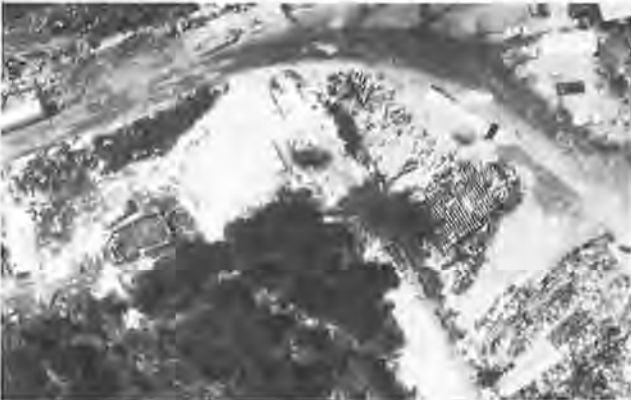


Figure 6. Implications involving surface winds and winds aloft.



Figure 7. Potentials from poorly stored waste chemicals.



carriers cannot refuse to transport a chemical that is properly labeled, contained, and loaded. Simply put, there is no way to keep chemicals away from the people; the people must be kept away from certain

chemicals. The word that comes to mind is zoning—not zoning in the classical sense and certainly not sterile zoning in which huge areas of land are left bare. Perhaps a concept of land use and time management that recognizes some of the ideas usually associated with classical zoning would at least provide a basis for study.

Zoning in this country has always been a local issue, but it is not inconceivable that federal and state regulators as well as local officials and industry advisory groups could draw on fundamental zoning ideas and land use concepts as laws are reviewed, rewritten, or created. Some of the ideas being tossed about here are as follows:

1. Time schedules of chemical deliveries in certain heavily populated areas;
2. Direction a building may face or where windows may be placed and style of ventilation systems, in circumstances involving structures located in close proximity to major chemical transportation routes or chemical storage areas;
3. Strategic use of natural wind or dispersion buffers as land is developed near these zones of chemical storage or transportation;
4. System whereby local or state governments would notify major interstate carriers of interim or short-term congestion in specific areas such as state fairs, major sports, or recreation events; and
5. Zones of concern, with degrees of concern relating to such things as natural hazards (bad roads, low speed limits, or frequent local flooding) being lined up or correlated with transportation vectors, and storage areas all transposed to a matrix that depicted times of high population risk.

The list goes on. Admittedly, these are shots in the dark and to some even the mention of the above ideas in the same breath with true zoning may be offensive. But, clearly, we are talking about risk analysis, responsibilities, and competing interests. Industry has made great effort in the past 5-6 years to prevent accidents and to be responsive to them when they occur. Government has worked side by side with the industrial sector to make positive things happen and this side of the story is rarely told. Nonetheless, all of these efforts will not close the circle. The public must participate to achieve this goal.

National Overview of Emergency Response Under Superfund

H. D. VAN CLEAVE

This paper discusses the U.S. Environmental Protection Agency's program for hazardous material emergency response and the Superfund created by Congress to support federal cleanup of chemical spills and abandoned waste sites that threaten people or the environment. The active participation of state and local governments during hazardous waste emergencies is advocated. Efforts toward federal, state, and local cooperation are seen as the key to timely and effective response to the dangers from hazardous materials.

The primary responsibility of the U.S. Environmental Protection Agency's (EPA) oil and hazardous substance emergency response program is to protect the quality of the environment by preventing or minimizing the effects of spills or releases from hazardous waste sites. The program concentrates on environmental emergencies that pose an immediate threat to public health and welfare. EPA's Emergency Response Division is headquartered in Washington, D.C., and

Falls within the jurisdiction of the Office of Solid Waste and Emergency Response. It is separate from the Hazardous Site Control Division, which addresses long-term remedial actions at hazardous waste sites. Rapid response throughout the United States is achieved through the efforts of the Emergency Response Division's 10 regional offices and the special emergency response teams based in Cincinnati, Ohio, and Edison, New Jersey.

Two major pieces of legislation form the basis of the emergency response program. The Federal Water Pollution Control Act (FWPCA), as amended in 1972, outlines federal responsibilities for spills of oil (primarily) and hazardous substances into or on the navigable waters of the United States, the adjoining shorelines, or the waters of the contiguous zone. The Comprehensive Environmental Response, Compensation, and Liability Act of 1980, known as Superfund, broadens the scope of response to include inland areas. It also allows the federal government to enter into cooperative agreements with states to perform the removal actions authorized under Superfund.

The national oil and hazardous substances pollution contingency plan was originally prepared pursuant to Section 311 of FWPCA and later revised and republished in compliance with Section 105 of Superfund. The plan provides for coordinated federal response to releases or threatened releases of hazardous substances into all media. The plan also promotes federal-state coordination by encouraging state and local governments to develop capabilities for responding to releases.

Section 104 of Superfund authorizes EPA to take response measures necessary to protect the public health and welfare and the environment. Federal emergency response is initiated through telephone notification of the U.S. Coast Guard National Response Center in Washington, D.C. The National Response Center is notified of

1. All discharges,
2. Oil to navigable waters, and
3. Hazardous substances to all media (i.e., water, land, air, and groundwater).

It disseminates the report to the appropriate response agency or on-scene coordinator (OSC). The National Response Center has a toll-free telephone number within the continental United States.

The OSC is the official appointed by EPA or the U.S. Coast Guard to direct federal response efforts under the plan. The U.S. Coast Guard responds to hazardous material spills onto or threatening the coastal zone; EPA attends to incidents that involve the inland zone. A recently signed interagency agreement makes EPA responsible for all responses that involve releases from hazardous waste sites regardless of location.

The federal OSC assesses the nature and magnitude of the situation and decides either to assist local officials in monitoring the removal efforts by the responsible party to declare federal removal action. A federal removal action is declared in those

cases where the discharger is unknown, the discharge is caused by an act of nature or war, or the responsible party cannot or will not respond in a proper manner.

Stiff penalties are associated with a failure to notify the National Response Center. Under the provisions of Section 311 of the Clean Water Act of 1977 as amended, the criminal penalty for failing to notify the proper officials of an oil spill is \$10 000 fine, one year of imprisonment, or both. The civil penalty assessed for each discharge is \$5000. The federal government must also be reimbursed for costs incurred in removing the oil spill and restoring the natural resources. The same criminal penalty is assessed under Superfund for failure to notify the appropriate officials of a release of hazardous substances. Punitive damages up to three times the cost of federal removal may be assessed for failure to provide removal under Superfund. Destruction of records is eligible for a \$20 000 fine, one year of imprisonment, or both. Both laws make provisions for reimbursement of the costs of federal removal and restoration of natural resources; therefore, all costs related to response must be documented carefully by OSC.

The OSC determines not only the need for federal response but also the extent of removal or remedial action. Removal action, in the context of Superfund operations, means the cleanup of released hazardous substances from the environment or the taking of other actions to prevent, minimize, or mitigate damage to the public health or welfare of the environment. Remedial action involves those actions required for permanent remedy.

The OSC is responsible for devising the site safety plan--those safety procedures taken to protect the health and welfare of workers during site operations--and for implementing a community relations plan. Typical community relations activities might include the issuing of news releases and progress reports to the media, the briefing of citizens directly affected by the response operation, and the offering of special public information services for official visitors.

Essentially, the national contingency plan charges the OSC with coordinating all public and private efforts during a response operation. Recently, however, EPA has been successful in bringing state and local governments in as full and active partners in the achievement of environmental goals. OSCs are encouraging state and local officials to assume greater leadership roles in response operations.

Naturally, the federal OSC will retain an important advisory role, and Superfund will continue to be the major source of cleanup money. The vast scientific support resources, such as the multidisciplinary expertise of the environmental response teams, the technical assistance teams, the field investigation teams and specialized monitoring, sampling, and safety equipment, will continue to be available to support the regional efforts. However, the desirable and successful emergency responses of the future will be multigovernmental efforts.