The Dangerous Dozen:

A Look at How 12 Chemical Companies Jeopardize Millions of Americans

Environment Colorado Research & Policy Center

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Written by Meghan Purvis, Environmental Health Associate with Environment Colorado Research & Policy Center, and Alison Cassady, Research Director with Environment Colorado Research & Policy Center.

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Environment Colorado Research & Policy Center
1530 Blake Street, Suite 220
Denver, CO 80202
(303) 573-3871
info@environmentcolorado.org
www.environmentcolorado.org

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EXECUTIVE SUMMARY

Across the United States, thousands of industrial facilities use and store hazardous chemicals in large quantities that pose major risks to their neighbors. More than 100 of these facilities would each put at least one million people at risk of injury or death in the event of a chemical accident or terrorist attack.

When Congress passed the Clean Air Act Amendments of 1990, it required the U.S. Environmental Protection Agency (EPA) to publish regulations and guidance for chemical accident prevention at facilities using extremely hazardous substances. EPA established the Risk Management Program, requiring companies of all sizes that use certain flammable and toxic substances to develop a Risk Management Plan (RMP), including a hazard assessment that details the potential effects of an accidental release.

• Switching chemicals and processes to something less volatile not only reduces the chemical hazard to the community, but also reduces the need for costly add-on security measures and the attractiveness of the facility as a target for attack. We need mandatory federal standards to protect communities from the hazards posed by chemical plants around the country by requiring facilities to switch to safer chemicals and processes where possible.

• The "Dangerous Dozen" companies should immediately review options for reducing hazards at their plants and set measurable goals and timelines for implementing hazard reductions.

the threat to the community. Switching chemicals and processes to something less volatile not only reduces the chemical hazard to the community, but also reduces the cost of physical security and the attractiveness of the facility as a target for attack.

Furthermore, some in industry and the government have proposed limiting the public's access to information about chemical hazards. Limitations have been placed on the information any individual can obtain about a chemical facility and its vulnerability zone, and even tighter restrictions have been proposed. EPA and the chemical industry have removed certain information from the Internet as well. Instead of safeguarding these facilities from terrorists, however, these efforts merely deny public accountability measures that encourage industry reform.

DANGEROUS DOZEN: THE FINDINGS

When Congress passed the Clean Air Act Amendments of 1990, it required EPA to publish regulations and guidance for chemical accident prevention at facilities using extremely hazardous substances. EPA established the Risk Management Program, requiring companies of all sizes that use certain flammable and toxic substances to develop a Risk Management Plan (RMP), including a hazard assessment that details the potential effects of an accidental release and an evaluation of worst-case scenarios.[7] These scenarios estimate how far a chemical could travel off-site and still maintain toxic concentrations in certain weather conditions and report the number of people living within that distance, known as the "vulnerability zone."[8]

We reviewed the RMPs submitted by facilities using hazardous chemicals and found that a single company owning many facilities or a single facility in a large population center can endanger thousands and even millions of people. Specifically, we found:

• The "Dangerous Dozen": The twelve companies endangering the most people are JCI Jones Chemical, The Clorox Company, Kuehne Chemical, KIK Corporation, DuPont, Pioneer Companies, Clean Harbors, GATX Corporation, PVS Chemicals, Dow Chemical, Ferro Corporation and Occidental (Table 1).

• These 12 parent companies own 154 facilities in 31 different states and Puerto Rico (Appendix A).

• The facilities owned by JCI Jones Chemical, The Clorox Company, and Kuehne Chemical put more than 20 million, 14 million, and 12 million people at risk, respectively.

• Between 1990 and 2003, companies, employees and concerned citizens reported more than 8,400 accidents involving oil or chemicals at facilities owned by these 12 parent companies to the National Response Center (NRC), as seen in Table 2.[9]

• Six of the 12 companies are members of the American Chemistry Council (ACC), the trade association representing the chemical industry in Washington, DC. ACC spent $4.3 million over 2002 and 2003 on in-house lobbyists, advocating against any mandatory standards for chemical plant security.[10]

Table 1. 12 parent companies with most people residing in their vulnerability zones

GAPS IN CURRENT REGULATION

few state and federal policies address the problem of accidents at chemical facilities. Most of these policies, however, take a backwards view of chemical accidents and deal with responses to accidents, such as attempting to mitigate the effects of a chemical release. Few policies take the proactive approach and require that chemical facilities look to prevent chemical accidents with safer technologies instead of attempting to reduce the damage once an accident occurs.

The Emergency Planning and Community Right-to-Know Act

Congress passed the Emergency Planning and

and monitoring; and procedures for informing the public and response agencies should an accident occur.

POLICY RECOMMENDATIONS: USING SAFER CHEMICALS AND PROCESSES

Use Safer Chemicals

The most effective means of protecting American communities from chemical terrorism and accidents is to encourage and mandate hazard reduction. Each hazardous chemical facility should be required to review and implement inherently safer technologies wherever feasible and implement strict security standards where hazards remain. For a few facilities and companies, using safer chemicals is already a reality.

For example:

- Early in 2003, Valero Energy Corporation switched the chemical it used at its Wilmington, California oil refinery from hydrofluoric acid to modified hydrofluoric acid, which forms a less dangerous cloud if released. Since an explosion that caused an accidental release of hydrofluoric acid at a neighboring Torrance refinery in 1987, the local community and government have pushed to shut down two refineries that used hydrofluoric acid and required a third facility to change to modified hydrofluoric acid. The community was able to negotiate an agreement with the South Coast Air Quality Management District with regards to the Valero facility: Valero will pay a fine up to $1 million if the renovation is not complete by the end of 2005. The change is expected to cost Valero about $30 million.[20,21]

- In Wichita, Kansas, the Wichita Water and Sewer Authority's sewage treatment plant switched from using chlorine gas to ultra violet light in its disinfection processes. The plant expects to save money in the long run as a result of the change, as there is about a 20% anticipated cost savings in energy costs versus chemical costs.[22]

- DuPont's Victoria, Texas facility eliminated large volume storage of methyl isocyanate—the chemical that killed thousands of people in Bhopal, India—by establishing a process that uses up the chemical as soon as it is produced. On-site storage is limited to two pounds at any one time, substantially reducing the potential impact of an accidental release.[23]

Enact Federal Standards

There are currently no federal security standards for chemical facilities. Federal standards are necessary to ensure that all companies and facilities are adequately working to protect the public and reduce the possibility that a catastrophic release will occur.

The chemical industry often argues that requiring diverse and complex industries to reduce their possibility of a chemical accident is unrealistic and difficult to implement. Federal standards, however, could be flexible to accommodate such a variety of industry needs. Simply requiring facilities to publicly disclose viable options to their current chemical use and processes holds those facilities and companies accountable and greatly increases the probability that companies will prevent accidents through the use of safer chemicals and processes.

METHODOLOGY

he facilities examined in this report were all registered in EPA's RMP program as of September 2003.

The vulnerability zone data in this report were collected from Risk Management Planning reports obtained at Environmental Protection Agency Air Docket Centers throughout the country, in compliance with current guidelines and rules. EPA defines the radius of a vulnerability zone as "the maximum distance from the point of release of a hazardous substance in which the airborne concentration could reach the level of concern under specified weather conditions."[24] It is important to note that not all people living within a vulnerability zone could be affected by a single chemical release; those living downwind during a chemical release are most likely to be affected.

Information on the parent company of each facility was obtained from Risk Management Planning reports and company websites. In some instances, it was necessary to call the facility in order to determine proper ownership.

Because in many states, such as Louisiana or Texas, chemical facilities are often grouped together in industrial areas, their vulnerability zones overlap. For this reason, aggregate numbers of people at risk for the country and by state are not included. For the company totals, when the vulnerability zones of two facilities overlapped, we used the facility with the largest number of people residing in its vulnerability zone and dropped the other facility from the total. This likely underestimates the number of people living in the vulnerability zones of these companies' facilities.

We obtained data on chemical accidents from the National Response Center,

APPENDIX A. Number of People Living in Vulnerability Zones: By Parent Company and State

Company	State	Number of Facilities	Residential Population in Danger
JCI Jones Chemicals			
	California	1	8,050,000

Company	State

Company	State	Number of Facilities	Residential Population in Danger
Dow Chemical			
	Arkansas	1	110
	California	3	940,689
	Connecticut	1	8,100
	Georgia	2	801
	Illinois	3	426,127
	Kentucky	2	147,665
	Louisiana	6	1,175,105
	Michigan	5	374,000
	New Hampshire	1	655,400
	New Jersey	1	300
	New York	1	1,500
	Ohio	1	100
	Puerto Rico	2	24,415
	Texas	7	2,078,750
	West Virginia	5	199,923
	Total	41	*6,032,985
Ferro Corporation			
	Indiana	1	1,990,678
	Louisiana	1	2,000

END NOTES

[1] James Belke, U.S. Environmental Protection Agency. "Chemical accident risks in the U.S. industry – A preliminary analysis of accident risk data from U.S. hazardous facilities," September 25, 2000; Additional analysis by Rick Hind, Legislative Director Greenpeace Toxics Campaign, May 19, 2004.
[2] U.S. PIRG, *Irresponsible Care: The Failure of the Chemical Industry to Protect the Public from Chemical Accidents*, April 2004.
[3] Agency for Toxic Substances and Disease Registry. "Industrial Chemicals and Terrorism: Human Health Treat Analysis Mitigation and Prevention," 1999.
[4] The Army6.3s