarding employee participation. Some of the information developed includes process hazard analyses, training plans, operating procedures, mechanical integrity and incident investigation.

Facility workers have special knowledge, rights, and opportunities to reduce facility hazards. They also have even more at stake in chemical safety than the general public, because their jobs place them in closest proximity to the hazards.

The work site employer must establish and implement written procedures to manage changes in technologies and processes at the facility, except "replacements in kind" to facilities that effect a covered process. The standard requires the work site employer and contract employers to inform and train their affected employees on the changes prior to start-up. Employers are required to engage in periodic audits. Information that can be made available to workers under this regulation also includes a record of accidents and near misses, data which can help to target areas that should be a priority for immediate hazard reduction measures.

The effect of these requirements is that employees have a right of access to significantly more information than members of the public surrounding facilities. Employees and their unions are granted access to the full array of information required to be developed by their companies under the rule. As a result, employees and their unions are in a position to help communities to evaluate hazards, and to encourage companies to implement hazard reduction measures.

OSHA's process safety regulations mention, but do not require, inherent safety. OSHA acknowledges that:

> [S]maller businesses which may have limited resources available...might consider alternative avenues of decreasing the risks associated with highly hazardous chemicals at their workplaces. One method which might be considered is the reduction of inventory of the highly hazardous chemical.[5]

Collective bargaining powers of unions can be utilized to press companies toward clean production. For instance, the Sheldahl collective bargaining agreement in Northfield, Minnesota, was the result of a union and community campaign. Among the commitments of the firm's management embodied in the agreement are requirements to develop means of eliminating the use of methylene chloride by making research and development into the alternatives a top capital spending priority. Specific emissions reduction deadlines were also specified in the agreement, as were labor-management update meetings, in which the union was specifically allowed to bring in community groups.

Alliances can be formed between neighbors of facilities, and workers inside of those facilities. Both have a common interest in reducing the vulnerability of the facility in the event of a terrorist attack, as well as in an array of other issues of safety and toxic exposure. A number of such neighbor-labor alliances have formulated a joint platform and sought negotiations with a plant's management on a Good Neighbor Agreement to address the concerns. See discussion of citizen activism, below.

Civic organizations

In the absence of laws and policies to mandate effective preventive action by corporations and government, many community civic groups have exerted pressure to persuade government and industry to act.

Some citizens groups have worked to pass new local laws, or persuade government regulators to use their powers to ensure hazard reduction at particular facilities. Others have organized accountability campaigns focused on particular companies. These efforts have involved persuading companies to allow citizens and their experts to evaluate facilities, and in some cases, entering legally binding agreements (**Good Neighbor Agreements**) with the companies to take specific actions to rectify community concerns.

For example, Dynasill in Berlin, New Jersey, produces glass for high tech applications, including laser and aerospace uses. In May 1988, upon a simple request of neighbors, the small firm's manager and owner cooperated with the citizens' request to conduct their own inspection of Dynasill. They brought along with them Richard Youngstrom, an industrial hygienist for the National Toxics Campaign and a local of the International Electrical Workers Union. While it became apparent that the company had not caused any fishkills, at least recently, a number of concerns were identified. A report prepared by Youngstrom after the tour included a number of recommendations for improving the facility's chemical safety. For instance, the report recommended that the company complete its diking around storage tanks containing silicon tetrachloride which, when exposed to water, can create heat and hydrochloric acid. It recommended installing shower and eye wash stations. It also suggested training employees to be a company fire brigade.

Within one month of receiving the inspection report, the company implemented all of the recommendations that the group had made.
Another example is the Good Neighbor Agreement reached in 1992, in Manchester, Texas by the statewide organization, Texans United, local citizens groups and Rhone Poulenc. Rhone Poulenc agreed to pay for a detailed environmental audit conducted by experts and a panel of community groups and workforce representatives. The agreement stipulates that the citizens and experts will have continuing access to the company and its plant for evaluation and negotiation on diverse concerns. Among the other features of the agreement are:

- A broad audit by an independent, third party expert which includes review of regulatory compliance, safety training, accident prevention, emergency response, waste analysis, information systems, monitoring programs, and waste minimization practices.
- Public disclosure of company documents including hazard assessment and risk analysis, lists of accidents/upsets/near-misses/corrective actions, and waste minimization and reduction plans.
- Rhone Poulenc will "negotiate in good faith" on implementation of the audit recommendations.
- Citizens are entitled to accompany the auditor and conduct other inspections by appointment.
- The agreement is integrated to the facility's water pollution permit.

Civic organizations can play the pivotal role in promoting hazard reduction. They can persuade company and government officials to invest the resources in studying and implementing safer alternatives.

Potential Post-September 11 Good Neighbor Agreement Terms
In the context of current concerns about chemical storage sites, some of the potential demands for such agreements include:

- Development and disclosure of analyses of technology options to improve the inherent safety of facilities through materials substitution, redesign to eliminate high volume storage, etc.;

- Disclosure to the reassessment group of other documents needed to assess identified issues of concern at a facility;
- The right to inspect or "audit" facilities to evaluate inherent vulnerability and security issues;
- Technical assistance monies for community organizations;
- Specific types of facility equipment changes.

In addition, these issues may be addressed in combination with other issues:

- Health care and health monitoring related to a past release;
- Installing a water supply for a polluted community;
- Assurances of compliance with labor laws, or with other labor-related conditions;
- Evaluation or changes in the level of staffing of safety-critical operations or maintenance in a plant, the level of training of these personnel, or ending the practice of contracting out of these jobs;
- Whistleblower protection.

Review of Detailed Documentation of Hazard Reduction Issues

Part of these community accountability processes can involve companies sharing, or subjecting to third party review, the more detailed documentation of safety issues that they maintain in-house. For instance, facilities have been required by the Environmental Protection Agency (EPA) and the Occupational Safety and Health Administration (OSHA) regulations to prepare many detailed documents assessing potential accidents. Most of these documents are held on-site at the facilities, and are not shared with government or affected stakeholders unless specifically requested. Local Emergency Planning Committees are legally entitled to access these documents if they are needed in order for the committee to engage in its planning activities. However, the committees seldom request this information from facilities. In addition, these documents are available to members of the workforce, who have rights to many of these documents as a result of OSHA process safety management rules.

Sometimes the more detailed documents have also been made available to plant neighbors and their experts as a result of community dialogue and negotiation. In a more extensive effort, government, community members and site owners will also share information such as:

- the evaluation of technical options to eliminate the use of the extremely hazardous substances in question, or to reduce volumes stored and transported;
- site security issues of concern to facility neighbors;
- the site owner's legally binding commitments and timelines to implement needed hazard reduction measures;
- graphic indications of the potential **reduction of the vulnerability zones** as a result of the company's planned hazard reduction activities.

Local emergency planning committees (LEPC'S)

Local Emergency Planning Committees (LEPC's) are local bodies created by the 1986 Emergency Planning and Community Right to Know Act to conduct planning for chemical accident preparedness in every community throughout the US. By design of the law, the LEPC's have placed most of their emphasis on contingency plans for what to do AFTER a chemical accident happens –public alerts, putting out fires, evacuation and sheltering of local people, etc. As this guide has indicated, this singular focus to the exclusion of prevention measures may unnecessarily jeopardize the safety of many communities. Even the most effective plans cannot ensure against

widespread injuries and fatalities in the event of serious chemical incidents.

A few LEPC's have gone beyond emergency planning, to integrate efforts geared toward prevention of chemical dangers. They have found that they can have a significant role to play in prevention efforts:

- **Bringing technical assistance to bear to promote hazard reduction.** LEPCs can bring local independent experts to the community to conduct trainings on hazard reduction. They can facilitate community meetings and conferences. They can help to identify experts to conduct third party reviews of the adequacy of safety and security of particular facilities. They may also be a conduit for funding of those experts, either through access to grant monies, or development of public policy mechanisms such as fee-based systems to pay for the needed expert support.

- **Increasing information acquisition.** An LEPC has broad authority under section 303(d)(3) of the Emergency Planning and Community Right to Know Act to request information from facilities as needed in the course of emergency planning. Section 303(d) of EPCRA says that, upon the request from a local emergency planning committee, the owner or operator of any facility subject to the emergency planning provisions of the Act must promptly provide information to the committee "necessary for developing and implementing the emergency plan."[6] The U.S. EPA, the state emergency response commission can assist the LEPC's in enforcing this far-reaching requirement – which can be used to address disclosure of detailed documentation of hazard reduction issues.

- **Requesting facility managers to meet with the LEPC to review vulnerabilities and hazard reduction measures.** Many LEPCs have requested meetings with specific facilities' managers to review facilities' chemical storage and potential offsite consequences. Unfortunately, these discussions have seldom involved in depth review of prevention opportunities.

- **Serving as watchdogs and combining efforts with regulatory officials.** Local emergency planning committees can be the eyes and ears of regulatory officials and enforcement officers. They can help to identify instances where additional prevention measures are needed and can seek support of regulators in enforcing such changes.

The LEPC which arguably has engaged in the most prevention-focused activities is the one covering Cuyahoga County (Cleveland, Ohio). The County LEPC covers 59 political subdivisions including the City of Cleveland, and includes over 260 facilities that report storing extremely hazardous chemicals. The LEPC has sought to encourage hazard reduction by annually surveying facilities to determine what reductions in extremely hazardous substances they have achieved, and providing public recognition of these companies through an environmental awards program.

> Most Local Emergency Planning Committees believe they do not have the time, resources or expertise to encourage hazard reduction.
>
> 2001 Study by
> National Institute for Chemical Studies

The LEPC used the risk management planning process to enhance receptivity for inherent safety measures. It was able to encourage companies to reduce their "footprint"~~-the~~ area around the facility that could suffer deaths and injuries in an accident—before the plans were published. A key element of the Cleveland strategy, according to Stuart Greenberg, LEPC member, was an all day seminar of the LEPC prior to publication of companies' risk management plans, laying out strategies on inherent safety. The meeting featured various speakers covering the principles of hazard reduction, case studies of inherent safety designs and retrofits, and the relationship between inherent safety and pollution prevention.

Greenberg said that the LEPC made the most headway in promoting inherent safety by

being honest in explaining the limitations of emergency response: "even when you have a good emergency response plan and have well-trained emergency responders with all of the equipment they need, if there are people just on other side of the fenceline, they will be vulnerable. When you look at how fast a gas cloud is likely to move toward those first 'receptors', and consider the decision process involved in issuing an alert, those neighbors can often be expected to be hit by the cloud before the warning is even issued. There is no time for emergency responders to get to the scene and no time for people to take protective action, even with a good emergency response plan in place."[7]

The following examples identified by the National Institute for Chemical Studies[8] reinforce the notion that preventive action may be possible at LEPC's, even though the majority of these bodies have generally not focused on prevention.

Fayette County, Georgia
The Fayette County LEPC, the oldest LEPC in the state,[9] is located 25 miles south of Atlanta in a low population density area with predominately high tech industries. A 1995 hazard analysis showed the greatest chemical hazard is chlorine used for treatment in local water treatment plants and local industrial facilities. The LEPC worked with state officials and local chlorine users. Several reduced or eliminated chlorine treatment.

Washtenaw County, Michigan
This LEPC is located in Ann Arbor, Michigan and includes approximately 65 facilities, primarily wastewater treatment plants and facilities related to the automobile industry. The LEPC has worked in conjunction with county officials to conduct regular inspections of facilities, in conjunction with the county Environmental Services Division. The inspections address pollution prevention as well as emergency planning.

Johnson County, Kansas
Although Johnson County, which is part of the Kansas City metropolitan area, is not a major chemical producing area, its LEPC has developed a proactive approach toward hazard reduction at wastewater treatment plants and other facilities. Working with the LEPC, six area wastewater treatment plants found they could easily switch from chlorine treatment to ultraviolet treatment, thus eliminating a potential major hazard.

Springfield, Massachusetts
The Springfield LEPC, which covers over 200 facilities, seeks to promote hazard reduction through facility inspections and training. The LEPC participates on an inspection team that includes police, fire, health department and LEPC representation. The LEPC also conducts a general chemical safety course, with a focus on toxic use reduction, for local industries and emergency responders, and has worked with local schools to identify and dispose of unneeded chemicals.

Most Other LEPC's Have Not Yet Adopted a Prevention Focus

These are exceptional examples of LEPC's activities on prevention. By contrast a recent study by the National Institute for Chemical Studies of 32 "active" Local Emergency Planning Committees found that most of the LEPCs believe they "do not have the time, resources or expertise to encourage hazard reduction." The expectations for LEPC's should be even worse than this, since that survey was of "active" LEPCs, and an earlier national survey found that 21 percent of LEPCs were "inactive," 39 percent were "quasi-active," 16 percent were "compliant," and 24 percent were "proactive."[10] Among many additional barriers, LEPCs lack the authority and mandate for hazard reduction; can be hampered by dependent relations with industry; have no formal role in implementing Risk Management Planning; and can become discouraged by a perceived unwillingness of government and industry to act. Most lack needed funding.

LEPC's with the will to act can be an important vehicle for promoting prevention. But there are many other officials who may have more enforcement authority and resources.

Insurance companies

Insurance companies have a vested interest in ensuring that insured facilities which store or use large volumes of hazardous chemicals minimize the hazards associated with those practices. The insurers hire loss prevention experts and risk assessors who visit insured or potentially insured facilities, to identify risks as well as hazard reduction opportunities. Premium levels may be higher or lower for many businesses according to the chemical risks on the site.

Where significant hazards are identified at a facility, insurers might be drawn into the conversation regarding facility hazards and the availability of alternatives, so as to become a powerful ally for encouraging hazard reduction measures.

The state of Massachusetts, through its Office of Technical Assistance of the Executive Office of Environmental Affairs, has been encouraging insurers to provide incentives to companies who effectively reduce their use of toxic substances.[11] Companies that are already required by state law to evaluate alternatives for reducing the use of toxics will be encouraged by insurers to action implement the safer alternatives that they identify. Participating insurance providers will offer incentives to those qualified policyholders that demonstrate "superior environmental management practices." The determination of what these practices entail is at the discretion of each individual environmental insurance provider. The type and character of incentives offered through this program will vary by insurance company. The incentives may include:

- lower deductibles;
- enhanced lines of coverage;
- reductions in insurance policy pricing premiums;
- other favorable underwriting terms.

Though this is promising, the insurers' role is far from a complete incentive structure for hazard reduction. For instance, large facilities and municipal water systems are often self-insured. Also, new contractual or legislated exemptions regarding insurance coverage or liability related to terrorism may undermine insurers' motivations or incentives.

State and local lawmakers

State and local lawmakers can serve as leaders in hazard assessment efforts, increasing the visibility of issues in need of resolution. Where responses or policies remain inadequate, the lawmakers can all enact new laws to ensure consideration of inherent safety or clean production methods. See discussion, above, regarding federal, state and local regulators, for examples of some of the legislative precedents. Local law can mandate assessment of inherent safety options as well as other security and safety measures when implementing inherent safety does not prove feasible, or does not eliminate accident or security issues at local chemical sites.

Notes

1. General Accounting Office, Occupational Safety and Health: Employers' Experience In Complying With The Hazard Communication Standard, May 1992 GAO/HRD-92-63-BR.
2. American Chemistry Council, Chlorine Institute Inc., and Synthetic Organic Chemical Manufacturers Association, Site Security Guidelines for the U.S. Chemical Industry, October 2001.
3. American Chemistry Council, Press Release, January 30, 2002.
4. Clean Air Act, section 112(r)(1).
5. 57 Fed. Reg. No. 36 p. 6411.
6. 42 USC sec. 11003.
7. For additional information see the website, www.ehw.org, and click on chemical accidents.
8. National Institute for Chemical Studies, Local Emergency Planning Committees and Risk Management Plans: Encouraging Hazard Reduction, Charleston, West Virginia, June, 2001.
9. Georgia originally had just one statewide LEPC.
10. George Washington University, Department of Public Administration, Nationwide LEPC Survey, 1994.
11. http://www.state.ma.us/ota/support/incentivesprog.htm