Chemical Emergency Preparedness and Prevention Documents – Compilation Documents Created by EPA Headquarters– CEPPO and OEM

Since the inception of the Chemical Emergency Preparedness and Prevention (CEPP) Program in 1985, as well the passage of the Emergency Planning and Community Right-to-Know Act in 1986, and the Clean Air Act – Risk Management Program in 1990, the CEPP Office / Office of Emergency Management has developed and distributed many documents useful for LEPCs, regulated industries, and other stakeholders. Although some of the documents are from the early part of the EPCRA program, there is still valuable information that local planning and response officials may use to implement EPCRA. EPA is planning to revise these documents soon and will make the new versions available as we develop them.

For More Information on EPCRA, visit EPA website at:
http://www2.epa.gov/epcra

EPA Superfund, TRI, EPCRA, RMP & Oil Information Center:
1-800-424-9346 or (703) 412-9810
http://www2.epa.gov/epcra/superfund-tri-epcra-rmp-oil-information-center

EPA EPCRA Regional Contacts:
http://www2.epa.gov/epcra/epa-regional-epcrarmp-contacts

CAMEO:
http://www2.epa.gov/cameo

National Association of SARA Title III Program Officials (NASTTPO):
http://NASTTPO.com

Actions to Improve Chemical Facility Safety and Security – A Shared Commitment:
https://www.osha.gov/chemicalexecutiveorder/index.html

EPCRA Requirements:
http://www2.epa.gov/sites/production/files/2013-08/documents/epcra_fact_sheet.pdf

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Chemicals, the Press, and the Public: A Journalist's Guide to Reporting on Chemicals in the Community – EPA-550-B-00-003	March, 2000
EPCRA: Guidance on Reporting Options for Sections 311 and 312 and Some Interpretations – EPA 500-F-10-001	June, 2010
Measuring Progress in Chemical Safety: A Guide for LEPCs and Similar Groups	August, 2013
Guiding Principles for Chemical Accident Prevention, Preparedness, and Response – EPA-B-93-001	February, 1993
OECD Guidance on Developing Safety Performance Indicators related to Chemical Accident Prevention, Preparedness and Response: Guidance for Public Authorities and Communities/Public	2008
EPCRA Guidance for Tribal / Indian Lands	
Chemical Emergency Preparedness and Prevention in Indian Country -- EPA 550-F-09-003	March, 2009
LEPC Planning / Exercise Guidance Documents	
NRT 1: Hazardous Materials Emergency Planning Guide	July, 2001
NRT-1a: Criteria for Review of Hazardous Materials Emergency Plans	May, 1988
NRT-2: Developing a Hazardous Materials Exercise Program – OSWER NRT-2	September, 1990
Making it Work: Hazardous Analysis -- OSWER-92-009.1	September, 1992
Hazards Analysis on the Move: EPCRA and Conducting a Commodity Flow Study -- EPA 550-F-93-004	October, 1993
Technical Guidance for Hazards Analysis	December, 1987

EPA 550-K-99-001, December, 1999

CHEMICALS IN YOUR COMMUNITY

HOME

Part 1

Preface

Chemicals are an important part of the modern world. They make our water safe to drink, provide fuel for our cars, increase the production from our farms, and are often key parts of products we use every day.

Many of the properties of chemicals that make them valuable to us, however, such as their ability to kill dangerous organisms in water and pests on crops, pose a hazard to us and the environment if the chemicals are used or disposed of improperly.

EPA is committed to providing you with as much information as possible about chemicals at your local businesses, and other facilities, so that you can work with local government agencies, citizen groups, and business to ensure that the chemicals in your community are used safely.

You can also ensure that facilities and emergency responders are prepared to respond appropriately to accidents.

You and your family and neighbors are the people most at risk if chemicals in your community are being used unsafely or released into the environment.

You are in the best position to work with local agencies to ensure that you, your neighbors, local agencies, and responders are prepared to handle any accidents that do happen.

Two laws, the Emergency Planning and Community Right-to-Know Act (EPCRA) and the Clean Air Act's (CAA) chemical accident prevention provisions (also called the risk management program), were specifically designed to provide you with information on chemicals at individual facilities, their uses, and releases.

Many other EPA programs also have data available, as do States, local governments, trade associations, public interest groups, and individual facilities.

Much of this information is easily available on the Internet; other information is available from State and local agencies who receive annual reports from facilities. This pamphlet:

- Summarizes the information you can obtain under EPCRA and CAA;
- Tells you where to find it;
- Tells you about other information you may also find helpful; and
- Indicates how you can use these various sources of information to build a snapshot of chemicals stored and released in your community.

It also discusses how specific groups, such as fire departments, health care professionals, State and local agencies, citizens, and industry can use the information to improve the safety of our communities.

Dealing with Chemicals: It's Everybody's Job

The Emergency Planning and Community Right-to-Know Act (EPCRA) and the Clean Air Act (CAA) both require facilities to report on hazardous chemicals they store or handle, and both provide for public access to these reports.

These laws help build better relationships among government at all levels, business and community leaders, environ- mental and other public-interest organizations, and individual citizens.

The laws recognize that citizens are full partners in preparing for emergencies and managing chemical risks. Each of these groups and individuals has an important role in making the program work:

- Local communities and State governments are responsible for understanding risks posed by chemicals at the local level, managing those risks, reducing those risks, and dealing with emergencies.
- Developing emergency planning and chemical risk management at the levels of government closest to the community helps to ensure the broadest possible public representation in the decision-making process. The Local Emergency Planning Committee (LEPC) develops and reviews the community chemical emergency response plan and receives annual inventory reports. The State Emergency Response Commission (SERC) reviews local emergency response plans and receives annual inventory reports. LEPC and SERC contact names and phone numbers are available at www.rtk.net/lepc.
- Citizens, health professionals, public-interest and labor organizations, the media, and others work with government and industry to use the information for planning and responding to emergencies in the community.
- Facilities that use hazardous chemicals are responsible for operating safely, using the most appropriate techniques and technologies; gathering information on the chemicals they use, store, and release into the environment and providing it to government agencies and local communities; and helping set up procedures to handle chemical emergencies. Some industry groups and individual companies have gone beyond the letter of the law and have reached out to their communities by explaining the hazards involved in using chemicals, by opening communication channels with community groups, and by considering changes in their practices to reduce any potential risks to human health or the environment.
- The Federal government provides national leadership and assistance to States and communities to ensure they have the tools and expertise necessary to receive,

assimilate, and analyze all data, and to take appropriate measures to reduce the risk of accidents and chemical emissions. EPA helps facilities comply with the laws' requirements; it ensures the public has access to information on chemical storage and releases as well as other information to protect the nation's air, water, and soil from pollution. EPA works with industry to encourage voluntary reductions in the use and release of hazardous chemicals wherever possible.

What Information is Available?

EPCRA and the Clean Air Act's Risk Management Program provide an array of complementary information:

Emergency Release Notification. Companies must immediately report accidental releases of certain chemicals to the SERC and LEPC and file follow-up reports. Minimum reportable quantities vary from one pound to 10,000 pounds.

More than 1,000 chemicals are covered by this requirement. You can find out the name and quantity of the chemical; the duration of the release; whether the release was to air, water, or land; the potential health impacts; and who to contact for more information.

Annual Chemical Inventories. Companies must file annual chemical inventory reports on hazardous chemicals they store on site above certain quantities, usually 10,000 pounds; chemicals may be reported by hazard type or by name.

The reports tell where the chemical is located in the facility, how much is stored, and who to contact in an emergency. This information will allow you to map these facilities and see where heavy concentrations of chemicals are located. You can get copies of these reports from your LEPC or SERC.

Material Safety Data Sheets (MSDSs). Companies must submit copies of the MSDSs or list of chemicals to the SERC, LEPC, and local fire department.

MSDSs are available for more than 500,000 products that could create physical hazards or adverse health effects and include the chemical identity, components of chemical mixtures, the physical properties (e.g., boiling point), hazards (e.g., flammability, corrosivity, toxicity), and health hazards.

The SERC or LEPC can tell you which MSDSs facilities have; and, they or the facility can provide you with a copy of the MSDS. MSDSs do not have a standard format and can sometimes be confusing.

On- line databases, which often have multiple versions of MSDSs for individual chemicals, can help you find an MSDS that is well organized and easy to read.

Toxics Release Inventory (TRI). Certain facilities file annual reports on all releases of about 650 chemicals. The data include estimates of the quantities of chemicals released to air, water, and land and otherwise managed as waste.

TRI data are available on-line. You can search for specific facilities or search for all facilities in a town, county, or State.

Risk Management Plans (RMPs). Certain companies file chemical accident prevention plans that include a summary describing the facility and its processes; the worst-case and other more likely accident scenarios; the facility's accident prevention practices; its emergency response program; a recent history of serious chemical accidents (if any); and planned improvements to safety design or operations.

You also will learn why accidents have happened and find out what companies have done to prevent recurrences. You can get RMPs from EPA's Envirofacts database in a system called RMP*Info.

Community Emergency Response Plan. The LEPC has developed a community emergency response plan for chemical accidents. You can review the plan, which addresses facilities with certain quantities of 356 extremely hazardous substances (acutely toxic chemicals).

Your LEPC can provide information on which local facilities have been involved in the planning process.

What's Available on the Internet?

Profiles of the extremely hazardous substances: www.epa.gov/ceppo/ep_chda.htm#ehs

ERNS online (release reports by State by year): www.epa.gov/ernsacct/pdf/index.html

Access to the on-line copies of MSDSs maintained by a number of universities: www.hazard.com

TRI and RMP data through Envirofacts: www.epa.gov/enviro. (Also available in Envirofacts, data on facilities that have:

- Permits to release substances to water, in the Permit Compliance System database.
- Permits to release hazardous pollutants to air, in the air release database.
- Permits to store and treat hazardous wastes, in the RCRA database.)

TRI data also are available at www.epa.gov/tri, www.rtk.net, and at www.scorecard.org, which maps the location of facilities in a county or city.

How Do I Build a Picture of Chemical Use in My Community?

If you have Internet access, the easiest way to begin is to search RMP*Info and the TRI database for your city and county.

Use these to develop a list of facilities and chemicals in your area. Ask your SERC or LEPC to provide information from their records on other facilities in the community that have filed reports.

Annual chemical inventories (available from the SERC and LEPC) are likely to be the most comprehensive source because they cover the largest number of chemicals.

But remember that some facilities covered by other environmental regulations may not be required to file these inventories.

The threshold for reporting chemicals also varies among the regulations and not all companies are required to report information under every environmental regulation.

Some facilities may report acutely toxic chemicals to help LEPCs prepare local emergency response plans, but are not required to file Risk Management Plans.

In some cases, chemicals will be reported under TRI, but not under any of the other rules because TRI is based on the total quantity used during the year, not the quantity on site at any one time.

LandView

Another way to build your comprehensive list of all the facilities that use or store hazardous chemicals in your com- munity is to download your county information from the LandView web site: www.census.gov/geo/www/ tiger/landview.html. LandView is a geographic reference, like an atlas. It displays:

- A detailed network of roads, rivers, and railroads based on Census files. Jurisdictional and statistical boundaries — a set of generalized boundary files for States, congressional districts, metropolitan areas, Native American Indian Areas, Alaska Native lands, counties.
- EPA-regulated sites, a subset of the facilities, sites, and monitoring stations represented in five EPA databases including sites with air and water permits, sites handling hazardous wastes, Superfund sites, and TRI facilities.
- Selected demographic and economic information from the 1990 Census, and
- Key geographic features of the United States provided by the United States Geological Survey and other Federal agencies. LandView will give you a map which you can then fill in with data from other sources

You may be surprised at the variety of businesses that use and store hazardous chemicals. While everyone generally knows that chemical manufacturers and refineries have chemicals on site, many people don't realize that food processors and food distribution centers may have large quantities of ammonia in their refrigeration systems. Your local drinking water system and sewage treatment plant also store toxic chemicals that are used to kill dangerous bacteria in the water. Many industrial and commercial sites also use and sell chemicals.

What's Missing?

1. *Trade Secrets and Confidential Business Information.* Under the community right- to-know law, facilities are not required to disclose the identity of a chemical on a Toxic Release Inventory or an annual inventory report if it is a trade secret, but they must indicate what type of chemical it is. The risk management program allows facilities to withhold from their Risk Management Plans any information that would reveal confidential business information. In practice, less than one percent of the facilities that have filed any of these reports have claimed information as confidential or trade secret. If a facility in your community has made such a claim, you may ask EPA to determine whether the claim is legitimate.
2. *Facilities Not Required to Report.* Some facilities that handle hazardous chemicals are not required to report information under community right-to-know laws. EPA recently exempted virtually all gas stations from EPCRA reporting because the public and emergency responders are aware of the location of these facilities and of the hazards of gasoline. Likewise, facilities that handle relatively small quantities of acutely toxic chemicals and up to 10,000 pounds of other hazardous chemicals are not required to report. Many agricultural chemicals are not subject to reporting under these rules, as well.
3. *Transportation.* Chemicals transported through your community by rail, barge, or truck are not reported to EPA. You may assume that any of the chemicals you find at facilities in your locality are moving through your community via railroad lines or major highways. But, chemicals also may be transported through your community on the way to some other location. Some LEPCs have surveyed traffic on major roads and rail lines to determine which chemicals are being transported and who is transporting them. Most vehicles that carry hazardous materials must be marked with placards that identify the hazard class and give a number that identifies the specific chemical.
4. *Non-Filers.* Although environmental laws impose substantial penalties for facilities that fail to report, some companies may be unaware of their reporting obligations. When you develop a list of facilities in your community that have reported under these rules, you should check whether other, similar facilities exist in your community. Work with those facilities and your LEPC to determine whether they should also be reporting.

Data Limitations

You should know that:

The TRI annual release reports are based on estimates, not actual measurements. They also represent annual emissions; you cannot tell from the data whether the chemicals were released in large amounts over a short period of time or in small amounts every day. Information on the rate of release is needed to determine effects on human health and the environment.

The release estimates do not show the extent of human exposure. Many things can happen to a chemical when it is released; these natural processes (e.g., wind) make it difficult to determine the extent of actual exposure.

The initial reports on releases to LEPCs, SERCs, and EPA are often made while the release is occurring. The data from those reports, such as in EPA's Emergency Release

Notification System (ERNS), may not accurately reflect the quantity released, the chemicals released, or the impacts.

The quantities on site reported under EPCRA 312 and TRI are given in broad ranges; it is not possible to tell the actual quantity.

All the requirements limit the number of facilities covered, usually by including only certain chemicals and setting thresholds below which reporting is not required. TRI also covers facilities in only certain industrial sectors with more than nine employees. Other facilities may handle the same chemicals or may handle other chemicals that could pose hazards.

The offsite consequence analysis data in the RMP are usually based on conservative assumptions about the accident scenario and weather conditions and on conservative modeling; the distances reported are likely to overestimate the area potentially affected.

Information Sources

• Type of Information	Where Can I Get It?
• Facilities in city, county, State	LEPC, SERC, Toxic Release Inventory (TRI) and RMP*Info (located in EPA Envirofacts at www.epa.gov/enviro)
• Name and address of facility Contact names	LEPC, SERC, EPA TRI and RMP*Info
• Parent Company	TRI and RMP*Info
• Quantities of chemicals on site	LEPC, SERC, TRI database
• Chemicals and quantities in processes	RMP*Info
• Annual releases to the environment	TRI
• Accidental or significant releases	ERNS and RMP*Info
• Physical properties of chemicals Health and safety hazards Exposure limits	LEPC, SERC, on-line MSDS databases
• Offsite consequence analysis	RMPs
Prevention practices Hazard controls	RMP*Info
• Wastes generated/recycled	TRI

What Do These Data Mean?

The presence of hazardous chemicals does not necessarily mean that the com- munity is at risk. These chemicals can be, and usually are, handled safely. Many of the substances covered by EPCRA pose little risk to the community because, even if spilled, they will not migrate beyond the facility; they may, however, pose risks to workers at the facility. (Other right-to-know regulations provide information to workers on workplace hazards.) Some chemicals are hazardous only if you are exposed to them over a long period of time. Most of the chemicals are dangerous only if people are exposed to them above certain concentrations. For some of the chemicals EPA has set standards detailing how much of the chemical can be released safely to the air or water per hour or day. The Occupational Safety and Health Administration (OSHA) has set permissible exposure levels for workers for many chemicals that are generally included on MSDSs.

Hazard vs. Risk

To evaluate the dangers these chemicals may create for your community it is useful to understand the difference between hazard and risk.

Hazards in chemical properties generally cannot be changed. Chlorine is toxic when inhaled or ingested; propane is flammable. There is little that you can do with these chemicals to change their toxicity or flammability. Similarly, if you live in an earthquake zone or an area affected by hurricanes, earthquakes and hurricanes are hazards. When a facility conducts a hazard review or process hazards analysis, it will identify hazards and determine whether the potential

exposure to the hazard can be reduced in any way (e.g., by limiting the quantity of chlorine stored on site).

Risk usually is evaluated based on several variables, including the likelihood of a release occurring, the inherent hazards of the chemicals combined with the quantity released, and the potential impact of the release on the public and the environment. For example, if a release during loading occurs frequently, but the quantity of chemical released is typically small and does not generally migrate off-site, the overall risk to the public is low. If the likelihood of a catastrophic release occurring is extremely low, but the number of people who could be affected if it occurred is large, the overall risk may still be low because of the low probability that a release will occur. On the other hand, if a release occurs relatively frequently and a large number of people could be affected, the overall risk to the public is high.

Can We Really Assess Risk?

EPA, under the right-to-know and accident prevention regulations, does not require facilities to assess risk. In most cases, the data that are needed to estimate risk levels quantitatively do not exist. Even when such data are available, it is difficult to assign a numerical value to risk. Generally, facilities and emergency planners estimate risk - in qualitative terms - as high, medium, and low. Most potential worst-case releases are considered to be low risk, but that does not mean they could not happen; it simply means that they are unlikely to occur. Smaller releases may be more likely, but may have little effect on the surrounding community and, therefore, still would be considered low risk.

The challenge for the community and for facilities is to decide which risks need to be reduced and where time and resources can best be spent. For example, a serious release may be very unlikely, but if it could affect schools or hospitals if it happened, a community might decide to work with the facility to reduce the risk. If the same release occurred at a facility that is a considerable distance from anyone else, it might not merit any steps to reduce the likelihood.

How Can Risk Be Reduced?

Communities and facilities can work together to reduce risk. Many companies have already cut back on routine emissions, reduced the quantities of chemicals stored, or switched to less hazardous chemicals. In all cases, improved operations, such as better employee training, operating procedures, and preventive equipment maintenance, can reduce risks and improve the efficiency of the business. EPA and OSHA have imposed such safe practices requirements on facilities that handle the most hazardous chemicals. Through RMP*Info, companies and communities can compare the quantities stored, hazard controls, detection systems, and mitigation systems used for one facility with those reported by similar facilities elsewhere. These data may provide ideas on how to improve safety.

Facilities handling chemicals that could pose risks to the public have a general duty to identify the hazards of their operations, design and operate safe plants, and be pre- pared to mitigate any releases that occur. The community can use the data available under the right-to-know laws as a way to spark dialogue with facilities to find out which risks need to be reduced and how to do it.

What's in RMP*Info

Besides basic facility information (name, location, contacts), RMP*Info pro- vides information on chemicals, processes, prevention practices, and accidents. You can review the following information in RMP*Info when you call up a facility's RMP.

Facility Information

Executive summary

Read a description of the facility—what it does and the chemicals it uses. The summary describes the worst-case and alternative release scenarios, the general approach to preventing accidents, the five-year accident history, and steps being taken to reduce risks.

Parent company name.

Find out if a facility is owned by a larger corporation. You can search RMP*Info by the parent company name to look at RMPs from other facilities owned by the same company.

Chemical Information

Process chemicals

Find out which chemicals the facility has, the quantity of each chemical, the general hazard of the chemical (flammable or toxic), and number of covered processes. One chemical may appear in more than one process. If you want to review RMPs for similar facilities with the same chemical, search RMP*Info by chemical and NAICS code (which identifies the industrial sector).

Accident history

Find details of serious accidental releases in the past five years. You can learn when the accident occurred, what type of release it was (gas, liquid, fire), what impacts it had (deaths, injuries, property damage), what caused the accident, and what the facility has done to prevent a recurrence.

Prevention Program

Provides a list of covered processes, the NAICS code (which identifies the type of activity, such as petrochemical manufacturing), and the program level. If you want to review RMPs for similar facilities in your state or nationwide, search RMP*Info by the NAICS code.

Major hazards identified

Find out which major hazards are associated with a process. You can com- pare the list to the hazards identified by other facilities in the same NAICS code using the same chemical (search RMP*Info by NAICS code and chemical).

Process controls in use

Find out what kinds of process controls (safety measures) the facility uses to reduce the risk of an accident. You can compare the controls to those identified by other facilities in the same NAICS code using the same chemical (search RMP*Info by NAICS code and chemical).

Mitigation systems in use

Find out what kinds of mitigation systems (e.g., dikes, scrubbers) the facility uses to limit the quantity of the chemical accidentally released that reaches the community. You can compare the systems to those identified by other facilities in the same NAICS code using the same chemical (search RMP*Info by NAICS code and chemical).

Detection systems

Find out what kinds of systems the facility uses to detect releases early so they can respond quickly and limit the risk to you and your community. You can compare the systems to those identified by other facilities in the same NAICS code using the same chemical (search RMP*Info by NAICS code and chemical).

Emergency Response Program

Find out whether the facility has an emergency response plan and which local response agency the facility coordinates with to ensure a rapid and safe response if an accident occurs.

Part 2

Part 2: Stakeholders

Right-to-know laws have forged a closer relationship among citizens, health professionals, industry, public-interest organizations, and the local, State, and Federal government agencies responsible for emergency planning and response, public health, and environmental protection.

Under the provisions of EPCRA and the CAA, all of these groups, organizations, and individuals have vital roles to play in making the laws work for the benefit of everyone. The laws require facilities to provide information on the presence of hazardous chemicals in communities directly to the people who are most affected, both in terms of exposure to potential risks and the effects of those risks on public health and safety, the environment, jobs, the local economy, property values, and other factors.

These "stakeholders" include people who are best able to do something about assessing and managing risks through inspections, enforcement of local codes, reviews of facility performance and, when appropriate, political and economic pressures.

Local Emergency Planning Committees (LEPCs)

This relationship between the data and community action can best occur at the local level, through the work of the LEPC and other local groups. For example, if a local firm has reported the presence of extremely hazardous substances at its facility, several accidents, substantial quantities of chemicals, and continuing releases of toxic chemicals, a community has the data it needs to seek appropriate corrective action. In short, the laws open the door to community-based decision-making on chemical hazards for citizens and communities throughout the nation.

EPA and States implement and enforce a number of environmental laws to protect you and the environment, but these laws set minimum standards. Many industries, stimulated by right-to-know laws and public pressure, have gone beyond these standards to create a higher level of safety and performance. You can work with your local facilities to ensure that not only are they complying with State and Federal laws, but that they are also moving beyond them to protect your community.

This section describes how each of the key groups and organizations—as well as individual citizens can use the information available under these laws to fulfill the promise of community right-to-know laws: a safer, healthier environment for you and your family.

LEPCs are crucial to the success of community right to know and can play a vital role in helping you understand chemi- cal information and other environmental data.

LEPCs include local elected officials; law enforcement, civil defense, firefighting, first aid, health, and local environmental and transportation agency employees; hospital staff; broadcast and print media journalists; community activists; and industry representatives.

The LEPCs developed a community response plan to prepare for and respond to chemical emergencies, focusing on 356 extremely hazardous substances. The plans are reviewed annually, exercised, and updated. Because LEPC members represent the community, they are familiar with factors that affect public safety, the environment, and the local economy and can help you understand the chemical hazards and risks present in your community.

The LEPC also receives emergency release notifications and the annual hazardous chemical inventory information submitted by local facilities. They will make this information available to you upon written request. Facilities covered by the CAA risk management program also coordinate their on-site emergency response plans with the LEPCs. If there is more information that you want on particular chemicals or facilities, the LEPC can request it on your behalf and can serve as a forum for discussions with community groups, the public, and facilities.

What's In An Emergency Plan?

An emergency plan includes:

- Identity and location of hazardous materials;
- Procedures for immediate response to a chemical accident;
- Public notification and evacuation or shelter-in-place procedures;
- Industry contact names; and
- Timetables for testing and updating the plan.

Citizens

Community right-to-know laws and regulations were written specifically with you, the citizen, in mind. They are based on the principle that the more you and your neighbors know about hazardous chemicals in your community, the better prepared your community will be to manage these potential hazards and to improve public safety and health as well as environmental quality. By volunteering to work with your LEPC and engaging in a dialogue with local industry, you can play a major role in making the laws work.

The laws require industry and others to give you information on potential chemical hazards and inventories, on releases of toxic chemicals into the environment, on accident scenarios, and on prevention practices. There are several ways you can become involved in obtaining and using this information to enhance the quality of life in your community:

- Attend LEPC meetings and make sure all appropriate groups are members. Volunteer to serve on the LEPC as a citizen representative.
- Make sure that the LEPC has obtained all the information it needs from local facilities to prepare a comprehensive emergency response plan.
- Review and comment on the emergency response plan, and ask questions about how procedures set out in the plan affect you, your family, or your place of business.
- Ask for information from your LEPC or SERC about chemical hazards, inventories, and releases in your community. Make sure both the SERC and LEPC have established procedures to make the information reported under EPCRA readily available to the public. Ask your LEPC what facilities are doing to reduce chemical hazards.
- Use the national databases available from EPA at www.epa.gov/enviro to obtain information on chemicals in your community. This web site contains links to other government and non-government web sites that may be of interest. Many facilities may also have web sites that provide information on safety policies and practices.
- Call or visit facilities in your community and ask if they have complied with the reporting, emissions, and prevention requirements of State and Federal environmental laws.

These laws give you the opportunity to become directly involved in the decisions that affect your safety and health. Your knowledge of and participation in these programs can help ensure that they accomplish their goals in your community.

Fire Departments

Fire departments are essential members of their LEPCs not only because they are often the first to respond, but also because fire departments have important expertise regarding chemical hazards and emergency planning. Any responders who will be involved in hazardous materials response will have specific training to handle such emergencies.

Fire departments receive the same information about annual hazardous chemical inventories and MSDSs as LEPCs do. Having access to this information helps a fire department responding to a chemical emergency know which chemicals, as well as their quantities and locations, to expect at the scene. A fire department can request additional, more specific information about chemical inventories at a plant, and it can also request an on-site inspection.

Fire departments may find the emergency release notifications filed with the LEPC and the five-year accident histories reported in the RMP useful in identifying facilities in the area that are having accidents even if those accidents have not yet required a response from fire fighters. Talking to the facilities about these smaller accidents may help identify steps that can be taken to prevent more serious accidents later.

Facilities subject to the RMP rule must coordinate their emergency response plans and activities with the local fire department or LEPCs. Fire departments may want to use the opportunity to review facility plans and equipment, discuss joint exercises, and consider whether the facility can provide additional training or sup- port equipment when needed. Fire departments may also want to review RMP information on detection and mitigation systems at local facilities to determine how these may facilitate a response.

CAMEO™

The National Oceanic and Atmospheric Administration (NOAA) and EPA developed a computer software program called CAMEO™ to help firefighters meet their information management needs. CAMEO contains information about commonly transported chemicals; an air dispersion model to evaluate accident release scenarios and evacuation options; and several easily adaptable databases and computer mapping programs. Information on CAMEO can be obtained from www.epa.gov/ceppo/.

Public Institutions

Hospitals, schools, and State and local governments can be vital to the success of any emergency response action.

Ambulance crews and emergency room personnel must know how to transport and treat victims of exposure to hazardous chemicals. Schools and public buildings should plan for emergencies.

The information available under EPCRA and the CAA can help these institutions prepare for emergencies and identify opportunities for risk reduction.

Here are some ways public institutions can participate in emergency planning and hazardous chemical risk reduction:

- Join the LEPC, or at least learn who represents public institutions on the committee and stay in contact with that person.
- Inform the LEPC of sensitive facilities within the community (hospitals, schools, and nursing homes) that should be included in the emergency response plan. Know how they will be notified in the event of an accident and be prepared to respond. Become familiar with plans for responding to fires and other emergencies involving hazardous chemicals.
- Work with the LEPC to build an information base about hazardous chemicals in the community. Be sure that hospitals and other medical personnel are familiar with chemical hazards that exist in the community, with the steps to take to treat people exposed, and with the actions needed to avoid contamination.
- Use the information base to identify "hot spots," or potential problem areas that warrant further investigation to determine if they represent unacceptable risks to the public health or the environment. Use this information to work with industry on voluntary programs to reduce the amounts and risks of hazardous chemicals used or released in the community.

Public institutions may also be subject to the reporting requirements under EPCRA and the CAA if they have the covered substances above the thresholds for each requirement. Water treatment and wastewater treatment plants are particularly likely to be subject to the rules.

Health Professionals

Doctors, nurses, and other trained medical professionals who serve in government health departments, hospitals, and private practice should have a particular interest in the information available under EPCRA and the CAA. Combining their medical knowledge with the specific information about chemicals obtained from the reports can make them an important source of information about risks to the public health in their communities. Here are some of the ways these professionals can participate:

- Volunteer to be a health professional representative on the LEPC.
- Participate in programs to train medical personnel to deal with emergencies involving chemical hazards (health professionals should contact their State training officer through their LEPC or SERC for more information on training programs).
- Screen information submitted to LEPCs to determine if any acute or chronic health effects may be associated with hazardous substances in their communities. Health professionals may want to use this information to develop a list of hazardous sub- stances in the community and ensure that they or the hospitals and medical centers have copies of MSDSs for every chemical or have the web addresses to locate information on these chemicals quickly in case of an emergency. MSDSs and other data available from EPA and other agencies provide emergency treatment data.
- Talk with representatives of local facilities to determine whether other chemical hazards are created by the chemicals that are present. For example, chemicals could react during a release to form other dangerous substances.

Anticipated Chemical Use

The community and planners should question any new business seeking to locate in the community about their anticipated chemical use. Many types of facilities use hazardous chemicals: food distributors and cold storage facilities may have ammonia refrigeration systems; some retailers store flammable gases. All of these can be handled safely, but placing them close to homes, schools, or hospitals may increase the risk unnecessarily. In some cases, risks are increased by locating facilities with hazardous chemicals close to each other; for example, allowing storage of explosive flammable gases next to a facility that stores chlorine for water treatment could increase the risk of a chlorine release. Planners can work with facilities to ensure that storage at a site is not dangerously close to chemicals at adjacent sites.

Land Use Planners

One of the best ways to reduce risk to the public from hazardous chemicals is to locate the chemicals at a considerable distance from areas where the public lives, shops, and plays.

The information collected under community right-to-know laws provides land use planners, school boards, property developers, and businesses with data they can use to make informed decisions about where to locate new industrial facilities and where to allow development close to existing facilities that handle hazardous chemicals.

Land use planning agencies and others involved in planning decisions should work with the LEPC to develop maps that locate facilities with chemical inventories.

The more likely scenarios (alternative scenarios) reported in the RMPs may be useful to planners. If facilities have reported that these releases could travel a half mile from the site before dispersing, planners may want to refrain from allowing new residential development, nursing homes, day

care centers, or hospitals within that area; school boards may want to ensure that new schools are not located in areas within the zones of alternative release scenarios.

New industrial facilities will not have filed information under these laws, but the data from similar facilities can be used to develop estimates of how large a buffer zone is needed to protect the public.

Planners should ask the new facility about the chemicals and quantities it expects to have on site. They and the facility owner can work with the LEPC to develop estimates of what a reasonable buffer would be.

They can also look at RMPs submitted by facilities using similar types and quantities of these chemicals to determine what distances the chemicals may travel. RMP data can also help both the community and the facility determine what types of safety measures should be installed to help reduce the risk.

Industry and Small Businesses

Hazardous substances are not found only at large chemical plants and refineries. They are also used routinely by other manufacturers, by food processors and distributors, most of whom have refrigeration systems, by water treatment and sewage treatment plants, and by many small operations such as garages and dry cleaners.

Even if these chemicals are handled and used safely, they may be of concern if stored or used improperly, or during an emergency such as a fire.

Facilities and the public should review environmental data to determine which chemicals are being used in the immediate area. Even if a business does not handle any chemicals, it should be aware of any nearby facilities that are handling hazardous chemicals.

A release of these chemicals could affect the business's workers, customers, and property. Talking with the facility and with the LEPC can ensure that should an emergency occur, the business will know what to do to protect workers and customers.

The RMP data can help both the public and industry assess its practices. You can look at RMPs from other facilities in the same sector with similar numbers of employees and determine the typical quantity of chemicals used and common process controls, detection and mitigation systems used, and training approaches.

Reviewing the prevention program data may provide ideas for additional steps that could be implemented. Reviewing accident histories may indicate potential problem areas that should be considered.

Safer operations are not only good for the public, they are also more cost-effective and efficient for businesses. Preventing accidents eliminates worker injuries, as well as costly down-time and clean-ups. Reducing routine emissions cuts hazardous wastes that require treatment and special care.

Responsible Care®

Besides complying with the law, some chemical manufacturers, distributors, and other industries have developed codes of practice that address accident prevention and community involvement. The Chemical Manufacturers Association has adopted Responsible Care®, a set of management codes that address safety practices, product stewardship, and community involvement. The National Association of Chemical Distributors has adopted the Responsible Distribution Process℠, which covers the same issues for the shipping and handling of chemicals. These programs require trade association members to reach out to the public and involve the community as a partner in managing chemical risks and planning for chemical emergencies. You should talk with your local facilities to see if they have adopted these codes or have similar programs. More information on these codes is available online at www.cmahq.com and www.nacd.com.

Indian Tribes

Because of the sovereignty of many Indian tribes, Federally recognized tribes may act as States, with the same responsibilities as States.

Tribes may negotiate agreements with States in which they are located so that the State assumes some or all of the responsibilities imposed by law.

Tribes that function as Tribal Emergency Response Commissions (TERCs) receive all reports on hazardous or toxic chemicals, and citizens should go to the TERC for information. If, however, the tribe has entered into an agreement with a State, the agreement will designate who will receive reports and answer questions.

States

State agencies serve a number of roles in collecting chemical information and implementing environmental rules. In some States, all information will be collected by the same State agency; in other States, different agencies may have the lead for chemical inventories, TRI, and RMP data. All of the agencies should, however, be members of the State Emergency Response Commission, or SERC, and, therefore, if you are seeking information across all of the right-to-know rules, your SERC is a good starting point. It will either provide the information to you directly or tell which other State agency has the data and how to contact the right person. Besides providing you with information submitted to it, the SERC can:

- Ask for further information from facilities about a particular chemical or facility.
- Help you identify other sources of environmental data.
- Help you interpret the data or identify experts who can assist you in understanding chemical risks and risk reduction methods.

Data available under the right-to-know laws can also be useful to State agencies, such as the State and regional water authorities and air permitting authorities. The RMP data can help water agencies identify patterns of chemical use and practices among water treatment and waste water treatment plants nationally; with that information, they can help local water authorities improve their knowledge of chemical storage and handling.

The Federal Role

States and local communities have the primary governmental responsibility to make community right-to-know programs work. The Federal government, however, also has important contributions to make. The Federal government's major responsibilities include:

- Providing guidance, technical assistance, and training to States, communities, and industry;
- Enforcing the laws to ensure compliance;
- Maintaining a national databases for TRI reports and making the data accessible to citizens;
- Ensuring that LEPCs have the information they need to take appropriate steps to reduce the risks in their communities; and
- Collecting and distributing RMP data to States, LEPCs, and the public.

The Federal government also has a variety of responsibilities to regulate certain toxic and hazardous substances under other Federal environmental and occupational health and safety laws.

EPA 550-F-15-002, June, 2015

HOW TO BETTER PREPARE YOUR COMMUNITY FOR A CHEMICAL EMERGENCY – A Guide for State, Tribal and Local Agencies

HOME

The Emergency Planning and Community Right-to-Know Act (EPCRA) was passed by Congress in 1986 in response to concerns raised by the major industrial accident that occurred in 1984 in Bhopal, India. In that accident, which killed and disabled hundreds of thousands, the public was unaware of the hazardous chemicals in use and stored at the facility and they lacked information on what to do when accidents occur. Soon after, a chemical accident at a facility in Institute, West Virginia in 1985 raised concerns in the U.S. about local preparedness for chemical emergencies and the availability of information on hazardous chemicals.

The need for EPCRA continues today. More recent incidents have occurred, such as the 2013 West, Texas fertilizer facility ammonium nitrate explosion that killed 15 people, the 2010 explosion and fire at Tesoro Refinery in Anacortes, Washington, that killed seven employees, and the 2012 Chevron Refinery hydrocarbon fire in Richmond, California, that affected 15,000 people in the surrounding area. These incidents highlight the need for continued improvement in a number of areas related to chemical facility safety including the need for greater awareness of chemical hazards present in communities, better planning, and appropriate response to chemical incidents.

On August 1, 2013, the White House issued Executive Order (EO) 13650 on Improving Chemical Facility Safety and Security. The Chemical Facility Safety and Security Working Group, established by Executive Order 13650, released the status report entitled Actions to Improve Chemical Facility Safety and Security – A Shared Commitment on June 6, 2014, which includes key considerations identified in the process of implementing the EO. Some of those considerations include:

- Strengthening the state and local infrastructure created by EPCRA for emergency planning and preparedness
  - This infrastructure includes State Emergency Response Commissions (SERCs), Tribal Emergency Response Commissions (TERCs), Local Emergency Planning Committees (LEPCs), and Tribal Emergency Planning Committees (TEPCs)
- Ensuring participation of key stakeholders (i.e., community members, emergency responders and industry) in the planning process
- Engaging chemical facilities in preventing, preparing for, and responding to chemical accidents, and
- Ensuring effective communication and notifications to the community members before, during, and following a chemical accident.

The purpose of EPCRA is to:

- Encourage and support emergency planning efforts at the state, tribal and local levels
- Provide local governments and first responders with information concerning potential chemical hazards present in their planning district
- Prevent, prepare for, and mitigate the effects of a chemical incident, and
- Provide the public with information on chemical risks in their community and information on what to do if a chemical accident occurs.

"What are the functions of the organizations created by EPCRA to protect the community from chemical risks?"			
SERCs	**TERCs**	**LEPCs**	**TEPCs**
State Emergency Response Commissions	Tribal Emergency Response Commissions	Local Emergency Planning Committees	Tribal Emergency Planning Committees
SERCs are appointed by the governor of each state to establish LEPCs.	TERCs are established by the Chief Executive Officer of the Tribe. TERCs have the same responsibilities as SERCs under EPCRA in the tribal region.	LEPCs are established by the SERC in each state.	TEPCs are established by the TERC in each tribal region. They have the same responsibilities as LEPCs in the tribal region.
Responsibilities include establishing LEPCs (or) TEPCs; reviewing local emergency plan; supervising LEPC (or) TEPC activities; establishing mechanisms for collecting hazardous chemical inventories and information on releases of chemicals from facilities; and establishing procedures for processing public information requests.		Responsibilities include preparing chemical emergency response plan and reviewing the plan annually or more frequently as necessary; coordinating responses to emergency releases serving as a focal point in the community for providing information and holding discussions about chemical risks in the community; and establishing procedures for processing public information requests.	

OVERVIEW OF EPCRA REQUIREMENTS		
Emergency Planning	**Hazardous Chemical Inventory Reporting**	**Emergency Release Notification**
Section 302, the emergency planning provisions of EPCRA, requires facilities to provide notification of the presence of extremely hazardous substances (EHSs) on their sites. Facilities must also provide a representative who will serve as the facility emergency coordinator to the LEPC or TEPC and participate in local emergency planning activities. The LEPCs and TEPCs use this information to develop or modify local emergency response plans as required under Section 303. Section 303 authorizes LEPCs and TEPCs to request any information that is needed to develop or update their emergency plans from facilities subject to Section 302 requirements.	Sections 311 and 312 of EPCRA contain provisions for hazardous chemical inventory reporting, also known as community right-to-know reporting. Facilities that handle hazardous chemicals, defined under the Occupational Safety and Health Act and its implementing regulations, above set threshold amounts are required to provide information on the chemicals, their quantities, locations, and potential hazards. Section 311 requires facilities to submit a Material Safety Data Sheet, MSDS (or Safety Data Sheet, SDS) for each hazardous chemical, or a list of hazardous chemicals, present at or above the reporting thresholds specified in the implementing regulations. Section 312 requires that facilities submit an inventory of these hazardous chemicals (Tier II form) annually by March 1st. The MSDSs or list of chemicals and Tier II form are submitted to the SERC (or TERC), LEPC (or TEPC), and the local fire department. Information submitted on the Tier II form may also be useful to LEPCs and TEPCs in their planning process since it provides information on other hazardous chemicals as well as EHSs present at the facilities in their community.	Facilities are required to provide immediate notification to the SERCs, TERCs, LEPCs and TEPCs of any releases of EHSs and hazardous substances listed under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). Soon after a release, facilities are required to provide a written follow-up with additional information regarding the release. The immediate notification and follow-up reports will include: the name and quantity of the chemical released; the media to which the chemical was released; known or anticipated acute or chronic health risks; proper precautions to take (e.g., evacuation or shelter-in-place); actions taken to respond to and contain the release; and advice regarding medical attention necessary for exposed individuals. LEPCs and TEPCs can use this information to improve their local emergency plan to better prepare for a chemical incident. An actual incident can be used to evaluate and measure the effectiveness of the emergency plan. Effectiveness may be determined by how well the response was undertaken and how the emergency situation was communicated to responders and the community.

Roles and Responsibilities under EPCRA

SERCs and TERCs

SERCs and TERCs are required to establish emergency planning districts, appoint LEPCs and TEPCs, and supervise and coordinate all activities of the LEPCs and TEPCs in their state or tribal region. SERCs and TERCs should ensure that each planning district has an emergency plan and that emergency exercises are conducted at least once a year.

SERCs and TERCs must review the plan and make recommendations to improve the plan, as well as ensure that each LEPC or TEPC plan is coordinated with the plans of neighboring emergency planning districts.

SERCs and TERCs should assist LEPCs and TEPCs with community meetings to discuss emergency plans and understand the chemical risks.

Designation of Additional Facilities Subject to Emergency Planning

While the emergency planning provisions in EPCRA are limited to EHSs and the facilities that handle them, other chemicals and facilities may also pose danger to the community in an emergency.

Section 302 authorizes SERCs and TERCs to designate additional facilities subject to emergency planning notification. SERCs and TERCs could consider naming individual sites or companies, or designate certain classes of facilities as ways to expand the number of facilities included in the planning process after public notice and opportunity for comment.

EPA encourages SERCs and TERCs to use this authority so these additional facilities and the chemicals they handle would also be subject to emergency planning. This would

require these facilities to participate in the local emergency planning process and provide information on chemical risks at their facility. LEPCs and TEPCs would be able to include these facilities also in their emergency plan.

LEPCs and TEPCs

LEPCs and TEPCs play a key role in meeting the goals of EPCRA. They are required to develop and implement an emergency plan for their community, as well as to ensure that the people in the community are aware of the chemical risks and know what to do if a chemical accident occurs.

It is important that the members of the LEPC or TEPC represent all stakeholders in their community. EPCRA states that LEPC or TEPC membership shall include, at a minimum, representatives from these entities:

- Elected state and local officials, Law enforcement
- Civil defense, Transportation
- Broadcast and print media, Hospital
- Fire fighters, First aid
- Local environmental, Health
- Community groups, Facility owners and/or operators

Representatives from each of these organizations play an important role in developing the local emergency plan and protecting the public during chemical emergencies.

For many communities, a successful LEPC or TEPC acts as a forum to support the overall emergency management program within the community.

Stakeholders bring their specific expertise and talents into the planning process to ensure all elements of the plan are appropriately addressed.

For example, facility owners and operators who know and understand the chemical risks at their facility can assist the LEPC or the TEPC in identifying actions to take in order to prepare for and respond to a chemical accident.

Members of the public also have a role to play in assisting the LEPC or the TEPC in understanding the unique needs of the community regarding communication about the chemical risks and emergency response procedures. For example, individuals with special medical needs, such as the elderly, disabled/handicapped, children, and those with transportation challenges.

Tailoring outreach to meet the specific considerations of the local community is key to enabling effective participation in the planning process and an efficient response to ensure safety of the public.

LEPCs and TEPCs must appoint a chairperson and establish rules by which the committee shall function. Rules shall include:

- Public notification of committee activities, and
- Public meetings to discuss the emergency plan, public comments, response to such comments by the committee, and distribution of the emergency plan.

The emergency plan should include:

- Facilities that handle EHSs and transportation routes of EHSs, as well as any facilities designated by the SERC or TERC
- Emergency response procedures for facility owners and operators, as well as for local emergency and medical personnel
- Designation of a community and a facility emergency coordinator to implement the plan
- Procedures for notifying the public and the local emergency response team that a release has occurred
- Methods for determining the occurrence of a chemical release
- Determination of the probable area and population affected by potential releases, including considerations of environmental justice, vulnerable residents, fence-line communities, etc.
- Identification of emergency response equipment in the community and at the facilities in the community, and the persons responsible for them (including identification of the response capabilities of regulated facilities)
- Evacuation plans (including evacuation routes and shelter-in-place procedures)
- Training program for emergency responders (including schedules)
- Methods and schedules for exercising emergency response plan.

An incident in one community may affect other communities. LEPCs and TEPCs should consult with other LEPCs and TEPCs near their emergency planning districts to coordinate planning efforts and potential mutual response support during an incident.

Additionally, LEPCs and TEPCs should consider the unique challenges of industrial parks (i.e., clustering of facilities) and their potential for impacts to adjacent facilities and fence-line communities.

LEPCs and TEPCs are required to review the emergency plan at least once a year or more frequently when changes occur in the community. To accomplish this, LEPCs and TEPCs should meet regularly to review and exercise the plan and update it as necessary. Conducting emergency plan exercises are important to ensure that the plan includes all necessary elements and any gaps or areas that need improvement are identified. Emergency plan exercises would benefit emergency responders to be better prepared for an incident.

Developing an Emergency Response Plan

With the information obtained from facilities under Section 302, LEPCs and TEPCs are required to develop the local emergency response plan for their community. There are approximately 90,000 facilities covered by Section 302. EPCRA authorizes LEPCs and TEPCs to obtain any information from these facilities necessary to develop or update the emergency response plan. Necessary information includes

identification of chemicals of concern, identification of serious events that can lead to releases, amounts of toxic material or energy that could be released, predicted consequences of the release and associated damages, and prevention measures in place at the facility.

Emergency Planning for Hazardous Chemicals reported under the Community Right-to-Know sections of EPCRA

With approximately 400,000 facilities reporting under Section 311 and 312, the chemical information provided by these facilities offers a wealth of additional information that can be useful to first responders, LEPCs, and TEPCs in the local planning process.

LEPCs and TEPCs should use information received under Sections 311, 312, and 302 to develop, implement, and update the emergency response plan. It is critically important that first responder organizations make full use of the chemical hazard information for appropriate training and to minimize the risks to fire-fighters, medics and hazmat teams when responding to an emergency.

The Tier II form under Section 312 requires specific information on facilities that handle hazardous chemicals. Beyond the requirements for specific information about the facility (e.g., the address of the location where hazardous chemicals are stored, latitude and longitude, maximum number of occupants, and whether the facility is manned or unmanned), the form now requires facilities to provide contact information for the facility emergency coordinator.

This one-time notification required under Section 302 was originally provided by the facilities that existed when the law was passed in 1986.

Requirements to update this information may have been overlooked by some facilities; they are now required to report this information annually on the Tier II form.

In addition to the emergency contact information, facilities are required to provide contact information for the person responsible for the content of the Tier II form. The additional requirements on the Tier II form were published in the Federal Register notice on July 12, 2012 (77 FR 41314), effective January 1, 2014.

Regarding chemical information, the Tier II form requires facilities to report specific information on hazardous chemicals, such as the amounts (in ranges), locations, and the potential hazards related to those chemicals.

This information can supplement the information provided by facilities under Section 302 for local emergency planning. It can assist LEPCs and TEPCs in updating their emergency plan.

Additionally, some facilities should have an emergency plan in place for potential chemical accidents at their facility.

One important issue to address in the local emergency plan is to ensure that either the facility itself or the public emergency responders have the capabilities to respond to a chemical release at a facility.

LEPCs and TEPCs should use all information received under EPCRA and from chemical facilities to assist them in developing an emergency response plan that addresses chemical risks to the community.

Emergency Planning for Substances in Transportation

Although EPCRA provides an exemption for facilities from reporting substances in transportation for emergency planning purposes, chemicals in transportation or facilities that are involved in chemical transportation operations should also be included in the local emergency plan.

Section 303 requires LEPCs and TEPCs to identify transportation routes of EHSs as part of the planning process. LEPCs and TEPCs should consider including substances other than EHSs in transportation. Many transportation-related incidents involved other substances which have adversely affected the community and require response actions to be taken by local responders.

Some recent incidents involving crude oil transported by rail have significantly impacted communities. These incidents compelled the federal government to implement more protective regulations.

The US Department of Transportation issued an Emergency Order (USDOT Emergency Order on Transport of Bakken Crude Oil) requiring railroads that operate trains moving large quantities to notify the SERCs and TERCs about the operation of these trains through their states or tribes.

As of June 2014, SERCs began to receive such notifications under this EO. TERCS may reach out to SERCs to obtain information on trains operating through the tribal lands.

SERCs and TERCs should be sharing the information with local emergency planners and responders so that LEPCs and TEPCs can include these operations in the local emergency plan. On May 28, 2015 the DOT announced that the Emergency Order will remain in full force and effect until further notice while the DOT considers options for codifying the Order disclosure requirement.

The DOT notice is available: http://www.phmsa.dot.gov/hazmat/phmsa-notice-regarding-emergency-response-notifications-for-shipments-of-petroleum-crude-oil-by-rail.

LEPCs and TEPCs should use their authority provided in Section 303 to request information from facilities for substances that may be in transportation through their community. This will allow emergency responders to be prepared for any chemical-related transportation incident.

Tools for Planning and Response

Facilities subject to EPCRA requirements submit their reports to the SERCs, TERCs, LEPCs, TEPCs and their local fire department. Reports include the amount (in ranges), locations and potential hazards of chemicals present on site.

To assist state, tribal, and local agencies in collecting, managing, and using this information, EPA and the National

Oceanic and Atmospheric Administration (NOAA) created the Computer-Aided Management of Emergency Operations (CAMEO). CAMEO is a system of software applications used to plan for and respond to chemical emergencies.

CAMEO assists chemical emergency planners and responders to access, store, and evaluate information critical for developing emergency plans. There are four integrated programs within CAMEO:

- Facility and chemical data management
- Chemical properties and hazards
- Air dispersion modeling
- Mapping application

Fire Departments Role in Emergency Planning

Representatives of the fire service play a key role in implementing EPCRA. Since fire departments are often the first to respond to an emergency, they should be active in the emergency planning process for their community. EPCRA Sections 311 and 312 require facilities to submit MSDSs (or SDSs) or a list of hazardous chemicals along with the Tier II form to their local fire department and to the SERC (or TERC) and LEPC (or TEPC).

Having access to this information enables fire departments that respond to chemical emergencies to know which chemicals, as well as their quantities and locations they can expect to find at the scene.

Fire departments should inspect facilities that handle hazardous chemicals using the authority provided under Section 312.

As part of an on-site inspection, facilities are required to provide location information of all hazardous chemicals present at the facility.

Fire departments are encouraged to use this authority to understand the chemical risks at each facility in order to appropriately respond to those risks. As noted above, it is critically important that first responder organizations make full use of the chemical hazard information for appropriate training and to minimize the risks to fire-fighters, medics and hazmat teams when responding to an emergency.

It is also important to keep an open dialogue with facility personnel to ensure facility participation in the development and implementation of the local emergency plan. Facilities subject to emergency planning under Section 302 are required to provide the name of a facility representative to participate in the planning process.

Facilities subject to Section 312 Tier II reporting are required to appoint an emergency contact who can be reached in the event of an incident to assist the fire fighters.

These facility representatives can help the fire department in planning and fostering communication before and during response to an incident. Facilities in your community may offer training, technical assistance and resources for responding to chemical emergencies.

Collaboration and Outreach with Stakeholders

Working with Chemical Facilities on planning and prevention

There may be facilities in the community that are not aware of EPCRA and its reporting requirements. SERCs, TERCs, LEPCs and TEPCs should reach out to facilities in their community. Outreach could include compliance workshops and electronic media.

Many SERCs and LEPCs have published EPCRA outreach materials to educate facilities and the public. EPA encourages collaboration through outreach to facilities to illustrate the importance of public safety and the need to comply with EPCRA, as well as steps that can be taken to prevent chemical accidents.

These steps could include reducing inventories of chemicals, reducing shipments or adjusting transportation routes away from vulnerable populations, and working with adjacent chemical facilities to reduce the potential for "domino" effects from a chemical accident.

With regard to enforcement efforts, if facilities fail to comply, then SERCs, TERCs, LEPCs and TEPCs may use the authority provided in EPCRA Section 326 to file civil enforcement action against facilities. SERCs, TERCs, LEPCs and TEPCs may also refer facilities to EPA to take enforcement action, if necessary.

Engaging the Community

LEPCs and TEPCs serve as a community focal point for information and discussion about hazardous substances, emergency planning, and health and environmental risks. Engaging and educating the community is an important part of meeting the goals of EPCRA, especially for those members of the community identified in the local response plan that could be directly affected by the impacts of a chemical accident. Section 301 contains provisions for LEPCs and TEPCs to notify the public of its activities and hold public meetings to discuss the emergency plan with the community, educate the public about chemical risks, and share information on what is to be done during an emergency (i.e., evacuation or shelter-in-place). LEPCs and TEPCs are responsible for ensuring that procedures are in place for notifying the public when a chemical accident occurs (via reverse 911 or other system) and ensuring that the public understands what to do when they receive that information. To facilitate this, LEPCs and TEPCs should encourage the public and community groups to become LEPC or TEPC members, participate in the planning process, and promote participation in emergency exercises. Additionally, LEPCs and TEPCs should consider focused outreach (i.e., addressing language and cultural issues) to vulnerable, sensitive, and low income members of the community to assist them in effectively participating in the local planning meetings, understanding risk issues, and what to do when an accident occurs.

ENGAGING FACILITIES

LEPCs / TEPCs should educate facilities that are unaware of EPCRA reporting requirements and provide assistance to facilities to comply with EPCRA reporting requirements. In addition, LEPCs/TEPCs should work with facilities to identify actions which could be taken to reduce chemical risks to the community.

Ways in which LEPCs / TEPCs can reach out to facilities is by sending letters, as well as brochures and outreach materials to facilities in your community that cover the requirements of EPCRA - including penalties for non-compliance. Outreach may also include holding public meetings or workshops for local facilities to explain the reporting process and the information which is needed for reporting, as well as participating in the development of the local emergency plan.

In addition, LEPCs / TEPCs should encourage facility owners and operators to become members of the LEPC / TEPC and be a part of the planning process. Facilities are prime resources to assist LEPCs / TEPCs in explaining potential chemical risks to the community.

Another approach to gather needed facility and chemical information is for LEPCs / TEPCs to use questionnaires requesting facilities to provide information on available resources, emergency response training held at the facilities, emergency response equipment, and so forth. This information is invaluable during the LEPC / TEPC emergency planning process.

Public Access to Information under EPCRA

SERCs, TERCs, LEPCs and TEPCs receive reports and notifications under EPCRA from facilities covered under the requirements. EPCRA requires that this information be made available to the public. Fence-line Communities located close to chemical facilities will find this information useful to help them understand chemical risks and prepare for chemical accidents. Information that would be most helpful includes:

- The local response plan that identifies the potential chemical risks to their community and response actions to be taken;
- How the public will receive information on these risks, as well as how they will receive notification when a chemical accident occurs; and
- What they need to do to prepare for a chemical accident and how to protect themselves once they receive the notification that a chemical accident has occurred.

SERCs, TERCs, LEPCs and TEPCs are required to establish procedures for processing and receiving requests from the public as well as providing that information to community members. Procedures may include setting-up a reading room, establishing hours of operation, determining if copies of the reports can be made, and determining if service fees will be charged.

EPA 2OS-0002, July, 1990

WHEN ALL FAILS! ENFORCEMENT OF THE EMERNGENCY PLANNING AND COMMUNITY RIGHT-TO-KNOW ACT

HOME

A Self-Help Manual for Local Emergency Planning Committees

Does your emergency plan address the key preparedness problems in your area? Do your first responders know what chemical hazards they face when arriving at the scene of an emergency? Has missing information limited your emergency preparedness?

Have all affected facilities reported? What steps are you planning to take in the future to improve emergency preparedness? What can you do to ensure that facilities are complying with the law?

During the next few years, many Local Emergency Planning Committees (LEPCs) will look to improve the quality of their communities' chemical emergency response plans and to reduce chemical risks.

One of the most significant ways to improve overall planning is to ensure that all the facilities have reported and, where appropriate, are participating in the emergency planning process. Only then can the local community completely understand and prepare for potential chemical accidents.

The Emergency Planning and Community Right-to-know Act (EPCRA or SARA Title III) grants specific state and local authority to request information from facilities and to take enforcement actions in those situations where voluntary compliance has not occurred.

This pamphlet contains information on these authorities and provides tips to help LEPCs ensure that facilities covered by SARA Title III are complying with the law. The material presented outlines the enforcement authorities granted to citizens, local governments, States, and EPA.

Under this law, facilities that store extremely hazardous substances are required to report the presence of those substances and participate in the planning process. Your experience may indicate that there are facilities in your community that have not yet come forward with the required information. As an LEPC, you have many options for promoting voluntary compliance or compelling compliance.

What is the role of the LEPC in obtaining compliance? This question can only be answered by the LEPC itself. The Act offers many opportunities and obligations. It also provides enforcement mechanisms. In addition, citizens may compel you to obtain information for them.

How actively you choose to pursue these opportunities or how you will respond to citizen inquiries will depend on your situation. As you work to implement the program, you will find that some facilities have not complied with the law.

There will be two main reasons. Either the facility was unaware that it was subject to the law, or the facility simply did not report based on the assumption it would not be found and penalized.

As LEPCs, you may find the lack of cooperation from some facilities frustrating. You can do something about it – you have options. You may want to take an enforcement action or work with the State and EPA to enforce the provisions of the Act.

What is the role of the SERC? Under SARA Title III, the State Emergency Response Commission (SERC) is the focal point for emergency planning at the State level. You should look upon your SERC as a resource that can provide support. The law requires SERCs to provide oversight and coordination of LEPCs. They will be able to serve as your link to State law enforcement and emergency management offices. They should also be your link to the federal government (i.e., EPA) for enforcement requests.

Why does facility noncompliance matter? Facility compliance with reporting requirements is central to what the Act is all about: emergency preparedness and right-to-know. Since the enactment of SARA Title III in 1986, LEPCs across the country have spent considerable time and energy assessing the chemical hazards in their communities.

To a great degree, this planning has enhanced the safety of the emergency responders and citizens of the community. Yet, many facilities still present unnecessary risks to those who arrive first on the scene of a chemical accident and to the community by not providing the required information on chemical use and storage.

The quality of your plan may be compromised by the missing information. The safety of your local fire fighters may be in jeopardy because a facility has not complied. Additionally, a facility that refuses to cooperate or that fails to report denies you and citizens in your community your legal right to have that information.

How can compliance be achieved? In the context of SARA Title III and the local emergency planning committees, encouraging compliance can include many types of activities from outreach to enforcement. LEPCs can work with local organizations such as Chambers of Commerce to get the message out to small businesses, as well as large companies, to encourage their compliance.

Site visits and community meetings may be helpful. LEPCs, SERCs, State and local governments, and citizen groups can use informal mechanisms such as warning letters and are given authority to file civil enforcement actions in the U.S. District Courts.

The Act provides, and State and local laws may further provide, other mechanisms to be used by State and local committees to compel facility compliance with the law. Knowledge of your authorities under the law will help you in your efforts to gain the cooperation you need.

Where To Start – Education And Outreach

The process of improving facility compliance may involve four steps: outreach to inform facilities of requirements; identification of facilities required to report; communication, education and persuasion; and enforcement actions where necessary.

Everyone prefers that facilities comply voluntarily. Voluntary compliance depends, in part, on efforts made to educate local facility owners about the Act, its reporting requirements, and how the information collected can benefit the community. Enlisting the local news media, cable television stations, fire departments, the Chamber of Commerce, local Rotary clubs and any other business organizations is a starting point.

Speaking to meetings of these groups and using their newsletters can help get the message out effectively and inexpensively. Some LEPCs have conducted extensive letter-writing campaigns.

Others have visited facilities and spoken directly to the owners about their reporting obligations. Once owners learn of their reporting obligations, most will provide the necessary information quickly and accurately.

What Next -- Identifying And Persuading Non-compliers

To reach facilities that are not complying, you can use general outreach or target your efforts to facilities that may be covered. Unfortunately, no comprehensive set of data exists that will identify every facility that is required to comply.

However, sources of information such as water permits, air permits, SARA Title III §313 toxic release inventory reports, and other data housed by your State or local authorities (e.g., hazardous materials permits) may help to identify facilities potentially required to report. Working in coordination with local fire departments will also help identify facilities that store large quantities of chemicals.

In addition, EPA has developed a cross-listing of Standard Industrial Classification (SIC) Codes and the SARA Title III §302 extremely hazardous substances (EHS). This list, together with county or city specific information on businesses, should aid in identifying facilities that may be required to report under the planning provisions. Contact your SERC for copies of the SIC code/EHS cross-listing.

When you identify a facility that is out of compliance, what are your options? Direct contact with the facility owner or operator may be the easiest and most effective way to persuade the facility to comply. If the facility comes into compliance and the LEPC has received all the information it needs, no further action may be necessary.

However, if the LEPC is unsatisfied with the results of its efforts or the facility refuses to comply, the LEPC may want to take further action.

What tools does the law provide to help the LEPC obtain information from a facility? Two provisions in SARA Title III authorize the LEPC to obtain information from facilities. If the LEPC needs additional information from a facility to assist the LEPC in its planning, the authority of SARA Title III §303(d)(3) can be used.

Section 303(d)(3) requires facilities to promptly provide information the LEPC deems necessary for developing and implementing its emergency response plan. This authority is broad in the sense that it may be used to obtain a variety of information related to the identity and location of extremely hazardous substances, existence of facility emergency plans, and additional information needed to develop the LEPC plan.

Section 303(d)(3) is an enforceable provision. Failure to comply with the LEPC request could result in a penalty of up to $25,000 per day. An LEPC should document the information request in a letter to the company.

The request letter should: be sent to the owner or operator; cite the authority the LEPC has to request information (§303(d)(3)); be as specific as possible regarding the information requested; allow the facility a reasonable amount of time in which to reply (e.g., 30 days); and inform the facility owner or operator that failure to comply with the request is a violation of the law which could result in a $25,000 per day penalty. LEPCs should consider the use of certified mail (return receipt requested) for these requests.

Many facilities required to report under the planning provisions are also covered by SARA Title III §312. Under §312, covered facilities must report to the SERC, LEPC, and fire department annually (every March 1) their inventories of hazardous chemicals. Section 312 also authorizes the SERC, LEPC, or a fire department to request information from a facility.

Specifically, §312(e) authorizes these groups to request chemical specific forms on hazardous chemicals present at the facility above (§312(e)(3)(B)) or below (§312(e)(3)(C)) the 10,000 pound threshold.

Section 312(e) can be a powerful tool to get information from facilities that have not been cooperating with the LEPC. Like §303(d)(3), this, too, is an enforceable provision. If the owner or operator fails to provide the information, he or she may be liable for a penalty of up to $25,000 per violation per day.

As with other requests made of a facility, the LEPC, SERC or fire department should formally request the information in a letter, cite the proper authorities, give ample time for the facility to reply (e.g., 30 days) and cite the potential penalty for failure to comply. Use of certified mail may again be appropriate.

If a company has filed a report under §312, SARA Title III authorizes local fire departments to inspect the facility to determine the specific location of hazardous chemicals. LEPC members may want to accompany the fire department to promote a better understanding of the SARA Title III reporting requirements and to obtain information for planning purposes.

In planning inspections, try to give the owner or operator advance notice. Should you encounter problems gaining

access to the facility, contact your SERC and the Regional EPA office that has jurisdiction in your area.

These "enforcement" tools may never be needed if a facility is cooperating in the planning process. However, they are available to SERCs, LEPCs, and fire departments should a specific facility be unwilling to provide the necessary information.

If a facility fails to respond to your information request, what are the next steps? If your attempts to obtain information are disregarded or the information is not submitted in a timely manner, you have several options. First, you can work with your SERC to try to get the facility to cooperate. Second, you can notify the facility of your intention to:

- File a civil action in the U.S. District Court for violations of SARA Title III; or
- Assist the SERC and EPA in the enforcement of the provision(s) violated.

If an LEPC decides to cooperate with the SERC and EPA in an enforcement action, it is important that its efforts to bring the facility into compliance be documented. Establishing a record of efforts will aid the State and EPA in taking an enforcement action.

LEPCs should maintain records of phone contacts, direct contacts, any letters that were sent to the company, etc. In developing enforcement actions, EPA will need your support in providing any evidence you have that the facility is in violation. The Agency will also request affidavits from you certifying that the required reports were not filed by the appropriate deadline. Contact your SERC and the Regional EPA office for additional information.

EPA is looking forward to cooperating with SERCs and LEPCs in the effort to make the Emergency Planning and Community Right-to-Know Act a success.

EPA wants to establish enforcement ties with every SERC. This network of people will help to set priorities for enforcement actions within the State and provide a mechanism through which LEPCs can elevate and resolve compliance problems. It is only through our combined efforts that facilities will come to know and comply with this important law.

Enforcement Authorities

SARA Title III contains provisions to ensure that citizens' rights to information are backed by the legal tools needed to obtain cooperation of facility owners and operators. Congress included stiff penalties for failure of owners and operators to comply with the law's reporting requirements.

SARA Title III contains two sections dealing with enforcement: §325 Federal Enforcement and §326 Civil Actions. Actions initiated by LEPCs would likely fall under the civil category, but as described above, LEPCs could cooperate with the State and EPA.

Civil Actions (§326)

SARA Title III provides States, local groups, and citizens the authority to file civil actions in the U.S. District Court against owners and operators if they fail to comply with the law.

The Act gives the public the right to access information and the legal remedies to make information available if an owner or operator is unwilling to cooperate in the emergency planning process or submit the required reports. These provisions emphasize that everyone has a role in ensuring that facilities comply with the Act.

Citizen Suits. Under SARA Title III §326(a)(l), any person has the authority to file a civil action in the U.S. District Court against owners or operators of facilities for their failure to submit: §304(c) follow-up reports; §311 MSDSs or lists of MSDSs; §312 Tier I forms; and §313 Toxic Chemical Release forms.

For any civil action described above, the plaintiff must notify the EPA, the State in which the alleged violation occurs, and the alleged violator 60 days prior to initiating a suit. On January 26, 1989 EPA issued a Proposed Rule on Prior Notice for Citizen Suits under CERCLA and SARA Title III (See the Federal Register Vol. 54 Page 3913). Consult this rule if you plan to bring a civil suit.

State and Local Suits. Section 326(a)(2) authorizes State and local suits. State and local governments have the authority to bring civil actions in the U.S. District Court for: failure to notify under §302; failure to provide information under §303; failure to submit MSDSs or a list of MSDSs as required under §311; and failure to submit Tier I information required under §312. These actions do not require notification prior to commencement.

SARA Title III §329(7) defines "person" as any individual, trust, firm, joint stock company, corporation (including a government corporation), partnership, association, State, municipality, commission, political subdivision of a State, or interstate body [emphasis added].

Because §326 authorizes any "person" to bring a civil action ·against owners and operators for their failure to submit reports specified under §326(a)(l), this definition suggests that State and local governments, SERCs, and LEPCs could take action under the citizen suit provisions in addition to the suits authorized under §326(a)(2).

FEDERAL ENFORCEMENT (§325)

Under SARA Title III §325, the Federal government has the authority to bring administrative, and civil or criminal judicial actions against violators. EPA's ability to handle SARA Title III cases administratively means that the delays and expenses associated with judicial cases can be avoided. The enforcement authorities available to EPA and the maximum penalties vary by each reporting requirement.

Section 325(a) authorizes the EPA Administrator to order owners or operators of facilities to comply with §§302 and

303. The local U.S. District Court has jurisdiction to enforce the order and assess a civil penalty of up to $25,000 per violation for each day the violation continues. EPA cannot assess these penalties administratively.

Violation of the §304 emergency notification requirements can be addressed through administrative or judicial enforcement. SARA Title III also establishes criminal penalties for knowingly and willfully failing to provide notice or providing false or misleading information.

Section 304 violations can carry a Class I civil penalty of not more than $25,000 per violation or a Class II civil penalty of not more than $25,000 per violation per day.

In the case of subsequent violations, Class II penalties of up to $75,000 for each day a violation continues may be assessed. Any person who knowingly and willfully fails to provide notice in accordance with SARA Title III §304 could receive a fine of up to $25,000 or be imprisoned for not more than two years, or both.

For second or subsequent convictions, the violator will be subject to a fine of not more than $50,000 or imprisoned for not more than five years, or both.

For violations of SARA Title III §§311, 312, and 313, EPA can assess civil penalties by issuing administrative orders or by filing actions in the U.S. District Court to enforce compliance and assess penalties. Violation of §311 subjects the violator to a civil penalty of up to $10,000 for each violation.

Sections 312 and 313 violations subject the violator to civil penalties of not more than $25,000 for each violation. The statute establishes that every day a violation continues is considered a separate violation.

Under §325(d), EPA may assess a penalty of $25,000 for each trade secret claim that is found to be frivolous. The statute also provides criminal penalties for disclosure of trade secret information.

Any person who knowingly and willfully divulges trade secret information will be subject, upon conviction, to a fine of not more than $20,000 or to imprisonment for not more than one year, or both.

SARA Title III provides a special enforcement authority for health professionals: Whenever an owner or operator of a facility fails to provide information to the health professional as required under §323 of the Act, the health professional may bring action in the U.S. District Court to require the owner or operator to comply.

The U.S. District Court has the jurisdiction to issue orders and take other actions as may be necessary to enforce §323.

It's In The Federal Register

You can find detailed information on the various provisions of the Emergency Planning and Community Right-to-know Act in the Federal Register, which is available at public or university libraries. Here are the citations for the EPA regulations covering various sections of the Act.

- Sections 301-303 (emergency planning): April 22, 1987; December 17, 1987; February 25, 1988 (40 CFR 300 and 355)
- Section 304 (emergency release notification): April 22, 1987; December 17, 1987; February 25, 1988 (40 CFR 300 and 355)
- Sections 311-312 (hazardous chemical reporting): October 15, 1987; August 4, 1988 (40 CFR 370)
- Section 313 (toxic chemical release reporting): February 16, 1988; June 20, 1988 (40 CFR 372)
- Section 322 (trade secrets): July 29, 1988 (40 CFR 350)
- Section 325 (Federal Enforcement): May 16, 1989 (40CFR 22)
- Section 326 (Citizen Suits): January 26, 1989 (40 CFR 373 and 374)

Conclusion

The Emergency Planning and Community Right-to-know Act is unique among Federal environmental statutes in providing numerous opportunities for active participation at the local level.

It is designed to enhance local emergency preparedness and awareness of chemical hazards at the community level. The benefits of a successful program can be many, ranging from reducing the potential for injuries and deaths relating to chemical accidents to designing effective city planning standards for air, water and waste management.

The LEPC is the focus of this effort for a community to better understand and prevent chemical accidents. Understanding the authorities that SARA Title III provides will make you better able to carry out an effective chemical awareness and emergency planning program.

Your efforts to implement the program need not be hindered by facilities that are unwilling to cooperate. SARA Title III provides the information gathering and enforcement tools you need to ensure that you can obtain the information that you and your community have a right to know.

Who can I contact for more information or enforcement assistance? For more information or assistance with a specific enforcement-related problem, contact the State Emergency Response Commission of your State and/or your U.S. EPA regional office. There are ten EPA regional offices that serve the States and U.S. territories.

Title III: EPCRA Enforcement Authorities

Requirement	Federal	State and Local	Citizen
§302(c) o/o with EHS>TPQ notify SERC by 5/17/87 (or 6 months after EHS>TPQ becomes present) that facility is subject to Act.	§325(a) EPA may order o/o to comply. USDC has authority to enforce and assess a penalty of up to $25k per day.	§326(a}(2)(A)(i) State & Local Governments can file civil action in USDC for failure of o/o to notify SERC.	No authority under §326(a}(1).
§303(d) o/o must appoint facility representative to participate in planning by9/17/87 & provide info for planning when requested.	§325(a) EPA may order o/o to comply. USDC has authority to enforce and assess a penalty of up to $25k per day.	§326(a)(2)(B) SERC or LEPC can file civil action in USDC against o/o for failure to provide information.	No authority under §326{a)(1).
§304(b) o/o must notify SERC & LEPC immediately after release of EHS or CERCLA HS RQ. §304(c) o/o must provide follow-up report as soon as practicable.	§325(b)(I) & (b)(2) Class I& Class II penalties of up to $25k/day (up to$75k/day for second or after) by Administrative Order or in USDC. Criminal penalty: up to $25k per day and/or 2 years.	No authority under§326(a)(2). See §326(a)(1).	§326(a)(I)(A)(i) any person can file civil action in USDC against o/o for failure to submit follow-up report.
§311 o/o who must prepare MSDS for OSHA must submit MSDS/list to SERC, LEPC & fire department by 10/17/87 or3 months after newly subject to OSHA.	§325(C)(2),(4) EPA can assess penalty of up to$10k per violation per day by Administrative Order or in USDC.	§326(a)(2)(A)(ii) & (iii) State & Local Governments can file Civil action in USDC against o/o for failure to submit MSDS or list or make available information requested under §311(c).	§326(a)(l)(A)(ii) any person can file civil action in USDC against o/o for failure to submit MSDS or list.
§312(a) o/o who must prepare MSDS under OSHA must also submit Tier 1 form on 3/1/88, then annually. For newly covered facilities, first forms due 3/1/90.	§325(c)(1),(4) EPA can assess penalty of up to$25k per violation per day by Administrative Order or in USDC.	§326(a)(2)(A)(iv) State & Local Governments can file civil action in USDC against o/o for failure to submit Tier I form. §326(a)(2)(B) SERC & LEPC can file action for failure to submit Tier II form under §312(e)(I).	§326(a)(l)(A)(iii)any person can file civil action in USDC against o/o for failure to submit Tier I information.
§313 o/o of facility that manufactured, processed or used a toxic chemical in previous year must submit TRI form annually starting 7/1/88.	§325(c)(l),(4) EPA can assess penalty of up to$25k per violation per day by Administrative Order or in USDC.	No authority under§326(a)(2). See §326(a)(1).	§326(a)(l)(A)(iv) anyone can file a civil action in USDC against an o/o for failure to submit a TCR form under §313.
§322(a)(2) o/o must submit information to support a trade secret claim.	§325(c)(2) EPA can assess a penalty of up to $10k per violation per day by Administrative Order or in USDC.	No authority.	No Authority.
§325(d) claim must not be frivolous.	§325(d)(I) EPA can assess penalty of $25k per claim for claim that is unsubstantiated or not a trade secret and frivolous by Administrative Order or in USDC.	No Authority	No Authority
§323(b) o/o must submit a MSDS, inventory form, and a TCR form to physician who requests information in an in emergency situation.	§325(c)(2) EPA can assess a penalty of up to $10k per violation by Administrative Order or in USDC.	No Authority	§325(e) Health professional can file action in USDC to compel o/o to comply. USDC may issue order and enforce.

EPA 550-B99-003, June, 1999

RMPs ARE ON THE WAY! HOW LEPCS AND OTHER LOCAL AGENCIES CAN INCLUDE INFORMATION FROM RMPs IN THEIR ONGOING WORK

HOME

ABOUT THIS BOOKLET...

The Emergency Planning and Community Right-to-Know Act of 1986 (EPCRA) calls for the establishment of local emergency planning committees (LEPCs). LEPCs are to have broad-based membership whose primary work is to receive information from local facilities about chemicals in the community, use that information to develop a comprehensive emergency plan for the community, and respond to public inquiries about local chemical hazards and releases. There are now more than 3,500 LEPCs, and they reflect the diversity of our country. Most LEPCs are organized to serve a county; some are for a single large city; others cover the better part of an entire state.

We are publishing this booklet in anticipation of the impact a new regulation will have on LEPCs. The regulation implementing section 112(r) of the Clean Air Act requires facilities to develop a risk management program to prevent and mitigate the effects of chemical accidents, and to document the program in a Risk Management Plan (RMP). These RMPs will be available to state and local agencies and to the public. Therefore, LEPCs will have access to more detailed information about chemical hazards in their communities. LEPCs can use this information to improve emergency response plans, inform the public about chemical accident hazards and risks, and work with industry and the public to reduce risks and improve chemical safety.

This booklet will not teach you everything about the RMP regulation. Rather, the purpose of this booklet is to describe how LEPCs and similar local agencies can take advantage of the risk management program to build on their existing planning and right-to-know activities under EPCRA.

We intend this booklet to follow the style of and replace It's Not Over in October, a document that EPA and other groups published in 1988 to encourage new LEPCs not to stop working once they had completed their emergency plans by the October 1988 deadline.

For more detailed information about the RMP regulation, consult EPA's General Guidance for Risk Management Programs (http://www.epa.gov/ceppo).

The RMP regulation contains a deadline for industry: June 21, 1999. By that date, covered facilities were required to have in place a risk management program and must have submitted an RMP to EPA. This deadline for industry is an opportunity for LEPCs. June 1999 can be a beginning, a time to update existing emergency plans with the new RMP information, a time to better understand chemical hazards in your community and share your understanding with the public, a time to declare in word and deed that you will promote chemical safety in your community by focusing on preventing accidents.

RMPs are on the way! We hope that this booklet helps you and your LEPC in your important work of protecting human life and the environment where you live.

NEW INFORMATION IS BECOMING AVAILABLE ABOUT CHEMICALS IN YOUR COMMUNITY

In 1990, section 112(r) was added to the Clean Air Act (CAA). Section 112(r) calls on EPA to establish requirements for facilities to reduce the likelihood and severity of accidental chemical releases, using hazard assessments, prevention programs, and emergency response planning. EPA implemented section 112(r) in its Risk Management Program regulation.

Facilities that are covered by the Risk Management Program will summarize their program activities in Risk Management Plans (RMPs). Facilities were required to submit their RMPs to EPA by June 21, 1999, and EPA has made the RMPs available to the public. A host of new information is now available to you!

The provisions for accidental release prevention in CAA section 112(r) and the Risk Management Program regulation build on the planning and preparedness foundation laid by the Emergency Planning and Community Right-to-Know Act of 1986 (EPCRA—also known as SARA Title III). EPCRA is intended to encourage emergency planning efforts at state and local levels and to increase public awareness and understanding of potential chemical hazards present in the community. EPCRA sets up a framework for emergency planning at the state and local levels and provides the authority to collect chemical information that is important to communities. The CAA section 112(r) program provides a complementary approach to chemical safety—it requires that facilities take steps to identify and control on-site hazards. It also provides for public access to information about the actions facilities are taking to prevent and mitigate the potential offsite effects of these hazards.

CAA section 112(r) is entitled Prevention of Accidental Releases. This booklet speaks about the Risk Management Program rule (40 CFR part 68) that EPA published to implement section 112(r). The rule established the requirements of the Risk Management Program.

Another term you will want to become familiar with is "Risk Management Plan," which refers to the document a facility must prepare to summarize its risk management program. In this booklet, we use "RMP" to refer to the Risk Management Plan.

Information You Already Have

Under EPCRA, you currently receive information from covered facilities on the chemicals they have, the quantities of chemicals stored, the hazards associated with those chemicals, and information on storage locations and conditions. Specifically, the EPCRA program provides you with the following information:

- Notification from facilities that have extremely hazardous substances (EHSs) in excess of threshold planning quantity amounts. This information is reported directly to the local emergency planning committee (LEPC). (EPCRA sections 302 and 303)
- Notification of emergency information about accidental releases of reportable quantities of EHSs and substances regulated under CERCLA (CERCLA hazardous substances). This information is reported to the LEPC's community emergency coordinator. (EPCRA section 304)
- Material Safety Data Sheets (MSDSs) – or lists of hazardous chemicals – from facilities that have threshold quantities of hazardous chemicals and that must have an MSDS under the Occupational Safety and Health Act, and annual inventory information on the quantity, hazard category, and location and storage conditions of hazardous chemicals at facilities at threshold levels. This information is reported directly to the LEPC. (EPCRA sections 311 and 312)
- Annual reports on total yearly releases of toxic chemicals from regulated facilities. This information is reported to EPA. EPA compiles this information in a database called the Toxics Release Inventory (TRI) and makes the information available to the public. (EPCRA section 313)

New Information

Under the CAA section 112(r) Risk Management Program, additional information is now available to you – in the RMPs that facilities submitted to EPA.

- Facility hazard assessments, including worst-case release and alternative release scenarios;
- Facility accident prevention activities, such as use of special safety equipment, employee safety training programs, and process hazards analyses conducted by the facility;
- Past chemical accidents at a facility; and
- Facility emergency response programs and plans.

Both EPCRA and the CAA section 112(r) Risk Management Program encourage communication between facilities and the surrounding communities about chemical safety and chemical risks. Regulatory requirements, by themselves, will not guarantee safety from chemical accidents. Information about hazards in a community will allow local emergency officials and the public to work with industry to prevent accidents.

For example, facilities are required to provide information about possible worst-case scenarios under the Risk Management Program – and officials and the public can use the information to understand the chemical hazards in the community and then engage in a dialogue with industry to reduce risk. In this way, accident prevention is focused primarily at the local level where the risk is found.

Information Sources and Contacts

Q: Where can I get updates on the latest EPCRA and RMP guidance and program information?

A: EPA's Chemical Emergency Preparedness and Prevention Internet Homepage at http://www.epa.gov/ceppo/

Q: Where can I order copies of documents?

A: National Service Center for Environmental Publications (NSCEP) Toll-Free: (800) 490-9198

Q: Where can I get answers to my questions and order single copies of documents?

A: The RCRA, Superfund and EPCRA Hotline Toll-Free: (800) 424-9346

Tips & Hints

By combining RMP information with EPCRA data, your LEPC can enhance its role as a key player on issues that relate to the use of hazardous chemicals in the community. You can:

1) Use accidental release scenarios to set realistic priorities among your local emergency preparedness activities.
2) Serve as a resource for facilities and the public in promoting risk communication.
3) Use accident histories and summaries of prevention activities to help you talk with facilities about steps to reduce risk.
4) Provide compliance assistance to facilities on emergency response, accidental release scenarios, and other issues.
5) Reach out to other community groups (for example, the local zoning board, environmental groups) who may be interested in elements of the RMP and help them understand the data and how the data could assist them.

A ROLE FOR EVERYONE IN CHEMICAL SAFETY

Industry complies with EPCRA and RMP reporting requirements and participates actively with LEPCs and State Emergency Response Commissions (SERCs) to ensure that the public understands chemical hazards in the community and that community responders are prepared to take appropriate steps if an accident happens. In addition to the reporting requirements, the RMP regulation requires facilities to develop a risk management program to ensure that the

facility has implemented accident prevention and emergency response programs that fit the chemical hazards at the facility. In addition to these specific requirements, CAA section 112(r)(1) establishes a general duty for industry to operate safely. EPA's federal role is to provide national leadership, guidance, and technical assistance for implementing both EPCRA and the RMP regulation; provide access to TRI data about chemical releases (under EPCRA section 313); and receive risk management plans from industry and then make them available to state and local agencies and the general public. Additionally, EPA Regional offices will implement all or part of the risk management program in states that have chosen not to seek formal delegation from EPA to implement the RMP program. The states, through the SERCs, provide EPCRA leadership to ensure that an emergency planning and EPCRA implementation structure is developed and to provide training and technical assistance to communities. Under the Clean Air Act, state (as well as local and regional) air permitting agencies issue permits to some facilities that are also covered by the RMP regulation.

In addition, EPA will delegate to interested states and local agencies the authority to implement the RMP program – this is already happening in Georgia, Florida, North Carolina, South Carolina, New Jersey, California, Puerto Rico, and the Virgin Islands. Some SERCs are involved in implementing the RMP program. At the local level, LEPCs carry out the emergency planning and community right-to-know requirements of EPCRA. First responders (who are typically represented on LEPCs) implement contingency plans when response to a chemical accident is necessary. LEPCs will increasingly be a source of information about chemical risks in the community, as information under the RMP regulation becomes available to the public.

Did you know?

According to EPA's Emergency Response Notification System (ERNS), more than 402,000 accidents involving hazardous chemicals were reported in the United States in the 12 years from 1987 to 1998. These accidents resulted in nearly 4,000 deaths, 25,300 injuries, and 1,400 evacuations affecting 147,000 individuals. Eighty percent of these reported accidents occurred at industrial and commercial facilities.

A major role for LEPCs is to work with industry and the interested public to encourage continuous attention to chemical safety, risk reduction, and accident prevention by each local stakeholder.

The public can get involved by increasing its awareness and understanding of chemical hazards and supporting actions to ensure public safety and protection of the environment.

CAA Section 112(r) Implementing Agencies

Agencies charged with implementing the RMP regulation will conduct outreach, technical assistance, training, reviews of RMPs, audits of RMPs, and inspection of risk management programs at facilities. In its Guidance for Implementing Agencies (see table of resources for how to obtain a copy), EPA notes that each state and locality will have its own approach to encouraging chemical safety. EPA will work with each interested state and/or local agency to develop an appropriate RMP implementation program.

To learn which agency is implementing the RMP regulation in your area, you can call your EPA Regional Office (see contact list at the back of this booklet), or visit the CEPPO website at http://www.epa.gov/ceppo.

WHAT IS THE RMP REGULATION?

The RMP regulation (40 CFR part 68) is designed to prevent accidental releases to the air of substances that may cause immediate, serious harm to public health and the environment and to mitigate the effects of releases that do occur.

The regulation is available from EPA. Call the RCRA, Superfund and EPCRA Hotline at (800) 424-9346 or visit EPA's website at http://www.epa.gov/ceppo.

A facility (called a "stationary source" in the regulation) is covered by the RMP regulation if:
1) It has a regulated substance… 2) …over the threshold quantity… 3) …in a process.

What Chemicals Are Covered?

The RMP regulation applies to processes at facilities that have more than a threshold quantity of any of 77 acutely toxic substances, such as chlorine and ammonia, and 63 highly volatile flammable substances, including propane. These substances are called "regulated substances" in this booklet to distinguish them from chemicals on other lists.

A new law excludes regulated flammable substances from the RMP program when those substances are used as fuel or held for sale as a fuel at a retail facility.

The law defines retail facility as a facility at which more than one-half of the income is obtained from direct sales to end users or at which more than one-half of the fuel sold, by volume, is sold through a cylinder exchange program.

The main effect of this provision is to exempt from RMP coverage all facilities that had previously been covered solely

because they used flammable substances, particularly propane, for fuel (e.g., for heating, drying, etc.), and to exempt most propane distribution facilities.

Propane distribution facilities that do not meet the criteria for "retail facility" are still covered by the RMP rule.

Facilities such as oil refineries that manufacture listed flammable substances are still covered, as are facilities that use listed flammable substances for non-fuel purposes (e.g., as a chemical feedstock). Most of the acutely toxic regulated substances are also extremely hazardous substances (EHSs) under EPCRA section 302. The flammable regulated substances are all subject to reporting under EPCRA sections 311 and 312.

Each toxic regulated substance is assigned a threshold quantity under the RMP regulation that is generally higher than the threshold planning quantity for the same substance under EPCRA.

All flammable regulated substances have a threshold quantity of 10,000 pounds under the RMP regulation, the same as the threshold for these substances under EPCRA sections 311 and 312. The list of RMP regulated substances and thresholds is provided at the back of this booklet.

Tips & Hints

EPCRA section 312 reports will provide you with a list of local facilities potentially subject to the RMP regulation. However, remember that the EPCRA thresholds apply to the facility as a whole, rather than to an individual process, and thus the list of EPCRA facilities may include facilities not covered by the RMP regulation. In addition, the RMP thresholds for toxics are generally higher than the EPCRA thresholds.

The RMP thresholds are applied to individual "processes" at a regulated facility, while EPCRA thresholds are applied to the site as a whole.

A process, as defined by the RMP regulation, means any activity involving a regulated substance, including any use, storage, manufacturing, handling, or on-site movement of such substances, or combination of these activities.

Any group of vessels that are interconnected, or separate vessels that are located such that a regulated substance could be involved in a potential release, is considered a single process.

Consequently, there may be some facilities in your community that report under EPCRA for a specific substance and might appear to meet the threshold quantity under the RMP regulation as well, but in fact are not subject to the RMP rule because they do not have a threshold quantity in a single process.

Examples of specific operations that may be regulated under the RMP rule:

- Manufacturers of inorganic chemicals and industrial gases
- Manufacturers of plastics, resins, and organic chemicals
- Petroleum refineries and gas processing plants
- Propane retailers and distributors
- Agricultural retailers who sell ammonia fertilizer
- Larger water treatment and wastewater treatment systems
- Metal and equipment manufacturers
- Manufacturers of agricultural chemicals
- Food businesses with large ammonia refrigeration systems
- Pulp and paper mills
- Large U.S. military and Department of Energy installations
- Electric companies
- Refrigerated warehouses, warehouses that handle chemicals, and chemical distributors
- Larger industrial facilities and institutions that store propane for use as fuel

What Facilities Are Covered?

EPA has estimated that thousands of facilities are potentially subject to the regulation, including manufacturers, warehouses, retail businesses, and public facilities.

The rule does not apply to transportation, including pipelines.

Regulated substances present in gasoline, when in distribution or related storage for use as fuel for internal combustion engines, also are not covered.

In addition, the rule provides an exemption for the use of ammonia by farmers as a fertilizer (although not for those businesses that produce or sell ammonia to those farmers).

What Must a Facility Do?

There are five main elements of facility compliance with the RMP regulation:

1) A hazard assessment;
2) A management system;
3) A prevention program;
4) An emergency response program; and
5) A Risk Management Plan (RMP) that describes these activities.

The first four elements are described here. The Risk Management Plan is described in more detail in the next chapter.

Hazard Assessment

The hazard assessment consists of two components:

a) A five-year history of serious accidents involving the regulated substances. Every covered facility must provide detailed information on any serious accident that occurred in the previous five years and had specific impacts either on the site or in the surrounding community.
b) Descriptions of one or more potential accidental release scenarios involving the regulated substances. Every facility must analyze the potential offsite consequences of a worst-case (catastrophic) release.

EPA has defined the parameters of a worst-case scenario (such as atmospheric conditions, endpoints, and release criteria) for this analysis. In addition, if the worst-case scenario could impact the public, one or more alternative releases that are more likely to occur must be examined. (Some of these special terms are explained in the section of this booklet called "More on Offsite Consequence Analysis.")

For each release scenario, the facility must estimate the greatest distance from the facility to a point beyond which no serious acute effects are anticipated.

The facility must also identify the populations and environments potentially affected.

Tips & Hints

The RMP regulation requires every facility subject to the regulation to coordinate its response activities with the LEPC for its area or with local responders. This is an opportunity for you to:

- Ensure that you have in place a clear and quick method to notify neighbors when an accident happens
- Ensure that all call-down lists are consistent
- Coordinate operating procedures among community first responders and facility employees
- Review equipment lists to ensure you have the right equipment and that you know where it is when an accident happens
- Practice evacuation and shelter-in-place procedures with neighbors

Management System

Every facility that has a worst-case analysis showing potential offsite impacts is required to develop a management system to oversee the implementation of the Risk Management Program elements.

The management system provision also requires the facility to designate a qualified person or position with overall responsibility for the development and implementation of the risk management program elements and to document the names of people or positions and define lines of authority.

Prevention Program

The main objective of the Risk Management Program regulation is to prevent accidents from occurring, and this is done by ensuring that every covered facility implements a chemical accident prevention program. To do this, the facility must understand its hazards and integrate safety into all aspects of its processes and business.

The facility must make safety a way of life so that the risk from chemical accidents to employees and the public is minimal. The prevention program must be implemented on a daily basis if it is to achieve its goal—no chemical accidents.

The prevention program is intended to formalize a series of management practices for identifying hazards and managing the risk of a chemical accident.

A good prevention program focuses on hazard analysis, process controls, operating procedures, employee training, and maintenance activities.

Not all facilities are required to develop a prevention program. A facility with only Program 1 processes (see box on next page) is not subject to prevention program requirements and will provide no data on its prevention activities.

Facilities May Have Processes Subject to Different Risk Management Requirements Based on the Different Risks They Present

Program 1 Processes
No accidental releases resulting in offsite impacts within five years of RMP submittal
No public receptors in worst-case scenario zone and
Emergency response procedures coordinated with local emergency organizations

Program 2 Processes
Not eligible for Program 1 or subject to Program 3

Program 3 Processes
Not eligible for Program 1 and
Subject to OSHA process safety management standard or in NAICS code 32211, 32411, 32511, 325181, 325188, 325192, 325199, 325211, 325311, or 32532

Emergency Response Program

At a minimum, every facility subject to the regulation must coordinate its response activities with the LEPC for its area or with local responders.

In addition, if a facility will use its own employees to respond to releases (for example, with a facility hazmat team), the facility must implement a full emergency response program that includes a plan, training, and plan review and updates.

The facility may choose to develop one plan following National Response Team guidance (available at http://www.epa.gov/ceppo).

The facility must coordinate its plan with its LEPC plan.

Different Requirements for Different Kinds of Facilities

Facility risk management programs will vary.

The RMP regulation requires facilities to develop a program that reflects the different levels of risk and complexity that different processes pose.

A process falls into one of three categories—Program 1, Program 2, or Program 3—based on accident history, worst-case scenario results, and industrial sector.

In general, Program 1 processes are less complex, pose less risk to the public, and have had no accidents with offsite consequences. Program 2 and 3 processes are more complex and have worst-case scenarios that would impact the public.

The compliance requirements for Program 1 processes are less stringent than are the requirements for Program 2 and 3 processes, which are also more formal.

RMPS ARE COMING!

The RMP describes the activities that each facility is conducting to comply with the regulation, its "risk management program." Initial RMPs were submitted to EPA by June 21, 1999. The information in the RMP will be updated every five years or sooner under certain circumstances, including major changes to the facility or its covered processes. In addition, facilities will keep additional supporting documentation on their risk management program on site.

Tips & Hints

- The executive summary can be used by the community as a background piece for events involving the facility, such as developing exercises and contingency plans. In the Kanawha Valley in West Virginia and in Augusta, Georgia, the executive summaries have been used as a tool to provide information to the public.
- NAICS codes are a new industrial classification system that is replacing the Standard Industrial Codes (SIC).
- LEPCs can compare the new RMP registration information with existing EPCRA data about the facility. This is an opportunity to update "Facility" data in CAMEO.
- For alternative release scenarios, the facility can choose modeling parameters (e.g., typical weather and atmospheric stability information) that fit the local situation.

What Information Is in an RMP?

An RMP consists of an executive summary in text form as well as answers to a series of questions focusing on individual elements of the risk management program.

The latter information is reported as data, such as names, dates, multiple choice selections, and "yes" or "no" answers.

Each RMP will contain information on the identity of the facility, its offsite consequence analysis, five-year accident history, prevention program, and emergency response program. The RMP is not like a contingency plan—even though we call it a "plan."

The RMP is primarily a series of data fields with numbers, words and phrases, and yes/no answers to specific questions.

You can use information in the data fields to understand steps the facility is taking to prevent or respond to a possible accident; for example, there will be information about employee safety training, inspections by non-facility personnel, equipment maintenance, and management oversight.

Executive Summary

The executive summary in the RMP is your introduction to the facility. This section includes a brief description of the facility, its primary operations and processes, and the regulated substance(s) handled. The executive summary also reviews the release scenarios from the offsite consequence analysis; general and chemical-specific release prevention activities; the five-year accident history; the emergency response program; relevant facility response and prevention policies; and any planned changes to improve safety.

Registration

The registration section in the RMP provides information about the facility (e.g., street address and emergency contacts) and the processes in which regulated substances are found.

The facility-specific data include points of contact for emergencies and risk management program questions as well as standard address information.

For each covered process, the registration section lists the regulated substances (and quantities) in the process, the program level of the process, and the North American Industry Classification System (NAICS) code for the process. The NAICS code identifies what the process does (for example, water treatment or metal plating). These data will help you identify specific operations at a facility or compare them with similar operations elsewhere.

Offsite Consequence Analysis

Facilities with any Program 1 processes must include at least one worst-case release scenario in their RMPs. Facilities with Program 2 or Program 3 processes must include in their RMPs information about both worst-case release and alternative release scenarios. The number of scenarios depends in part on the type and number of regulated substances in covered processes. EPA has defined many of the release modeling parameters for the scenarios, although some facility-specific data (for example, certain weather conditions) can be used.

In the RMP, facilities report the modeling parameters and dispersion model(s) they used to do their offsite consequence analyses. You can use this information to "re-create" a facility's results, using CAMEO and ALOHA, EPA's Offsite Consequence Analysis Guidance, or RMP*Comp (available at http://www.epa.gov/ceppo). For each release scenario, facilities report in the RMP the distance beyond which no serious, acute effects are anticipated; the residential population within that distance (in all directions from the point of release); and which categories of public receptors (for example, schools, residences, hospitals, commercial/ industrial areas) or environmental receptors (national/state parks, wildlife sanctuaries, and federal wilderness areas) are located within that distance. Facilities may choose to submit a graphic file to illustrate each scenario on a local map.

Five-Year Accident History

The accident history that facilities report in their RMPs provides information on each accidental release from a regulated process that resulted in specific on-site or offsite impacts during the preceding five years, in greater detail than the EPCRA section 304 reports that you have received in the past. Releases from non-covered processes, even if they involved regulated substances, or releases of non-listed substances from covered processes, are not included.

For each accidental release reported in the accident history section of the RMP, facilities report standard descriptive information, as well as some new information such as the weather conditions, onsite and known offsite impacts, the initiating event and contributing factors, whether offsite responders were notified, and any changes made at the facility as a result of the accident.

Tips & Hints

- As you review the data about potential offsite consequences that facilities report in their RMPs, keep in mind that air modeling uncertainties are significant and different models are likely to produce different results. (For more information, including explanations of some of the special terms used when discussing offsite consequence analysis, see "More on Offsite Consequence Analysis")
- Workers at the facility and local residents may consult the accident history information as they try to understand previously unexplained odors and gas clouds coming from the facility. However, such events will only be included in the accident history if they meet the RMP rule's criteria for reporting an accident.
- LEPCs may want to compare the prevention program information for a local facility with that of a similar facility in the community, the state or even the nation. The LEPC might be able to work with facilities (privately, or through discussion at open meetings) to introduce safety practices that are effective at another facility.

Prevention Program

In the RMP, facilities report prevention program information separately for each covered process. This section of the RMP identifies the major hazards for the process; the relevant process controls, mitigation systems, and detection and monitoring systems; and any changes made to the process since the last hazard evaluation. This section also provides dates indicating when specific prevention activities (for example, updates of procedures) were last conducted. This information provides a basis for comparing similar operations at different facilities.

Facilities must retain a substantial amount of supporting documentation to comply with program requirements of the RMP regulation. While facilities are required to make this documentation available to EPA or the state implementing agency, they are not required to make it available to the public. If certain items are of interest to you or to members of the public, you may want to talk to facilities about making this information available. Much prevention program documentation will relate to internal tracking or standard work records, but there will also be hazard review or PHA (process hazards analysis) recommendations, compliance audit reports, and accident investigation reports. EPA is encouraging facilities to make as much of this information as possible (or some form of summary) available to the public if requested. Because the RMP regulations expand the information collection authority granted to LEPCs under

EPCRA section 303(d)(3) to apply to facilities with flammable regulated substances, the LEPC can get any of this information that is necessary to develop an emergency plan.

Emergency Response Program

The RMP does not provide detailed information on the facility emergency response program. There is a series of yes/no questions indicating whether the facility has a response program and also some dates indicating when specific activities (for example, drills or exercises, plan review) were last conducted. Facilities that have chosen to develop their own response capability will keep an emergency response plan and procedures on site. As noted above, the LEPC can request this information from all facilities subject to CAA section 112(r) in developing an emergency plan.

Confidential Business Information

Facilities can claim some RMP data as confidential business information (CBI). An LEPC interested in obtaining data claimed CBI may request that EPA determine whether the claim is valid. If EPA determines that the information is not CBI, and after EPA has notified the facility claiming CBI, the information may be released. If EPA determines that the information is CBI, an LEPC may nonetheless be able to obtain the information under 40 CFR 2.301(h)(3), which provides for sharing of CBI with state and local governmental agencies having responsibilities under the CAA or its implementing regulations. However, LEPCs can gain access to CBI data under this rule only if they can protect its confidentiality.

Under EPCRA section 303(d)(3), LEPCs may compel an EPCRA section 302 facility to provide any information necessary to enable the LEPC to develop and implement an emergency plan. An EPCRA section 302 facility must comply with such LEPC requests for information even if the facility has made a valid CBI claim under the RMP regulation.

How Can LEPCs Access RMPs?

EPA has placed RMPs, except for the offsite consequence analysis information, on the Internet in a format that allows the public to search them and download any that are of interest. This database, called RMP*Info, is located with other EPA data in Envirofacts on the Internet at http://www.epa.gov/enviro.

To simplify access by state and local governments, EPA will set up separate databases containing the full RMPs for all of the facilities in each state. Additionally, EPA will provide software, called RMP*Review, for use by implementing agencies, LEPCs, and others to manage their databases. Please contact your EPA Regional Office CEPP contact for details (see Appendix B).

Terms

Worst-Case Modeling Parameters

- Toxic endpoints: as specified in the regulation for each regulated toxic substance
- Flammable endpoints: 1 psi for all flammable substances
- Wind speed: 1.5 meters/sec (unless the facility can prove this has not occurred in the last 3 years)
- Stability class: F (unless facilities can prove this has not occurred in the last 3 years)
- Ambient temperature: highest daily maximum temperature in past three years
- Humidity: average humidity for the site
- Height of release: ground level
- Surface roughness: urban or rural
- Gas density: model must account for whether or not gases are heavier than air
- Temperature of substance: highest daily maximum for past three years or process temperature, whichever is higher (for liquids only)

MORE ON OFFSITE CONSEQUENCE ANALYSIS

Not all LEPC members may have an extensive technical background, but you will want to (1) understand how a facility derives its worst-case and alternative release scenarios and (2) be familiar with the underlying terminology. The following are answers to some of EPA's most frequently asked questions.

Q: What Is Meant by a Worst-case Release Scenario?

EPA has defined a worst-case release as the release of the largest quantity of a regulated substance from a single vessel or process line that results in the greatest distance from the point of release to a specified endpoint. EPA requires that the worst-case release scenario incorporate certain parameters related to the chemical released, conditions of the release, atmospheric conditions, and health effects of concern ("toxic or flammable endpoints"). Facilities use these parameters to estimate the distance away from the location of a release beyond which no serious, acute effects are anticipated. These parameters are discussed in more detail below.

Q: What Is Meant by an Alternative Release Scenario?

The RMP regulation requires Program 2 and 3 facilities to project potential releases of regulated substances that are more likely to occur than worst-case scenarios and to predict the consequences of such releases. These are called alternative release scenarios. The RMP regulation provides information that facilities must use for such predictions as part of doing the offsite consequence analysis required for the risk management program at the facility.

Q: What Is a Toxic Endpoint?

A toxic endpoint is the endpoint for a regulated toxic substance. For a particular regulated substance, it is the concentration of that substance in air below which it is believed that most people could be exposed for up to one hour without serious health effects. EPA has determined toxic endpoints for each of the regulated toxic substances. The toxic endpoints are listed in the RMP regulation.

Q: What Is a Flammable Endpoint?

A flammable endpoint is the endpoint for a regulated flammable substance. How it is measured depends on the type of release considered. For example, the flammable endpoint for a vapor cloud explosion is based on the pressure from the resulting blast wave. The flammable endpoints to use for different types of releases are provided in the RMP regulation.

Q: What Is a Stability Class?

Pasquill stability classes (ranging from "A" to "F") are meteorological categories of atmospheric conditions. Pasquill stability class A represents unstable conditions under which there are strong sunlight, clear skies, and high levels of turbulence in the atmosphere, conditions that promote rapid mixing and dispersal of airborne contaminants. At the other extreme, class F represents light, steady winds, fairly clear nighttime skies, and low levels of turbulence. Airborne contaminants mix and disperse far more slowly with air under these conditions, and may travel further downwind at hazardous concentrations than in other cases. Stability class D, midway between A and F, is used for neutral conditions, applicable to heavy overcast, daytime or nighttime.

Q: What Is the Distance that Facilities Must Estimate for Their Release Scenarios?

Facilities must estimate the distance from the location of a release to the endpoint that could result from the accidental release of a regulated substance. They must estimate this distance for each release scenario in their RMP. To understand what populations could be at risk from an accidental release, the facility is to draw a circle with the facility at the center. The radius of the circle is the distance to the endpoint.

Q: How Is The Distance to an Endpoint Estimated?

Facilities estimate the distance to an endpoint by first estimating the amount of a regulated substance that would be released in an incident (either a worst-case release scenario or an alternative release scenario), and then using air dispersion modeling techniques (or a tool that incorporates such techniques) to estimate the distance to an endpoint for that amount of the regulated substance. Note that the distances that facilities report in their RMPs are estimates. EPA has guidance documents (Offsite Consequence Analysis Guidance as well as industry-specific guidance for developing RMPs) and software (RMP*Comp) to help facilities estimate the distances. Facilities may use EPA's guidance or any other air dispersion modeling techniques provided that the techniques meet certain conditions as outlined in the RMP regulation.

What about the Approach in the "Green Book"?

EPA, DOT, and FEMA published Technical Guidance for Hazards Analysis (commonly known as the Green Book) in 1987. Many LEPCs have been using the Green Book to estimate vulnerable zones for chemicals in the community. The release modeling done for the RMPs will be based on parameters similar to those in the Green Book, but with some differences. (For example, the RMP regulation specifies parameters not used in the Green Book approach. Also, in recent years toxicologists have refined the toxic endpoints for some chemicals.) EPA encourages LEPCs to use the Offsite Consequence Analysis Guidance approach to modeling releases for any subsequent planning, so the results reported by industry in their RMPs will be comparable to those the LEPC calculates.

Appendix C of this booklet is a detailed comparison of the Green Book methodology and the methodology in EPA's Offsite Consequence Analysis Guidance.

Q: What Is Meant by Air Dispersion Modeling Techniques?

Air dispersion modeling techniques are mathematical models that are used to estimate the distance that a released substance would travel from the location of the release to the endpoint, given the amount of the substance released and certain conditions of the release. The estimated distance will vary depending on the air dispersion model used.

Q: How Certain Is The Distance to The Endpoint?

For a given scenario, people can use different release models and obtain predictions of the distance to an endpoint that may vary significantly. Even using the same model, different input assumptions can cause wide variations in the predictions. LEPCs need to recognize that the predicted distances lie within a considerable band of uncertainty and communicate this fact to the

public when they discuss the scenario results. Differences in models may explain why two facilities handling the same covered substances in the same amounts may have come up with different results. (Of course, differences in prevention programs may also account for different results, particularly in the case of alternative release scenarios.) EPA's approaches are generally intended to produce conservative results—they are more likely to overestimate distances. For other models, you may want to ask the facility for an assessment of where its distance prediction lies within the plausible range of uncertainties.

Q: If There Is an Accident, Will Everyone Within the Distance to the Endpoint Be Hurt?

In general, no. For an explosion, however, everyone within the circle would certainly feel the blast wave because it would move in all directions at once. However, while some people within the circle could be hurt, it is unlikely that everyone would be. But releases usually do not lead to explosions. A fire is more likely than an explosion, and fires are usually concentrated at the facility. For toxic chemicals, the released chemicals would usually move in the direction of the wind. Only people in a small fraction of the circle would be exposed if a release occurred. Whether someone is hurt depends on many factors, such as whether the chemical is dispersed by the wind, or if the release is stopped quickly. Generally, it is the people who are closest to the facility who face the greatest danger. Although it is not impossible for people beyond the distance to the endpoint to be hurt, it is much less likely. However, the risk should not be dismissed. The RMP regulation assumes that a worst-case release involves the failure of the single largest vessel containing a regulated substance at the facility. It is conceivable, although highly unlikely, that more than one vessel could fail at the same time, resulting in a larger release than the worst-case scenario predicts. In such a case, people beyond the distance to endpoint could be affected.

Q: How Likely Are the Worst-case and Alternative Release Scenarios?

It is generally not possible to provide accurate numerical estimates of how likely it is that these scenarios will actually happen. Quantifying risk for accident scenarios is rarely feasible because there are few data related to rates for equipment failure and human error. In general, the risk of a worst-case scenario occurring is low. Although catastrophic vessel failures have occurred, they are rare events. Combining them with worst-case weather conditions (as required by the RMP regulation) makes the overall scenario even less likely. This does not mean that such events cannot or will not happen, but they are very unlikely to happen. For the alternative scenario, the likelihood of the release is greater and will depend, in part, on the scenario chosen.

Tips & Hints

Ideas for LEPC Effectiveness

Have you tried to revitalize your membership recently? In some cases, a new SERC chair or a new LEPC chair is able to recruit new members for the LEPC.

As with every committee, one or two active new members can energize the entire LEPC.

Have a clear agenda. Start (and end!) your meetings on time.

If you have subcommittees, check with them a few weeks before the full LEPC meets. Be sure that the subcommittees do their work in advance.

LEPCS COORDINATE CHEMICAL SAFETY ACTIVITIES IN THE COMMUNITY

Get Everyone Involved

LEPCs should have broad-based membership that includes, at a minimum, representatives of elected officials, law enforcement, emergency management, fire service, emergency medical services, healthcare professionals, local environmental and transportation groups, hospitals, the media, community groups, and owners and operators of the facilities covered under EPCRA.

Wide-ranging community involvement will increase the credibility of the LEPC plan and improve community cooperation in an emergency.

Both EPCRA and the RMP regulation assume that citizens want chemical safety in the community. Including concerned citizens on the LEPC and inviting them to your meetings will promote communication between industry and the public, foster understanding of chemical hazards, and help quell rumors.

Enhancing LEPC-Industry Relations; Encouraging Compliance

Since EPCRA passed in 1986, a rule of thumb is that effective LEPCs include active and committed industry representatives. Industry representatives bring expert understanding of chemicals and chemical processes. Numerous facilities have provided financial and other support to make LEPCs successful.

The RMP regulation provides specific opportunities for you to work more closely with the facilities in your community on risk communication, accident prevention and risk reduction, and compliance assistance. (See the later

sections for discussions of risk communication and accident prevention.) As you work with facilities through these and other issues, you may become the organization they turn to when they need to understand community concerns and help in providing constructive answers to questions from the public. In helping them, you can work to ensure that they address community issues related to chemical safety quickly and accurately, which will, in turn, make your LEPC the group on which the community relies.

Depending on the skills of your membership, the LEPC may be able to serve as a local source of RMP compliance assistance. Although you may not want to become involved with more technical issues, almost all of the RMP program elements are well-suited to your involvement.

Release Modeling

EPA has provided free copies of CAMEO (a software program that helps LEPCs manage and interpret information about a facility and its chemical inventory) to more than 2,000 LEPCs.

Using ALOHA and LandView (a software program that provides Census Bureau data and helps users map facilities and nearby populations), LEPCs can now assist facilities in conducting the offsite consequence analysis required by the RMP regulation.

Small businesses will appreciate help in collecting and entering their release modeling data and identifying public and environmental receptors that could be impacted by a release. LEPCs can then incorporate this updated facility information into the community plan.

Users should be aware, however, that ALOHA has some limitations which may make it unsuitable for RMP offsite consequence analysis modeling in certain situations.

For example, ALOHA does not have the capability to model the offsite consequences of flammable substance releases, and for toxic substances, ALOHA only provides endpoint distances out to a maximum of 6 miles from the source (large releases of certain chemicals, such as chlorine, will exceed this distance under worst-case conditions). If you desire to conduct RMP OCA modeling in these and other situations for which ALOHA is unsuitable, you should use a different model.

One such model is RMP*Comp. RMP*Comp is a software program designed by EPA and the National Oceanic and Atmospheric Administration (NOAA) specifically for the purpose of conducting RMP OCA modeling.

It follows the methods and techniques described in EPA's RMP Offsite Consequence Analysis Guidance.

RMP*Comp is capable of providing OCA modeling results for all 140 RMP regulated substances and provides endpoint distances out to a maximum of 25 miles. RMP*Comp is available for free—you can download it from the Internet (http://www.epa.gov/ceppo) or order a copy from the National Service Center for Environmental Publications (NSCEP) at 1-800-490-9198.

Tips & Hints

In June 1996, EPA and the other National Response Team (NRT) agencies published integrated contingency planning ("One-Plan") guidance. The NRT encourages facilities to develop one plan to comply with all federal contingency planning requirements (rather than develop separate plans for each regulation). EPA, the Coast Guard, the Office of Pipeline Safety at the U.S. Department of Transportation, OSHA, and the Minerals Management Service promised to accept the one-plan format whenever a facility must submit a contingency plan to them for review and approval. To obtain copies of the one-plan guidance, contact EPA's Hotline at (800) 424-9346.

Working with Small Businesses

Local planning and response officials can help small businesses sort out facility-specific preparedness issues, identify response resources, and formalize their emergency response program.

The RMP regulation also may serve as an incentive for facilities to adopt the "One Plan" approach and formalize incident command issues. This provides a perfect opportunity to discuss mutual aid agreements and joint training and exercise programs.

Response Coordination

Facilities that do not have their own response team must coordinate with the LEPC concerning listed toxic chemicals, and with the fire department about listed flammable chemicals.

Local fire officials, in conjunction with the building inspector, can work with facilities to improve fire prevention practices, including compliance with NFPA standards or other fire and related codes.

Industry Outreach

LEPC industry representatives can provide other facilities with technical assistance or contacts for further information on a variety of prevention program issues.

Assistance could include explaining issues related to the OSHA Process Safety Management (PSM) Standard (a regulation requiring certain facilities to implement accident prevention activities similar to those described) or help in collecting and understanding safety information, industry safety standards, or approaches to employee training and equipment maintenance.

New Partnerships

The availability of RMP information also provides LEPCs with an opportunity to develop new partnerships with other organizations in the community. People and groups may need to be reminded that you have available much specific information about chemicals in your community. Although they may not be interested in the entire RMP, medical professionals, the news media, planning/zoning officials, and researchers will likely find specific sections of the RMPs from local facilities of particular interest. Working with them will further extend the reach of the LEPC into the community, creating a stronger constituency for the LEPC that enables you to take advantage of a wider base of skills and experience.

Medical professionals (including emergency medical technicians, doctors in private practice, health clinics, and hospitals) will appreciate information on potential acute health hazards as well as the recommended treatment for exposures.

Distributing a list of nearby facilities and their regulated substances can assist in the first step; if the medical professionals are interested, you can request a copy of the emergency response plan and then selectively send out the first aid and emergency medical treatment information. At the same time, keep in mind that clinics and hospitals will want to know if they are potentially vulnerable to an air release.

The news media can play an effective role in risk communication. If you do not already have regular representation from local newspapers and radio and television stations on your LEPC, this is a great time to get them involved. Now that the RMPs are available, you are in a position to work with the news media to spread the risk reduction message in your community.

You might consider producing press packets to help the local news media understand and use RMP information. At the same time, you can describe the other related activities of the LEPC and get additional exposure for efforts such as commodity flow studies and field exercises.

You may have multiple audiences within the news media. While news reporters with an interest in environmental, public safety, and health issues will likely find RMP information intriguing, broadcast meteorologists may actually be the best people for discussing the dispersion of air releases with the public. The accidental release scenarios in the offsite consequence analysis will provide local planning and zoning officials with more information when they address development issues. Being aware that a new school, hospital, residential area, or shopping center could be directly affected by a facility using an acutely toxic or highly flammable substance can only improve the decision-making process.

Engineering and environmental professionals, and researchers at local colleges and universities, are likely to find RMP information of even greater interest than EPCRA and other environmental data. If there are specific operations or types of facilities of significant concern to the community, these individuals may be willing to share with you the burden of analyzing the relevant data and communicating it to the public.

Talk with Neighboring Communities

Consult with your neighboring LEPCs, especially if you have common chemical risks and concerns. If two or more adjacent localities have similar facilities or facilities affecting more than one LEPC, you can split up the work of collecting and comparing RMP information. Using fewer resources, you will be able to produce results and share them with others. Such efforts can also serve as the basis for risk reduction and further coordination, including joint training and field exercises, mutual aid agreements, and pooling of financial resources to accomplish larger-scale initiatives.

In an emergency, you may have to call on neighboring communities for help or they may call you. In many cases, contingency plans must include several communities to be effective. Consider the need to:

1) Identify whom to call in other planning districts if you need help in an emergency;
2) Ask them how they are funding their activities;
3) Identify available response equipment and personnel;
4) Negotiate procedures for mutual assistance for emergencies that cross boundary lines;
5) Coordinate your hazards analyses;
6) Coordinate your review of transportation routes; and
7) Investigate sharing computers or other resources.

In addition to these planning and response activities, talk to your neighbors about steps you can take together to prevent chemical accidents. You might go together to visit a facility that has a note-worthy safety record. You might invite an expert in process safety management to speak to a joint meeting of your LEPCs (and invite the public to attend!). Each LEPC should consider its neighboring LEPCs as partners and sources of help. Other LEPCs share your problems; working with them may help you find common solutions.

RISK COMMUNICATION: LEPCS ARE A BRIDGE BETWEEN THE PUBLIC AND LOCAL INDUSTRY

Both the EPCRA and RMP regulations provide an opportunity to promote and strengthen dialogue between the community and industry on accident prevention and chemical emergency preparedness issues. Risk communication is an opportunity to build a level of trust among the LEPC, companies with hazardous chemicals, and the community at large.

One of the most important factors that affects people's perceptions about risk is whether they feel in control. Offer people a means to participate in decision-making about chemicals in the community. Because LEPCs include representatives from government, industry, and citizen

groups, they offer a good setting for encouraging the different interests to work together.

Keep in mind the importance and legitimacy of public concerns about chemicals in the community. People generally are less tolerant of risks they cannot control than of those they can. For example, most people are willing to accept the risks of driving because they have some control over what happens to them. However, they are generally less comfortable accepting the risks of living near a facility that handles hazardous chemicals if they feel that they have no control over whether the facility has an accident. The Clean Air Act's provision for public availability of RMPs, along with EPCRA's requirements for providing annual reports on hazardous chemicals, gives the public an opportunity to take part in reducing the risk of chemical accidents that might occur in your community.

Interested citizens may independently obtain RMPs (except for CBI). These citizens might then ask LEPCs to explain the information in the RMPs. Although it often is left to technical experts, educating the public about risks and involving them in decisions about what is an "acceptable" level of risk are important challenges for LEPCs.

Basic Rules of Risk Communication

Risk communication means establishing and maintaining a dialogue with the public about the chemical hazards in your community and discussing the steps that have been or can be taken to reduce the risk posed by these hazards. There are seven "rules" of risk communication that have been developed based on many experiences of dealing with the public about risks.

1) Accept and involve the public as a legitimate partner
2) Plan carefully and evaluate your efforts
3) Listen to the public's specific concerns
4) Be honest, frank, and open
5) Coordinate and collaborate with other credible sources
6) Meet the needs of the media
7) Speak clearly and with compassion

There is an informal eighth rule for risk communication: Know what you are talking about. Not everyone on the LEPC will know everything about hazardous chemicals. Call on chemical engineers, health professionals, scientists, and school teachers (e.g., science, chemistry) to help you. Retired professionals are frequently helpful.

Hazards Versus Risks

Hazards are inherent properties that cannot be changed. Chlorine is toxic when inhaled or ingested; propane is flammable. There is little that you can do with these chemicals to change their toxicity or flammability. If you are in an earthquake zone or an area affected by hurricanes, earthquakes and hurricanes are hazards.

When a facility conducts its hazard review or process hazards analysis, it will identify hazards and determine whether the potential exposure to the hazard can be reduced in any way (e.g., by limiting the quantity of chlorine stored on-site).

Risk is usually evaluated based on several variables, including the likelihood of a release occurring, the inherent hazards of the chemicals combined with the quantity released, and the potential impact of the release on the public and the environment. For example, if a release during loading occurs frequently, but the quantity of chemical released is typically small and does not generally migrate offsite, the overall risk to the public is low (even though workers may be at risk).

If the likelihood of a catastrophic release occurring is extremely low, but the number of people who could be affected if it occurred is large, the overall risk may still be low because of the low probability that a release will occur. On the other hand, if a release occurs relatively frequently and a large number of people could be affected, the overall risk to the public is high.

The RMP regulation does not require facilities to assess risk in a quantitative way because, in most cases, the data needed to estimate risk levels (for example, one in 100 years) are not available. Even in cases where data such as equipment failure rates are available, there are large uncertainties in using those data to determine a numerical risk level for any given facility. Therefore, you may want to assign qualitative values (high, medium, low) to the risks that you have identified at facilities in your community, but you should be prepared to explain the terms if you do. For example, if you believe that the worst-case release is very unlikely to occur, you must give good reasons; you must be able to provide specific examples of measures taken to prevent such a release, such as installation of new equipment, careful training of workers, and rigorous preventive maintenance. You can ask facilities to provide documentation to support claims about the level of risk.

Tips & Hints

Who Will Ask Questions?

- Persons living near the facility or working at a neighboring facility
- Special interest groups including environmental organizations, police departments, zoning and planning boards, chambers of commerce, unions, and various civic organizations
- Journalists, reporters, and other news media organizations
- Medical professionals, educators, and consultants

Three Scenarios When You May Need to Communicate with the Public about Chemical Risk

Scenario A: During or immediately after an accidental chemical release

When there is an accident, the news media and the public always have questions. First they might ask:

- What is going on?
- Am I or my children at risk?
- Should we evacuate or shelter in place?
- What are you doing to stop this accident from spreading?

A little while later, they might ask:

- How did this happen?
- How long will we feel "short-term" health effects?
- Are there any hidden health effects?
- What are you doing to prevent this from happening again?

To answer questions like these, you will need to have a community emergency plan and know the contents of that plan. Do you have a record of chemicals in the community and what their potential health effects are? Do you identify an emergency contact for each facility in the community? Does your emergency plan include clear provisions for determining whether evacuation and/or sheltering in-place might be necessary? Has one person (or office) been assigned to provide information to the public? Have you prepared sample press releases so that you can quickly provide helpful information to the public? Do you have procedures for telling the public about upcoming LEPC meetings so that the public can attend and ask questions? Have you worked with the mayor's office and local response agencies to ensure that the LEPC is the focal point for risk communication?

Scenario B: Routine or past accidental releases of chemicals

After accidental releases, the news media and the public may become more interested in chemical hazards in the community. They may search the Toxic Release Inventory (TRI) available under EPCRA section 313 for more information about chemical releases. They may search for information provided under the RMP regulation about accidental releases during the past five years. This search could lead to newspaper articles and television reports about chemicals being released in the community. You may then hear questions like these:

- What risk do these exposures pose for my family?
- Do these emissions affect our health?
- Why are facilities allowed to release these chemicals?
- Is the facility in compliance with federal, state, and local laws?
- Are there other facilities that should be reporting similar events?

The LEPC might take several actions. Invite a toxicologist or a doctor to an LEPC meeting to discuss specific chemical hazards with the public. Share your information about other facilities in the community. Share information on the risk management program regulation and EPCRA. Invite the facility emergency coordinator to explain steps the facility takes to prevent serious accidents even though there are routine releases. Work with facilities to take action to reduce risk.

Scenario C: Chemicals Stored in the Community

The search of TRI and RMP databases could eventually lead to stories about all the chemicals stored in the community. The public and the news media may then ask questions like these:

- Are the chemicals stored properly?
- What are the chances of dangerous chemicals leaking?
- Can these stored chemicals lead to an accident?
- If these chemicals are released, what could be the health effects?
- Can we reduce the amount of chemicals stored in the community, and use less hazardous chemicals and inherently safe technologies?
- What else can we do to reduce the risk of accidents?

In this instance, the LEPC can turn to all the data it has collected from EPCRA and RMP reports. These questions can be more easily addressed if you have one software program like CAMEO to manage data. You may also want to hold a meeting that includes facility representatives so that everyone can discuss realistic steps to prevent accidental chemical releases in the community.

A Special Case: Dealing with Worst-Case Scenarios

In the beginning, public interest might focus on the worst-case scenario, rather than on prevention and preparedness. Worst-case scenario information must be explained to the public in a way that promotes perspective and understanding, rather than confusion. The experience of the heavily industrialized Kanawha Valley of West Virginia illustrates how worst-case scenario data can open lines of communication between industry and the public.

Despite fears that information on worst-case scenarios would produce strong negative reactions toward local industry, the chemical industry worked with EPA and state and local officials to release worst-case data well ahead of the RMP rule schedule. The Safety Street demonstration proved that the public could understand information on potential accidents and risks and act constructively. Due in part to a pro-active approach by industry, and with the sponsorship of the LEPC, the public evaluated the information presented to the community and was able to take part in a constructive dialogue with industry and public officials.

Potential Risk Communication Activities

1. Open a risk management dialogue with facility owners/operators, community leaders, and the public to focus on risk reduction activities.
2. Understand how the public will access information and what impact this will have.
3. Reach out to the small business community. Many small facilities will not have the expertise or resources to respond effectively to the technical questions that their RMPs may produce. By reaching out to them, you can help develop a more community-wide approach to addressing risk management questions.
4. Identify key issues of concern in your community. Use LEPC meetings as a forum to collect and document concerns, which then can be forwarded to individual facilities, as appropriate.
5. Schedule follow-up meetings or presentations at other public gatherings to allow LEPC and industry representatives to respond to these issues.
6. Draw upon sample questions and answers contained in the Risk Communication chapter of EPA's General Guidance on Risk Management Programs. Work with industry to understand the underlying issues and develop answers to specific questions, focusing on actual or potential risk reduction actions.
7. Plan a special meeting to unveil local RMPs.
8. Work with the news media to reach a wider audience.
9. Explore using community bulletin boards on local access cable television stations and community Internet sites.

Respond to Concerns

LEPC involvement creates a process through which people, who otherwise might be mistrustful or even adversarial, can work together to understand, address, and prepare for chemical risks in the community.

Sometimes, anger about what the public perceives as risky situations arises not so much from the actual risk but from people's feeling that they have no control over what is happening to them.

You can reduce this by including the public as a partner in discussions about what is an acceptable risk in your community and how to reduce risks.

An LEPC that arms itself with basic information about the RMP program, makes an effort to look at the RMPs for facilities in the community, and encourages facilities to involve the LEPC, response agencies, and the public in a discussion of these plans and the risks they disclose will do a great service to the community.

Tips & Hints
Setting Priorities

Let us say there are six facilities in your community submitting worst-case releases scenarios for toxic regulated substances: two have worst-case distances greater than six miles, two have worst-case distances of approximately three miles, and two report distances of less than one mile. As a first step, you might rank them into three categories by distance.

A further look at the RMP data may reveal that the two facilities with the greatest distances are located more remotely from populated areas than the two with the smallest distances. As a result, the former may have estimated that their worst case would impact a much smaller residential population, and the latter may have reported that there also are schools and a hospital within their worst-case distance. The RMP will provide a straightforward way of considering these factors without having to research or analyze the data on your own.

IMPROVING YOUR EMERGENCY PLANS

Several elements of the RMP regulation requirements support your local emergency planning process. The offsite consequence analysis can provide you with detailed information to continue prioritizing and planning for chemical hazards in the community.

While EPA does not consider the worst-case release scenario to be the most realistic basis for response planning, you may be able to use the distances or the population potentially affected to set priorities.

The alternative release scenarios, which may be based on actual incidents (either at the facility or within the industry as a whole) or the results of the facility hazard evaluation, are intended to represent realistic events for planning purposes.

You will want to meet with facility officials to discuss the details in the alternative scenario(s) and work together to ensure that the community response plan realistically addresses the alternative scenarios.

This activity will help you meet the EPCRA requirement to update your community plan annually.

The alternative scenarios can also provide a useful basis for an exercise.

The RMP regulation supplements the information-gathering authority granted under EPCRA section 303(d)(3) to local planning and response officials.

Now, in addition to EPCRA section 302 facilities, facilities with flammable regulated substances must provide LEPCs and emergency planners, upon request, any information necessary for developing and implementing the community emergency response plan.

The emergency response program provisions of the RMP regulation ensure that all facilities with a substantial inventory of highly volatile flammable substances work with the fire department or the LEPC if they also have highly toxic substances, as was done for acutely toxic substances under EPCRA section 302.

Even if the facility will not respond to a release (for example, with its own hazmat team), it still must coordinate with you or the fire department on response actions and ensure that a system for emergency notification is in place.

This requirement means that the facility must be certain that local responders can handle potential releases.

If responders do not have the training or equipment to respond to a particular type of chemical release, the facility must arrange for an appropriate response (for example, by establishing a mutual aid agreement with an industry response team).

What You'll Find in the RMP

Based on a hazard review or process hazard analysis for each covered process, a facility will list in the RMP:

- The regulated substances in the process;
- The NAICS code for the process;
- The major hazards of the chemicals (toxic release, fire, explosion) and of the process (for example, overfilling, over-pressurization, runaway reaction);
- The process controls in use;
- Any mitigation systems; and
- Information on whether the facility has monitoring or detection systems.

For Program 2 processes, the RMP will also include a list of industry codes and standards that the facility complies with for the process.

WORKING WITH INDUSTRY TO PREVENT ACCIDENTS

The RMP regulation is intended to prevent chemical accidents and mitigate the consequences of the accidents that do occur. Facilities will take the first step in achieving this goal when they develop and implement their risk management program, especially in the formal elements of the prevention program. However, the availability of RMP information (particularly the offsite consequence analysis and the results of the hazard evaluation) is expected to encourage the second step of this process: an ongoing dialogue between the community and industry leading to practical changes that can reduce the risk of a chemical accident.

As with emergency preparedness, the LEPC should serve as the forum for the community and industry on accident prevention. You will want to meet with facility officials to discuss the offsite consequence analysis, understand the facility's prevention program, and perhaps suggest additional steps to prevent accidental chemical releases.

Using RMP*Info, the national RMP database, you will be able to gather the information necessary to compare practices at local facilities with other facilities in the same industry in your state or even in other parts of the country. RMP*Info will let you search on particular chemical and NAICS code to identify other facilities that use the same regulated substance in the same type of process as the local facility of interest to you (for example, chlorine for water treatment). Information on the number of employees will help you focus on facilities of similar size, which will make the comparisons more appropriate.

Tips & Hints

With RMP data from other facilities, you can make comparisons with a local facility by asking the following the questions:

- Is the quantity of the chemical the facility is using or storing unusual?
- Has your facility identified the same major hazards as similar facilities?
- Does your facility have the same kinds of process controls as similar facilities?
- Does your facility use the same kind of mitigation systems as similar facilities?
- Do facilities in this industry generally have detection systems?

If the facility you are reviewing has not listed major hazards that similar facilities have identified, this may indicate a problem with the facility's hazard review or PHA. If it has fewer controls, mitigation systems, or detection systems than similar facilities have, you may want to talk to the facility about possible changes that could reduce risk.

If you ask local facility officials in advance, they may be willing to provide technical or other forms of assistance to help you understand accident prevention techniques in specific industries.

Once you have a list of other similar facilities, you can print out the RMPs or parts of the RMPs for these facilities and compare them to the RMP for your local facility. (This could even be a good research project for students at the local high school!)

You may be pleasantly surprised by the results of your work; you may find that your local facility is among the best in the nation.

On the other hand, if the local facility does not have certain process controls or a detection system typically used by similar facilities, or if it stores ten times as much of the regulated substance as anyone else, you have some solid information with which to start a dialogue on risk reduction.

In addition, keep in mind this is the first time that these types of data have ever been collected on a national basis. In some cases, local facilities may be very interested in what you find.

Based on the prevention programs of similar facilities in other parts of the country, local facilities may initiate state-of-the-art accident prevention practices.

Tips & Hints

You might set up a public recognition program to draw attention to local facilities that have especially good accident prevention programs.

A FEW MORE SUGGESTIONS

Now that you have an idea of how you can become involved in the Risk Management Program and accident prevention, you may have a few questions about how to proceed.

The following are suggestions to help you identify resources for information, funding, and legal issues.

Funding Your Activities

Some states and communities have appropriated general revenue funds for LEPC activities; others are relying on implementation fees and existing state agency budgets.

Because states have limited resources, each LEPC must find the means for achieving its goals. Some LEPCs will do their work with little funding. Your LEPC members may already be donating their time.

EPA's Chemical Emergency Preparedness and Prevention (CEPP) Technical Assistance Project Grants offer funding for state, local, and Tribal agencies for implementing the Risk Management Program and for developing the underlying support system.

Awards are made using the Clean Air Act Section 112(1)(4) and Section 103(b)(3) authorities. These authorities allow EPA to award grants related to the Risk Management Program directly to local governments.

The grantee must provide matching funds equal to 25 percent of the total project cost.

To obtain further information on the CEPP grants, contact CEPPO.

Tips & Hints

If you anticipate implementing the RMP regulation in your community, check EPA's Factsheet, "Funding Sources for Implementing the Risk Management Program", or the National Governors' Association December 1997 report, State Strategies and Considerations for Implementing the Chemical Accidental Release Prevention Program.

Liability

Some LEPCs and individual LEPC members have expressed concern that they might be held legally liable if they approve an emergency response plan that proves to be inadequate during an accident.

Check with your SERC about your state law and ask about liability considerations and protection.

Some LEPC members have asked whether they invite liability issues by reviewing facility RMPs. SERCs are generally considered state agencies and are, therefore, covered by the state's immunity provisions.

Some states have extended this immunity to LEPCs through laws or through legal decisions. Others have provided liability coverage for LEPCs.

LEPCs may also be able to address liability concerns by clearly stating (1) the limitations of any review they conduct of RMPs, and (2) that they neither have nor assume any legal obligations for reviewing RMPs.

Risk Management Program Resources	
Source of Information	**Location and Telephone Number**
My SERC	
My LEPC	
RMP Implementing Agency for my state	
EPA Regional Contact for EPCRA and RMP	
EPA's Chemical Emergency Preparedness and Prevention Office website	
The RCRA, Superfund and Toll free:	(800) 424-9346
Other hotlines	

Handy Reference

Using the table above, fill out the information that applies in your case, clip, and save for your use.

APPENDIX A: Checklist–Ideas for Action

- Visit EPA's chemical emergency preparedness and prevention website at http://www.epa.gov/ceppo. This site contains all the up-to-date information about both EPCRA and the RMP regulation, including electronic copies of relevant documents.
- Call the RCRA, Superfund and EPCRA Hotline at 1-800-424-9346 for answers to your questions and for help in getting copies of documents.
- Identify facilities. Use the list of regulated substances at the back of this booklet and your EPCRA section 312 reports (Tier II) to identify facilities that may be covered by the new RMP regulation. Remember, though, that EPCRA reports provide information on chemicals for the facility as a whole, while the RMP rule applies to a facility based on how much of a chemical it has in a single process.
- Contact these facilities and see if they want to work with you in sharing RMP information in your community.
- Arrange public information-sharing events with interested facilities.

Consider:

- Having special LEPC meetings for this purpose;
- Having local facilities host meetings that include the LEPC and members of the public; and
- Organizing an event at a shopping mall or auditorium at which several facilities can discuss their RMP information with interested local citizens.

- Work with facilities to: reduce chemical inventories; substitute less hazardous chemicals; use inherently safe technologies; and add new prevention measures.
- Develop a public recognition program to honor your firefighters, police department, and other first responders for their expertise in responding to hazmat incidents. Honor facilities who have a noteworthy accident prevention program. Honor volunteer groups like the Red Cross.
- Recruit effective LEPC members. Check to see if inactive members want to continue on the LEPC. If not, take this opportunity to recruit interested and effective new members. Check with your SERC and/or neighboring LEPCs for ideas about new members.
- Ensure a representative LEPC. Make sure your LEPC membership is broad-based and representative of your community.
- Leverage Resources. Organize your LEPC to use available resources such as students, retired chemical engineers, chemists, health professionals, and trade and volunteer organizations.
- Include small business representatives in your membership and invite them to meetings.
- Publicize the LEPC. Form a subcommittee with the assignment to make the LEPC better known in the community. Advertise your meetings in the newspapers and on TV and radio. Invite the news media to attend your meetings and report on them. Tell your citizens about the information you have about chemicals in the community.
- Educate the community. Form a subcommittee on public education and information to help the public understand chemical risks in the community, to respond to requests for information about chemicals in the community, and to involve the public in the emergency planning process as well as chemical accident prevention activities.
- Review this booklet's section on New Partnerships. Who in your community might be interested in the LEPC and its work?
- Review your current community response plan. How can it be improved using new RMP information?
- Coordinate plans. Ensure that your community response plan is coordinated with the emergency response programs of facilities in the community.
- Develop an up-to-date list of response and mitigation equipment in the community. Where is the equipment stored? The new RMP information should be of help to you on this task.
- Get training and technical assistance. Contact your SERC and/or your EPA regional office to find out about training and other sources of technical assistance in your area.
- Find the contact person. Contact your SERC and/or your EPA regional office to find out who will be the official

implementing agency for the RMP program in your area as well as what RMP initiatives are underway in your state.

- Get a copy of EPA's Guidance for Implementing Agencies to learn how you can get more involved in the workings of the program. You may even decide to be the RMP implementing agency in your area.
- Obtain the Toxic Release Inventory (TRI) data for facilities in your area to ensure that you have all available information about chemicals in your community.

APPENDIX C: SOME BACKGROUND INFORMATION–COMPARISON OF GREEN BOOK AND RMP OFFSITE CONSEQUENCE ANALYSIS (OCA) GUIDANCE METHODOLOGY

Green Book	OCA Guidance
Purpose	
Help LEPCs conduct site-specific hazards analysis for airborne releases of extremely hazardous substances (EHSs) regulated under EPCRA section 302.	Help owners or operators of regulated sources to conduct offsite consequence analysis required under CAA section 112(r).
Chemicals Covered	
About 390 toxic gases, liquids, and solids. Chemicals listed based on toxicity alone; volatility not considered.	77 toxic gases and liquids and 63 flammable gases and volatile, flammable liquids. Toxic liquids (with a few exceptions) have vapor pressure at ambient temperature of at least 10 millimeters of mercury.
Endpoints	
Levels of concern (LOC) set for EHSs based on (1) one-tenth of the NIOSH IDLH or (2) one-tenth of an estimated IDLH based on mammalian toxicity data. **Use of endpoints:** Use of the LOC is not required - other endpoints are also suggested.	**Toxics:** Endpoints set by rule as (1) Emergency Response Planning Guideline Level 2 (ERPG-2) set by AIHA or (2) EHS LOC. Many endpoints are different from EHS LOCs. **Flammables:** Endpoints set by rule for blast overpressure from vapor cloud explosions, heat radiation from fires, and dispersion to the flammability limit. **Use of endpoints:** Specified endpoints must be used for consequence analysis.
Initial Screening (Green Book)/Worst-Case Releases (OCA Guidance)	
Quantity Released	
Maximum quantity that could be released from largest vessel or interconnected vessels.	Greatest quantity in a single vessel or in a pipe, considering administrative controls.
Release Rate For Toxic Gases	
Gases under ambient conditions: Substances that are gases under ambient conditions are assumed to be released over 10 minutes. **Liquefied refrigerated gases:** No provision for gases liquefied by refrigeration under ambient pressure. **Mitigation:** No method provided.	**Gases under ambient conditions:** Substances that are gases under ambient conditions and are handled as gases, as liquids under pressure, or refrigerated liquids that would form pools with a depth of 1 cm or less upon release are assumed to be released over 10 minutes. **Liquefied refrigerated gases:** Gases handled as refrigerated liquids at ambient pressure that would form pools with depth greater than 1 cm are treated as liquids. **Mitigation:** Method provided for reducing the release rate for gases released in enclosures.

For Toxic Liquids	
Liquid release: Assumed to be instantaneous. **Release to air:** Pool evaporation; equation for pool evaporation uses a mass transfer coefficient for water of 0.24 cm/sec. **Liquid density:** All liquids assumed to have the same density as water for estimation of pool size. **Solutions:** No method provided for solutions. **Mitigation:** Method provided for estimating release rate from diked area. No method provided for mitigation of release rate for liquids released in buildings **Temperature:** Factors provided for estimation of release rate at 25C and the boiling point.	**Liquid release**: Assumed to be instantaneous. **Release to air:** Pool evaporation; equation for pool evaporation uses a mass transfer coefficient for water of 0.67 cm/sec (i.e., evaporation rate increased by factor of about 3 over Green Book rate). **Liquid density:** Chemical-specific density factors provided for estimation of pool size. **Solutions:** Method and data provided for estimating release rates for common water solutions and oleum. **Mitigation:** Method provided for estimating release rate from diked area. Method provided for reducing the release rate for liquids released in buildings. **Temperature:** Factors provided for estimation of release rate at 25C and the boiling point. Factors generally significantly larger than Green Book factors because of revised mass transfer coefficient and revised chemical-specific data. Temperature correction factors provided for temperatures between 25 and 50C.
For Toxic Solids	
Solids with particle size 100 microns or less or solids in solution assumed released in 10 minutes; factors provided for release rate estimation for molten solids.	None regulated.
Flammable Substances	
Not covered.	Vapor cloud explosion of entire quantity assumed, with yield factor of 10%.
Meteorological Conditions	
F stability, wind speed 3.4 miles per hour (1.5 meters per second).	F stability, wind speed 1.5 meters per second.
Modeling Conducted	
Neutrally buoyant gases and vapors: Gaussian model used for neutrally buoyant plumes. • Continuous releases assumed, even for 10-minute releases. **Dense gases and vapors:** No dense gas modeling. (Note: The RMP Rule requires consideration of gas density for offsite consequence analysis)	**Neutrally buoyant gases and vapors:** Gaussian model used for neutrally buoyant plumes. • 10-minute releases; i.e., release assumed to stop after 10 minutes (with 10-minute averaging time). • 60-minute releases (with 30-minute averaging time). **Dense gases and vapors:** SLAB model used for dense gases. • 10-minute releases (with 10-minute averaging time). • 60-minute releases (with 30-minute averaging time). **Vapor cloud explosions:** TNT-equivalent model used for vapor cloud explosions.

Distance Tables Provided	
Neutrally buoyant plume table only: Rural conditions only for screening. Generally gives significantly greater distances for the same release rate and toxic endpoint than the OCA Guidance tables. (Note: The RMP Rule requires that rural or urban topography be used, as appropriate.)	**Toxics:** Neutrally buoyant plume tables: • Rural - 10 minute and 60 minute. • Urban - 10 minute and 60 minute. **Dense gas tables:** • Rural - 10 minute and 60 minute. • Urban - 10 minute and 60 minute. **Chemical-specific tables:** • Ammonia liquefied under pressure. • Ammonia solution. • Chlorine. • Sulfur dioxide. **Flammables:** Vapor cloud explosion distance table.
Maximum Distance in Tables	
10 miles	25 miles
Reevaluation (Green Book)/Alternative Scenario Analysis (OCA Guidance)	
Quantity Released	
Estimate quantity based on site-specific information.	Estimate quantity based on site-specific information.
Release Rate For Toxic Gases	
Estimate release rate based on site-specific information. Specific methods not provided. **Mitigation:** No method provided.	**Gases under pressure:** Estimation methods for: • Gaseous release from tank (based on hole size and tank pressure. • Gaseous release from pipe. • Release of gas liquefied under pressure: o from vapor space, o from liquid space. **Liquefied refrigerated gases:** Gases handled as refrigerated liquids at ambient pressure are treated as liquids. **Mitigation:** Method provided for reducing the release rate for gases released in enclosures. Active mitigation measures also discussed.
For Toxic Liquids	
Liquid release: Estimate release rate based on site-specific information. **Liquid density:** Not considered. **Solutions:** No method provided for solutions. **Release to air:** Pool evaporation, as for screening **Mitigation:** Same as for screening. **Temperature:** Same as for screening.	**Liquid release:** Estimation methods for: • Release from tank under atmospheric pressure. • Release from pressurized tank. • Release from pipe. **Liquid density:** Considered as for worst case. **Solutions:** Considered as for worst case. **Release to air:** Pool evaporation, as for worst case **Mitigation:** Same methods for passive mitigation as for worst case. Active mitigation for liquid release and for release to air discussed. **Temperature:** Same as for worst case.

For Toxic Solids	
Estimate release rate based on site-specific information.	None regulated.
Flammable Substances	
Not covered	Methods provided for: • Vapor cloud fires. • Pool fires. • BLEVEs. • Vapor cloud explosions, based on less conservative assumptions than the worst case.
Meteorological Conditions	
D stability, wind speed 11.9 miles per hour (5.3 meters per second) or same conditions as for screening.	D stability, wind speed 3 meters per second.
Distance Tables Provided	
Neutrally buoyant plume tables only: Rural (screening conditions and D stability, higher wind speed). Urban (screening conditions and D stability, higher wind speed).	**Toxics:** Neutrally buoyant plume tables: • Rural - 10 minute and 60 minute. • Urban - 10 minute and 60 minute. Dense gases: • Rural - 10 minute and 60 minute. • Urban - 10 minute and 60 minute. Chemical-specific tables: • Ammonia liquefied under pressure. • Ammonia solution. • Chlorine. • Sulfur dioxide. **Flammables:** Vapor cloud explosion distance table. Vapor cloud fire distance tables: • Neutrally buoyant plumes. • Dense gases. BLEVE (fireball) distance table.
Maximum Distance in Tables	
10 miles	25 miles

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CLEAN AIR ACT SECTION 112(r): ACCIDENTAL RELEASE PREVENTION/ RISK MANAGEMENT PLAN RULE

HOME

When Congress passed the Clean Air Act Amendments of 1990, Section 112r required EPA to publish regulations and guidance for chemical accident prevention at facilities using substances that posed the greatest risk of harm from accidental releases. These regulations were built upon existing industry codes and standards (available at: www.epa.gov/emergencies/lawsregs.htm#fraccident) and require companies of all sizes that use certain listed regulated flammable and toxic substances to develop a Risk Management Program, which includes a(n):

- Hazard assessment that details the potential effects of an accidental release, an accident history of the last five years, and an evaluation of worst-case and alternative accidental releases scenarios;
- Prevention program that includes safety precautions and maintenance, monitoring, and employee training measures; and
- Emergency response program that spells out emergency health care, employee training measures and procedures for informing the public and response agencies (e.g., the fire department) should an accident occur.

By June 21, 1999, a summary of the facility's risk management program (known as a "Risk Management Plan" or "RMP") was to be submitted to EPA. At the end of 2008, EPA had RMPs from about 14,000 facilities. The plans must be revised and resubmitted every five years. There are other circumstances described in the RMP regulations, however, which may require a more frequent submission. New facilities must submit a completed RMP as soon as they have a covered chemical above the threshold quantity.

The Risk Management Program is about reducing chemical risk at the local level. The RMP information helps local fire, police, and emergency response personnel (who must prepare for and respond to chemical accidents), and is useful to citizens in understanding the chemical hazards in communities.

WHO IS COVERED BY THE RMP REGULATIONS?

Owners and operators of a facility (stationary source) that manufactures, uses, stores, or otherwise handles more than a threshold quantity of a listed regulated substance in a process, must implement a risk management program and submit a single RMP for all covered processes at the facility. “Process” means any activity involving a listed regulated substance, including any use, storage, manufacturing, handling, or onsite movement of such substances, or combination of these activities. The regulations do not apply to transportation, including storage incident to transportation. However, transportation containers used for storage not incident to transportation and transportation containers connected to equipment at a stationary source are considered part of the stationary source, and are potentially covered by the regulations. See the General Guidance on Risk Management Program for Chemical Accident Prevention (40 CFR Part 68) at: http://www.epa.gov/emergencies/docs/chem/Toc-final.pdf for more information on regulatory coverage.

WHAT CHEMICALS ARE COVERED?

The regulation includes a List of Regulated Substances under section 112(r) of the Clean Air Act, including their synonyms and threshold quantities (in pounds) to help assess if a process is subject to the Part 68 rule or the general duty clause. A link to EPA’s list of regulated substances and their threshold quantities can be found at: http://www.epa.gov/emergencies/content/rmp/index.htm. The regulated substances are listed in four tables, two listing the regulated toxic substances (alphabetically and by CAS number) and two listing the regulated flammable substances (alphabetically and by CAS number). States who have taken delegation of the Clean Air Act, Section 112(r) program may have additional requirements for the federally listed chemicals, and/or additional listed chemicals.

(NOTE: Listed flammable substances used as fuel or held for sale as fuel at a retail facility are not covered by the Part 68 regulations. However, flammable substances used for some other purpose, such as a chemical feedstock or when held for sale as fuel at a wholesale facility are covered by the regulations.) The threshold quantities for toxics range from 500 to 20,000 pounds. For all listed flammables, the threshold quantity is 10,000 pounds.

WHAT ARE “PROGRAM LEVELS”?

An underlying principle of the regulations is that “one size does not fit all.” EPA has classified processes into three Programs to ensure that individual processes are subject to requirements that appropriately match their size and the risks they pose. As a result, different facilities covered by the regulations may have different requirements depending on their processes.

Program Level 1
(http://www.epa.gov/emergencies/docs/chem/Chap-02-final.pdf) applies to processes that would not affect the public in the situation of a worst-case release (in the language of Part 68, processes “with no public receptors within the distance to an endpoint from a worst-case release”) and with no accidents with specific offsite consequences within the past five years. Program 1 imposes limited hazard assessment

requirements and minimal accident prevention and emergency response requirements.

Program Level 2 (http://www.epa.gov/emergencies/docs/chem/Chap-02-final.pdf) applies to processes not eligible for Program 1 or subject to Program 3. Program 2 imposes streamlined accident prevention program requirements, as well as additional hazard assessment, management, and emergency response requirements.

Program Level 3 (http://www.epa.gov/emergencies/docs/chem/Chap-02-final.pdf) applies to processes not eligible for Program 1 and either subject to OSHA's Process Safety Management (PSM) standard under federal or state OSHA programs or classified in one of ten specified North American Industrial Classification System (NAICS) codes. Program 3 imposes OSHA's PSM standard as the accident prevention program as well as additional hazard assessment, management, and emergency response requirements.

Based on their limited potential for serious offsite consequences, facilities are not required to implement a prevention program, an emergency response program, or a management system for Program 1 processes. Facilities with processes in Program 2 and Program 3 must address each of the three RMP elements described above for those processes. For more detailed information, consult the General Guidance on Risk Management Programs for Chemical Accident Prevention (40 CFR Part 68) or one of the industry-specific guidance documents available at:

Office of Emergency Management

http://www.epa.gov/emergencies/guidance.htm for an explanation of what is involved for each of the RMP elements.

WHERE DO YOU GO FOR MORE INFORMATION?

Visit the Risk Management Program Web site at: http://www.epa.gov/emergencies/rmp for current information and sign up for the listserv to receive periodic updates.

EPA 550-F-12-001, August, 2012

REVISIONS TO THE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION HAZARD COMMUNICATION STANDARD (HCS)

HOME

On March 26, 2012, Occupational Safety and Health Administration (OSHA) modified its Hazard Communication Standard (HCS) to conform to the United Nations' (UN) Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

The revisions will improve consistency and quality of information that is provided to both employers and employees concerning chemical hazards and protective measures related to chemical hazards.

What is the Globally Harmonized System of Classification and Labeling of Chemicals?

GHS is a system developed by the UN to strengthen international efforts concerning the environmentally sound management of chemicals. It was recognized that an internationally harmonized approach to classification and labeling would provide the foundation for all countries to develop comprehensive national programs to ensure the safe use of chemicals.

GHS establishes a set of criteria and provisions that regulatory authorities, such as OSHA, can incorporate into their existing regulations or standards, or use to develop a new system. Regulatory authorities are not required to adopt all of the criteria that are defined in GHS, only those that are appropriate to their specific regulations.

GHS includes harmonized provisions for classification of chemicals for their health, physical and environmental effects, as well as for labels on containers and safety data sheets (SDSs, formerly "Material Safety Data Sheets, or MSDSs). The definitions of hazards in GHS are more specific and detailed than in HCS prior to the adoption of GHS provisions.

Under the GHS, each hazard (e.g., explosives, carcinogenicity) is considered to be a hazard class. The classes are sub-divided into categories of hazard.

For example, carcinogenicity has two hazard categories; category one is for known or presumed human carcinogens while category two is for suspected human carcinogens. GHS provisions require manufacturers and importers to classify their chemicals using these specific criteria.

GHS provisions also require manufacturers and importers to classify mixtures using a tiered approach. GHS specifies using pictograms and precautionary statements on container labels. GHS also establishes a standardized 16-section format for SDSs to provide consistent sequence of information for users.

HCS Prior to Adopting GHS Provisions

HCS was first promulgated in 1983 and it required chemical manufacturers and importers to evaluate hazards of the chemicals they produce or import and transmit this information on container labels and MSDSs to downstream users of the chemicals.

HCS also required employers to train employees who are exposed to hazardous chemicals and provide them access to MSDSs.

The standard was performance-oriented, providing definitions of hazards and parameters for evaluating the evidence to determine whether a chemical is hazardous. The evaluation is based upon evidence that is currently available and no testing of chemicals is required. HCS established requirements for minimum information that must be included on labels and MSDSs, but did not provide specific language to convey the information or a specific format in which to provide it.

Some chemical manufacturers and importers followed a specified format for MSDSs developed under a voluntary consensus standard (ANSI Z400.1), which was later adopted by GHS with minor changes.

Summary of Changes to the HCS

- **Hazard Classification**: Chemical manufacturers and importers are required to re-evaluate chemicals according to the new criteria adopted from GHS in order to ensure that pure chemicals and mixtures are classified appropriately. The new criteria must be provided to downstream users in revised SDSs.
- **Labels**: Chemical manufacturers and importers must provide a label which includes a signal word, pictogram, hazard statement, and precautionary statement for each hazard class and category.
- **Safety Data Sheets**: The new format contains 16 specific sections with headings for each section, which ensures consistency in presentation of information. Chemical manufacturers and importers are required to distribute modified safety data sheets to downstream users of their chemicals.
- **Information and training**: To facilitate understanding of the new system, the standard requires that workers be trained on the new label elements and safety data sheet format.

Effective Dates for Provisions in HCS:		
Effective Completion Date	**Requirement(s)**	**Who**
December 1, 2013	Train employees on the new label elements and SDS format.	Employers
June 1, 2015 December 1, 2015	Comply with all modified provisions for preparation of new labels and safety data sheets, except: Distributors shall not ship containers labeled by the chemical manufacturer or importer unless it is a GHS label.	Chemical manufacturers, importers, distributors and employers
June 1, 2016	Update alternative workplace labeling and hazard communication program as necessary, and provide additional employee training for newly identified physical or health hazards.	Employers
Transition Period (May 25, 2012 to the effective completion dates noted above)	Comply with either the revised HCS published on March 26, 2012 or the standard that were in effect prior to adopting GHS provisions.	All chemical manufacturers, importers, distributors and employers

How do changes to HCS affect Sections 311 and 312 of the Emergency Planning and Community Right-to-Know Act (EPCRA)?

Certain provisions of EPCRA sections 311 and 312 and the implementing regulations may be affected due to the revisions in HCS, mainly the requirement for submitting material safety data sheet (MSDS) under section 311. The reporting requirements under EPCRA section 311(a) and its implementing regulations codified in 40 CFR part 370 apply to the owner and operator of a facility required to prepare or have available an MSDS under OSHA HCS for any hazardous chemical. The owner or operator of the facility must submit the MSDS or a list containing all hazardous chemicals to their State Emergency Response Commission (SERC), local emergency planning committee (LEPC) and the local fire department if the reporting thresholds specified in 40 CFR part 370 are met. Section 311(d)(2) of EPCRA requires an owner or operator to submit a revised MSDS to the SERC, LEPC and the local fire department within 3 months of finding significant new information about the hazardous chemical for which an MSDS was previously submitted.

However, states were always given the flexibility to implement EPCRA as needed to meet the goals of EPCRA in their communities. Each state may have specific requirements for submitting information under sections 311 and 312, including electronic reporting. Facilities are encouraged to contact their states regarding the submission of revised SDSs.

Where Do I Go For More Information?

For more information on hazard communication standards, including the link to the final rule published in the Federal Register on March 26, 2012, please visit OSHA's hazard communication safety and health topics page: http://www.osha.gov/dsg/hazcom/index2.html.

EPA 550-B-00-003

CHEMICALS, THE PRESS AND THE PUBLIC: A JOURNALIST'S GUIDE TO REPORTING ON CHEMICALS IN THE COMMUNITY

HOME

A publication of the National Safety Council's Environmental Health Center

The Environmental Health Center produced this guide under cooperative agreement CX 826604-01-0 with the U.S. Environmental Protection Agency. It is part of a series of

For More Information

The National Safety Council maintains the Crossroads Web site at http://www.crossroads.nsc.org as a resource supplement to this series of publications. The site has Risk Management Program-related links to organizations, regulations, chemicals, rules, and regulations involved in emergency management and the safe handling of chemicals and other safety, health, and environmental issues. A selection of articles and papers written about the Risk Management Program Rule and local efforts to identify and analyze risk in the community is also included. The site will be constantly expanding as industry and communities develop new information required under the Risk Management Program Rule.

Preface: March 2000

Environmental journalists have a new weapon in their arsenal for better informing their audiences about potential risks and hazards close to home. The new tool provides them with one more powerful resource for better informing their print and broadcast audiences on how to reduce potentially risky exposures and, better yet, how to help avoid exposures in the first place.

The 1990 Clean Air Act's Section 112(r) paved the way for journalists and the public to access the new chemical "risk management plan" (RMP) information, but the data itself first became widely available online and in hard copy only in the summer of 1999, after much controversy over just how much -- and which parts -- of the information would even be distributed electronically.

The RMP information comes on the heels of another three-letter acronym well known to environmental journalists: TRI, or the toxics release inventory, is also available electronically to provide reporters, the public, and local emergency response teams accurate information on facilities' on-site inventories and releases of toxic chemicals.

One more acronym, again one well known to environmental journalists, is RTK, or right to know. RTK is the movement that got a major boost in 1986 with passage of the· Emergency Planning and Community Right to Know Act (EPCRA) as part of the Superfund amendments passed that year. Consider this formula:

RMP = TRI + RTK

The RMP program, the subject of this sequel to the Environmental Health Center's 1989 Chemicals, the Press & the Public reporter's guide on the TRI program, is the progeny of more than a decade of experience with TRI and RTK generally. In the current vernacular, reporters might look to RMP as something of a TRI on steroids. Or perhaps Viagra.

Just how, and how effectively, the media uses this new trove of hazardous chemical information remains to be seen. The data available clearly are more specific, and therefore more powerful, than what facilities previously had been required to report. Reporting facilities now must make public potential risks posed to surrounding communities.

But reporting on local facilities' efforts to prevent accidents from happening in the first place may be just the "day-one" story. Reporters and their audiences might find equally appetizing the "day-two" story of just what local governments and policy makers are doing, and in some cases perhaps not doing, with the newly available information to make disaster and accident prevention a reality and not solely a paper or academic exercise.

The information power represented by the RMP program is considerable. But data have limits and recognizing both the strengths and the practical limitations of the RMP data is key to responsible and knowledgeable reporting in this area. As did its predecessor reporter's guide Chemicals, the Press & the Public, this guide seeks to help journalists -- and through the media, the public generally -- get every last ounce of useful information out of the RMP program information. Equally, it seeks to help them recognize the inherent limitations-where, as they say, the dog just won't fight. At that point, of course, additional enterprise reporting becomes key.

How communities themselves will choose to use the newly available RMP information likely will vary from place to place, but that factor cannot and should not influence the media's responsibilities to provide the relevant information as clearly and as accurately as possible.

Study after study reinforces that most of the people most of the time get most of their information on the environment from the mass media. That's a sobering burden that both delights and somewhat scares responsible journalists having to shoulder that responsibility.

Through the RMP program as it has built on and expanded its RTK and TRI roots, society has provided itself and its news media with a new tool for staying abreast of potential community risks from hazardous chemicals. With that new tool goes journalists' responsibility to use it wisely. We hope this reporter's guide will prove useful in meeting that objective.

Bud Ward, Executive Director, Environmental Health Center, National Safety Council, Washington, DC

The Bhopal Disaster

Just after midnight on December 3, 1984, many residents of Bhopal, India, (population 900,000) awoke with their eyes burning and coughing and gasping for breath. A toxic cloud was drifting through the shantytown neighborhoods surrounding the plant where Union Carbide of India, Ltd., was manufacturing pesticides to help Indian farmers feed a booming population. For nearly two hours, a deadly cloud of some 40 tons of toxic methyl isocyanate crept along the ground 5 miles downwind. Few of those rubbing their eyes and stumbling outdoors had any idea what was happening; most could do little. To protect themselves.

The uncontrolled release killed approximately 1,430 people immediately, and more than 3,800 died by 1991. Many thousands more were injured-possibly 20,000 were severely injured (many totally disabled), and another 186,000 were less severely injured. Deaths and injuries were worst among the desperately poor who lived just outside the chemical plant's fence. But the numbers will never be very precise, because information was scarce.

The investigations that followed, conducted by Union Carbide and various Indian government agencies and outside panels, probably never got the whole truth. Politics, emotion, self-interest, information suppression, and contamination: of evidence clouded almost all attempts to describe what happened. By most accounts, however, it was clearly the biggest industrial disaster in modern times.

Union Carbide, one of the largest corporations in the world at the time, faced more than $3 billion in liability claims from the Indian government. The Indian government accused the company and. Its U.S. officials of criminal homicide. The company accepted "moral responsibility" and, eventually, $470 million in liability, but it emphasized its own investigators' conclusions -- that the release had been caused by sabotage by a disgruntled employee. Other accounts pointed to error, negligence, and bad maintenance by the plant's operators or to an inherently unsafe size and design imposed on the plant by the U.S. parent company's engineers.

Bhopal was a disaster waiting to happen. Warnings of all kinds were ignored. The back-up safety systems didn't work – temperature and pressure gauges, refrigeration units, gas scrubber, flare tower, water curtain, overflow tanks, and alarm signals. Plant operators failed to respond promptly or effectively to instrument readings and other signs. In May 1982, a Union Carbide safety team from the U.S. headquarters had reported the potential for just this kind of accident. And a series of local newspaper articles before the incident had warned residents of the hazards.

The Bhopal plant disaster was a warning that Congress heeded when it passed the Emergency Planning and Community Right-to-Know Act of 1986, which had been known as the "Bhopal bill."

Chapter 1: Introduction and Background

In the summer of 1999, a new generation of hazardous chemical information went online and became available to reporters and the public. Even before its release, it generated intense controversy. June 1999 was the deadline for approximately 64,000 facilities to file their risk management plans (RMPs) required by Section 112(r) of the Clean Air Act (CAA). The law was amended in August 1999 by the Chemical Safety Information, Site Security, and Fuels Regulatory Act (P.L. 106-40) to exempt about half of those facilities from reporting-primarily those selling propane and other flammable fuels.

The RMPs contain chemical hazard data that are more specific than companies were previously required to report. For example, companies must identify potential hazards and the possible harm these chemicals could do to surrounding communities. These analyses, referred to as offsite consequence analyses (OCAs), include both "worst-case scenarios" and "alternative (or more realistic) scenarios."

The law requires the U.S. Environmental Protection Agency (EPA) to make the RMPs available to the public. In fact, public, disclosure of the RMP data has become a big story itself. The August amendments strictly limited the dissemination of the OCA information for at least 1 year. By August 2000, EPA must assess the risks and benefits and issue regulations about how the OCA data will be disseminated; executive summaries and other RMP information are available on the Internet through EPAs RMP*Info™. In addition, most of the facilities reporting under the law are required to hold a public meeting to discuss their RMPs, including OCA information.

Accident Prevention-the New Name of the Game

The real news about the RMPs and other provisions of the 1990 law is that they provide additional incentive for companies, communities, and reporters to focus on preventing accidents from happening in the first place. Perhaps the other real news is that, while the 1986 Emergency Planning and Community Right to Know Act (EPCRA) required committees of local emergency officials to file plans, the RMP Rule requires the companies to file plans. The question is shifting from "What is the local government doing to prevent disaster?" to "What is the company doing to prevent disaster?"

The good news is that companies can do a lot today to reduce the likelihood that accidents will happen or that accidents will harm people if they do happen. Many of these strategies also help reduce routine toxic emissions. Some examples include using up dangerous chemicals as soon as they are produced to keep the onsite inventory down, using safer chemicals, and handling chemicals at lower temperatures and pressures. Good operating procedures, good operator training, and good maintenance are other examples.

Still, chemical hazards cannot be prevented unless they are first understood and foreseen, and good information is one of the key ingredients in managing these hazards. The stories of almost all the terrible chemical disasters of the last century can easily be told as stories of warnings unheeded. It isn't necessary to wait for disasters to happen.

What to Expect from this Book

This book provides a summary of the requirements for RMPs and related activities and the requirements under EPCRA. This book attempts to explain not only the enormous potential of the available chemical information, but also the limitations of the data. It provides tools and tips to help you interpret the chemical risk information. It includes some examples of reporters' actual experiences reporting on chemicals in the community, some tips and insights on reporting on chemical emergency planning and actual chemical emergencies, and a discussion of some of the limitations of the chemical hazard data. Several sections of the book contain lists of suggested questions. These are among the most important tools in this book.

The RMPs are typically full of the technical jargon. This book attempts to decode some of it. But to get the real story, reporters may have to pursue company officials into technical thickets beyond the scope of this book. However, this book will try to lead you to sources that can help.

Why Cover Hazardous Chemical Stories?

If you are a reporter or producer, you may have had to pitch a toxic chemical story to a skeptical editor. Maybe the front page was crowded with train wrecks, politics, and crime, and your editor wanted to know why there was a story if nobody had been killed. According to the Chemical Safety and Hazard Investigation Board (CSB) (1999), toxic and hazardous chemicals do kill an average of more than 250 people every year.

Fortunately, the disastrous explosions that make electrifying footage are fairly rare. That's part of what makes them news. But there's a lot more to the story. Smaller releases injure or kill workers almost daily. They can also force people from their homes, snarl freeway traffic, make asthmatic children wheeze, and disrupt lives in other ways. The chronic everyday leaks and emissions of toxic pollutants in some places are suspected of causing elevated rates of cancer, birth defects, and neurological and reproductive disorders. In many towns, jobs are at stake or are perceived to be.

Information about the risks of hazardous chemicals is a very hot commodity. Environmental groups strive to get it into public hands, sometimes magnifying the risks. Chemical companies have lobbied and litigated against disclosure at the national level, sometimes downplaying the risks or citing new risks from terrorism or sabotage. People's lives and health can depend not only on the availability of the information, but also on its accuracy and realism.

Consider some examples. A huge explosion devastated the Terra Nitrogen Company fertilizer plant near Sioux City, Iowa, on December 13, 1994. Four people died and 18 people went to the hospital. More than 5,700 tons of anhydrous ammonia spilled, and nitric acid and liquid ammonium nitrate also spilled in large amounts. A cloud of toxic ammonia lingered for 6 days, spreading for miles around the plant. About 2,500 people were evacuated.

A subsequent EPA investigation showed many problems. Safety audits had been inadequate. There were no written procedures for safe operation of the plant. Employees said they were unaware of the hazards of ammonium nitrate. Four years later, Terra admitted that by failing to report some 17 million pounds of toxic chemical releases to the environment in 1994, the company had hidden the fact that it was one of the largest emitters of toxic substances in the country.

The General Chemical plant near Richmond, California, drew up a worst-case scenario for a chemical release from its facilities, as required by state law. Company officials predicted a worst-case accident would affect people no farther than 1314 miles away. Then on July 26, 1993, a release of sulfuric acid mist (sulfur trioxide) from the General Chemical plant sent 24,000 people to clinics and emergency rooms. People were affected more than 9 miles away.

Many communities will be interested in learning about hazardous chemicals that can jeopardize their health. They will also be interested in finding out the level of risk posed by local facilities. Chemical hazards are more likely to be addressed if local stakeholders -- people who would be affected by an accident -- know about potential problems and have a say in the solution. Stakeholders include individuals such as company managers, workers, and stockholders; neighboring residents and workers; and local officials.

Different communities will reach different decisions about the information they learn from RMPs. According to Carole L. Macko of EPA's Chemical Emergency Preparedness and Prevention Office, "The final evaluation of risk will be made by the public and local officials at the local level." Audiences will be interested in the reactions of local emergency authorities, government officials, business leaders, facility managers, neighbors, and environmental groups to RMP content. News coverage can help people evaluate their options. Some communities may think they have to live with poorly managed hazards when there may be alternatives. Once they know about hazards and risks,

communities can choose to use or ignore that knowledge. But without local coverage, RMPs will be like the proverbial tree that fell in the remote forest without being heard.

Ten Years of Toxic Release Inventory

In 1986, Congress gave journalists a valuable tool when it passed EPCRA, in many ways the first full-fledged chemical right-to-know law. The law, which was not fully implemented for several more years, did four important things:

- It set up a state and local institutional structure to plan for chemical emergencies and required the response plans to be made public.
- It required plants to notify local, state, and federal authorities when a major release occurred.
- It required companies to estimate and report their toxic releases to EPA and state agencies.
- It required EPA to collect this information in a national database (the Toxic Release Inventory) and make it available to the public.

The Toxic Release Inventory (TRI) database gave environmental reporters more than just handy local statistics -- it gave them a powerful investigative tool. Suddenly reporters could look at patterns of pollution in all kinds of meaningful ways. For example, reporters could examine the environmental performance of a single large company in many sites across the country. Reporters could locate the hotspots of pollution by a single toxic substance like benzene, a known carcinogen. Reporters could compare the releases companies were reporting with information from other sources (such as state or federal permit programs) to determine whether companies were doing what they said they were.

TRI has become a "meat-and-potatoes" story -- a reliable, stable source of stories on the environmental beat. The stories tend to ask and answer some basic questions. Who are the worst polluters in our area or state? How does our state match up against others? Are we doing better than last year?

Because the TRI has now accumulated more than. 10 years of data, it can be used to analyze important pollution trends. EPA and others have made enormous strides in integrating TRI with many other EPA databases and environmental databases by using standardized facility identification numbers and geographical information systems. New user-friendly front ends like EPA's Envirofacts Warehouse (www.epa.gov/envfro) and the Environmental Defense Fund's (EDF) Chemical Scorecard (www.scorecard.org) have made using the data much easier to use.

Chemicals -- Substances with an Image Problem

The word "chemical" carries negative baggage. People are often suspicious about the harm (e.g., cancer, birth defects, reproductive and neurological disorders) chemicals can cause. But without chemicals, we could not feed the world, drive our cars, cure disease, print newspapers, or use computers.

Most of our physical world consists of chemicals. But when we use the word, we often mean compounds that have been synthesized by chemists or that are used in industrial processes.

The media often gets caught up in this emotional portrayal of chemicals and their risks and benefits to society. This is understandable. On the one hand, the chemical and manufacturing industries have public relations machinery telling us that chemicals are the answer to our problems; that the risks they present are negligible and under control, and that any further government control of those risks is unnecessary. On the other hand, environmental and health groups raise concerns about cancer clusters, contamination in the water and air, and the harm that potential chemical spills might do to neighbors of chemical plants.

Chemicals have numerous benefits in today's world. Without sewage treatment and drinking water purification-processes that involve chemicals-sickness and death from waterborne diseases like typhoid and cholera would not have been largely eliminated. Chlorine and chlorine compounds play a key role in water disinfection and in the synthesis of many chemicals used in modern life. Chemistry also played a big role in the development of antibiotics, which have cut death rates from infectious disease worldwide. Synthetic pesticides and chemical fertilizers, along with improved seed, helped increase production and fuel the "Green Revolution," which has reduced starvation in much of the world.

Our society's confidence in chemicals began to dwindle in 1962 with the publication of Rachel Carson's Silent Spring. At this time it was also discovered that insecticides like DDT, relied on for their dramatic help in controlling crop pests and human disease, were persisting in the environment and accumulating in living creatures, with devastating effects. By the end of 1962, some 40 pesticide regulation bills had been introduced in various state legislatures.

Chemical Regulation and the Role of the Media

The rise of the environmental movement and the institutionalization of environmental controls in the 1970s and 1980s often occurred through a crisis-and-response process.

A 3-million-gallon oil spill in the Santa Barbara Channel in 1969 led Congress to give the Coast Guard and EPA oil spill response authority in Section 311 of the 1972 Clean Water Act.

The seepage of toxins into the basements of the people of Love Canal, New York, in 1976-1978 led to the Superfund hazardous waste cleanup law in 1980. The Bhopal disaster of 1984 led to the passage of EPCRA in 1986. The Exxon Valdez spill of 1989 brought passage of the Oil Pollution Act of 1990.

The press has typically played a role in publicizing a threat or a crisis.

But it has been less involved in covering the political in's and out's of legislative solutions or in the tedious technical and regulatory process of implementing environmental laws.

That job has too often been left to the specialized trade and business press. The result is that average citizens often know little about what, if anything, the government is doing to protect them against hazardous chemical risks.

When the president signs a major environmental bill, it gets on the nightly television news. But the story isn't over at that point.

If the press doesn't follow up on legislative or regulatory action to make sure government is doing its job, the public may go unprotected.

An example is the hazardous air pollutant provisions of the 1977 Clean Air Act Amendments That law required EPA to set national emission standards for hazardous air pollutants. But by 1990, EPA had set standards for only seven of the hundreds of toxic or hazardous air pollutants to which people are exposed, in part because scientists are unable to identify an air concentration or exposure level at which the risk to health is zero for many of these pollutants.

Even at infinitesimal amounts, these pollutants can present risks, although the risks may be infinitesimal. Setting standards for some toxic air pollutants would have removed them from commerce altogether.

There was no perceived "crisis." Health and environmental groups ·complained, but the deadlock got little press attention.

News consists of something happening, and this story was about something not happening-and something dry and technical to boot. Congress finally tried to fix the situation in the 1990 CAA. The 1990 law took a new approach based on industry sectors and best achievable technology.

The 13 years of paralysis on air toxics from 1977 to 1990 is an example of the perfect being enemy of the good. It also demonstrates the shortcomings of the way the press (and environmental health advocates and the public) often look at risk.

Readers, viewers, listeners, and editors may simply want to know if a thing is true or untrue, safe or unsafe, and have little patience for shades of gray.

Toxics become news when a camera crew finds a weeping mother whose child has been stricken with leukemia or when a siren sounds and a thick, black cloud towers above the local petrochemical refinery. But the quiet, everyday stories are just as important.

Once TRI data started to be reported in the late 1980s, people started to get a concrete sense of the huge amounts of toxic and hazardous pollutants emitted every year.

The estimate for 1988, the first year for which TRI data were reported, was that U.S. facilities released 3.35 billion pounds of toxic substances to air, water, and land. And most of these releases were completely legal.

Regulation Through Information

EPCRA embodied some rather revolutionary ideas about government. Part of the philosophy was "forewarned is forearmed."

EPCRA came at a time when there was very little effective government regulation of toxic air emissions.

The hope of some of the bill's supporters was that if the American public was really aware of the problem, something might be done to reduce risks. While there may be no scientific proof that EPCRA reduced hazardous chemical releases, the evidence is abundant.

During the first 10 years of TRI reporting, the estimated releases of toxic substances have dramatically and steadily reduced. Releases of core chemicals -- those that have been reported consistently for the entire 10 years-decreased by 1.53 billion pounds from 1988 to 1996, a decline of 45.6%.

The largest reduction by weight was in air emissions (1.10 billion pounds or 49.8%). In terms of percentage reduction, the largest decrease was in surface water discharges (119.4 million pounds or 72.6%).

Why believe the reduced releases were caused by TRI? One reason is relatively few major new regulatory requirements limiting toxic releases were issued during that period. The requirements of the CAA didn't start kicking in until the period was mostly over.

Some of the evidence is anecdotal and subjective, but chemical executives have acknowledged the impact. "The law is having an incredible effect on industries to reduce emissions, and that's good," Tom Ward of Monsanto told the Iowa's Quad City Times in the June 8, 1990. "There's not a chief executive officer around who wants to be the biggest polluter in Iowa."

The Los Angeles Times reported in the December 9, 1991, issue that Caspian Inc., a California metal milling and finishing firm, found itself ranked as the 55th largest emitter of carcinogenic air pollutants in the United States.

The firm responded by developing a water-based coating that could be substituted for one containing the carcinogen perchloroethylene. It reduced its toxic emissions 60% in the first year and eventually by more than 99%.

Sources of Chemical Releases

A reporter or producer thinking about chemical emergencies and toxic releases will find more stories by thinking "outside the box." The big chemical companies have usually done far more safety engineering than other companies.

If you think your viewer or reader area doesn't have chemical risks because it has no big chemical plants, you may be missing the story.

For example, accidents and releases occur most often at fuel-handling facilities, including propane dealers. The second most common "accident-prone" facilities are municipal drinking water purification and sewage treatment facilities.

Both store and use large quantities of chlorine, a highly dangerous gas, to disinfect water.

Agricultural retailers make up a major group of the facilities required to file RMPs. They may handle such things as fuels, pesticides, anhydrous ammonia, and ammonium nitrate fertilizer.

Many different industrial sectors can present chemical hazards. Some are obvious, like explosives or fireworks factories.

Others may be less obvious, such as any place with a large refrigeration facility that uses ammonia, even a warehouse or supermarket.

A wide variety of manufacturing facilities use significant amounts of hazardous chemicals -- everything from toy manufacturers to pulp mills to shipyards.

Chronic and routine releases may cause even more harm than catastrophic ones, but they often get less attention from the media.

TRI includes these routine waste-streams to the air, water, and land. While many of these chemical releases are controlled under federal permits, others are virtually unregulated.

A plant may be releasing toxics but may not need to report it. The amounts involved may be below the reporting threshold, or they may consist of many small leaks; long-term, low-level leaks (fugitive emissions); or storm-water runoff from a large land area (known as nonpoint source water pollution).

While people often associate releases with industrial plants, about the same number result from transportation-related incidents.

Hazardous substances may move by air, truck, railcar, boat, or pipeline. Of the roughly 600,000 chemical incidents reported between 1987 and 19-9-6, 42% occurred at fixed plant or business sites, while 43% were related to transportation (the rest were "other") according to the CSB (1999).

Often the people most endangered by both chronic and catastrophic releases are the employees at the plants. They may be in direct physical contact with hazardous substances, often in large amounts. In some cases, their exposure may be daily over many years with cumulative effects.

Government Agency Roles in Chemical Releases and Exposure

Many different government agencies are involved in responding to and preventing chemical releases and emergencies.

While this book focuses on two particular EPA programs (EPCRA and the RMP program), a reporter may have to talk to many other government agencies to get the whole story.

Occupational hazardous and toxic exposures, for example, are regulated by the Occupational Safety and Health Administration (OSHA). Pipeline safety issues are regulated by the Department of Transportation's (DOT's) Office of Pipeline Safety.

Other modes of hazardous materials transportation fall under the DOT's Office of Hazardous Materials Safety. Accidents may be investigated by the National Transportation Safety Board (NTSB), OSHA, or the CSB. The Federal Emergency Management Agency (FEMA) may also be involved in responding to chemical disasters.

Various state agencies may be involved with regulating chemical hazards and responding to emergencies.

The central point for coordinating government response to chemical releases is the National Response Center, which is operated by the U.S. Coast Guard. The NRC was created by the National Oil and Hazardous Substances Pollution Contingency Plan, Title 40 CFR, Part 300.

All oil, chemical, radiological, biological, and disease-causing discharges into the environment anywhere in the United States must be reported to the NRC.

All reports of pollution incidents are entered into the Incident Reporting Information System (www.uscg.mil/foia.htm). None of these even touches on what may be the most important agencies of all-the local emergency responders.

Chapter 2: Tales from the Trenches: Reporters' War Stories

In 1989, in the dawn of "computer-assisted reporting," Congress had required EPA to put a huge database full of local detail about the use and release of hazardous chemicals online.

They called it TRI, the Toxic Release Inventory, and many reporters (and environmental activists) thought it would be the silver bullet, the ultimate investigative tool. They were right and wrong.

Ten years of experience with TRI has shown some ways in which those high expectations were justified-and some ways in which they were not. Journalists have done hundreds and hundreds of good stories using TRI, and some have discovered the pitfalls along the way.

Finding and Digging for Hidden Treasure with a Computer

In the fall of 1988, Scott Thurm, a reporter with the Louisville Courier-Journal, asked Kentucky state officials to see the toxic release reports for the state.

EPA's electronic database would not be available until 1989, and the 1,254 individual reports submitted by 254 facilities were being stored, largely unread, in cardboard boxes in a state office in Frankfort.

Thurm went to the Kentucky Department of Environmental Protection to look at the forms and then entered selected information from the written copies into a database on a portable computer.

Handling the data himself allowed him to pick out things no computer could have showed him.

Thurm noticed, for example, that an aluminum refiner reported it was sending 14 million pounds per year of aluminum dross to a disposal site at a former quarry.

Thurm happened to know that EPA had proposed this quarry the Superfund National Priority List precisely because of the environmental hazards posed by aluminum dross previously discarded there.

"Watching the reaction of a top state environmental official when I asked why this was being permitted made all of the work seem worthwhile," Thurm recounted.

The Courier-Journal's analysis revealed all sorts of interesting things. Most importantly, it was clear that Kentucky's major industries were emitting a wider variety of potentially hazardous air pollutants than the state had previously been aware of, including several suspected carcinogens that were completely unregulated. Other findings included the following:

- The TRI data revealed places where large amounts of toxic barium, chromium, and zinc might be entering the sewers of the Louisville-Jefferson County Metropolitan Sewer District – previously unknown to officials.
- From the TRI data reported by the newspaper, the Louisville-Jefferson County Metropolitan Sewer District discovered that 130,000 pounds of acrylonitrile (a probable carcinogen) could be going into its system. The district did not test for this chemical.
- In the Jefferson County Air Pollution Control District, TRI data revealed firms emitting more of some hazardous chemicals than they had reported previously-33 times more in the case of certain emissions of the toxic solvent toluene.
- On only 3% of the forms did companies volunteer information about what they were doing to reduce emissions.

Thurm said the project

> generated as much response as any other environmental story I've written. First, about a week after I started putting information into a computer, state officials-who had ignored the reports for three months-did likewise. I suspect they didn't want me to know anything they didn't know. Whatever the reason, it allowed them to start probing discrepancies with permits and other records. Second, officials were genuinely surprised by the totals.

According to Thurm, as a result of the Courier-Journal's analysis, state and local officials started taking action to control some of these problems.

They began revising Kentucky's regulations for air releases of toxic chemicals and commissioned a comprehensive environmental study of the area around a chemical complex in western Kentucky that the reports showed to have the most concentrated releases.

What was important was not merely the gross statewide totals (225 million pounds of toxic chemicals released in 1987) or the listings of which counties had the greatest emissions.

What mattered in the end was that the story was being clone at all.

It focused the attention of the public, state and local officials, and the companies themselves on environmental problems that were not being regulated.

That was just what the 1986 law that created TRI was intended to do.

The Courier-Journal was way ahead of state regulatory agencies in analyzing the data and in pointing to the problems the data revealed.

Realizing the Pitfalls: Data Are Only Human

Another experience, recounted by Mitchel Benson, then a reporter for the San Jose Mercury News, showed how things can go wrong with TRI data.

In August of 1988, the Silicon Valley Toxics Coalition held a news conference on the lawn outside a San Jose manufacturing plant.

With the first batch of TRI data in hand, the group announced that 25 major corporations in Santa Clara Country (a.k.a. Silicon Valley) had legally dumped more than 12 million pounds of toxic and cancer-causing pollutants into the air, land, and water. Furthermore, the coalition proclaimed, Advanced Micro Devices (AMD), a Sunnyvale, California, semiconductor maker, was the county's top polluter, based on data AMD itself had filed for the TRI.

"I should have called AMD right then and there," Benson said, "but, frankly, I didn't. Why? Because I had copies of AMD's actual reports. And I could see in black and white where the toxics coalition was getting its numbers. The next morning, after the story appeared, AMD's press officer called me," Benson recalled. "In fact he called me several things."

Benson's story was wrong, and the toxics coalition was wrong -- because, it turned out, AMD had filled out the EPA forms wrong.

They filled out the forms to say that tons of extremely potent acids were being dumped directly into San Francisco Bay, when in fact the acids were being neutralized into rather benign salts before being discharged. Benson says he learned one thing: "Check everything twice -- maybe three times."

The lesson is that hard data and computer analysis can often inspire more confidence than is really justified. Data and analysis are only as reliable as the people who produce them.

Understanding the Annual Release of TRI Data

Every year, generally around May-or June, EPA puts out its annual TRI Public Data Release Report. It neatly and exhaustively summarizes the TRI data collected for the previous year's reporting cycle.

And every year reporters all over the country do stories on EPA's report. Most often, they write about the national trends and try to localize the toxic release story to their area. The abundance of both local and comparative data makes it easy to localize.

The TRI report analyzes data by state, industry, chemical, medium (air, water, land), type of release, and even, in some cases, potential health effects.

The annual TRI report may also have special focus sections on carcinogens, pesticides, waste-streams, or source reduction.

Other sections focus on specific industries such as petroleum, pulp and paper, and chemical products (which is further broken down into categories like plastics, drugs, and other products). It also includes all the necessary background, context, and caveats about the limitations of the data.

There is a time lag in reporting TRI data that may throw your editors for a loop if they are not familiar with it. For example, the "1996" TRI annual report actually came out in 1998.

Companies don't report on their releases for a year (until June of the following year). EPA then takes almost a year to organize the data and prepare a report. Tell your editor no news organization has data any fresher than this.

The lead paragraphs on most TRI annual report stories tend to be fairly predictable:

From the July 3, 1998, Puget Sound Business Journal -- Washington companies that discharge toxic chemicals released 2.6% less in 1996...”

From the June 19, 1998, Morning Star (Wilmington, NC -- "North Carolina industries cut legal toxic releases to air, land, and water by 6% in 1996, lowering the state's national ranking from 7th to 10th, the Environmental Protection Agency reported."

From the June 19, 1998, Indianapolis Star -- "Indiana ranks fifth in the nation in the millions of pounds of toxic releases to air, water, and land. And it's largely due to Nucor Steel in Crawfordsville."

From the June 20, 1998, Deseret News (Salt Lake City, Utah) -- No matter how you add it up, Utah's top corporate polluter and one of the nation's top polluters -- is still Magnesium Corporation of America in Tooele County..."

From the June 19, 1998, Denver Post -- "The quantity of toxic chemicals emitted into Colorado's air dropped by 14% in 1996 over the previous year, but releases into surface water shot up 209%, according to a report..."

TRI annual report stories tend to focus on "how our state did," "best-and-worst-of," top 10s, rankings, and trends of improvement or aggravation in pollution.

These are all meat-and-potatoes stories. They have plenty of hard facts and often include a local angle.

The timing is fairly predictable (EPA issues a media advisory at least a day ahead), and it is often newsworthy enough for the front page. Reporters tend to take what they get from the report rather than doing a lot of original reporting and research.

While this type of story is often newsworthy, journalistically, a lot more can be done with chemical right-to-know data.

Reporting the National Overviews

Some of the most worthwhile reporting that has been done with TRI data has tried to present a national survey or overview (much like the TRI annual report itself, but with less governmentese and some journalistic value-added).

While this type of story may be more typical for national media, it can also help local reporters put their own community's situation in perspective.

A classic of the genre was a story by John Holusha, published October 13, 1991, in the New York Times. It took a full page (albeit page 10) and was loaded with graphics.

At the top of the page was a huge U.S. map under the head: "The Nation's Polluters -- Who Emits What, and Where."

Individual counties were shaded darker according to the size of their volume of toxic releases. Smaller maps showed which states had the greatest air and water releases. Bar graphs illustrated "The 10 Biggest Polluters," as well as the top 10 polluters for water and air. The story named individual companies and featured their corporate logos.

The point of the story was that TRI data were having a "powerful impact on corporate behavior." That was not simply because companies wanted to avoid the top-10 lists and the glare of publicity.

The story reported that investor groups were using TRI data to screen companies for their portfolios and that companies were changing practices they had defended as benign simply to avoid negative appearances.

Another classic national take-out was the 3-day "cover story" series that began July 31, 1989, in USA Today.

USA Today reporters Rae Tyson, Julie Morris, and Denise Kalette did their own analysis of EPA's data tapes. USA Today's anecdotal lead quoted a Port Arthur Texas woman and made clear that the data only confirmed something her nose already told her -- that her county, thick with oil refineries, was one of the most polluted by toxic releases in the nation.

The story broke down the toxics "budget." Graphics showed where major quantities originated and where they went. It also itemized data listings for the top 500 counties in the United States. The story included "top-10" of companies and plants. It also included sidebars itemizing the requirements of EPCRA and profiling the most common hazardous chemicals.

Some of the most revealing news came not from the data, but from USA Today's original reporting. The reporters surveyed 20 towns with the largest toxic emitters and found that only 4 had trained HAZMAT teams.

In addition, many of the HAZMAT teams could not get into plants, even in an emergency, unless invited. USA Today

found many communities had little emergency preparedness -- mostly because local firefighters lacked information.

Reporting on Chemical Hazards in the Community

These examples only scratch the surface of what journalists can do with chemical right-to-know data. The data can be a starting point for all kinds of investigative and enterprise stories.

Chapter 3: The Emergency Planning and Community Right-to-Know Act: Key Provisions

EPCRA, according to EPA, "makes citizens full partners in preparing for emergencies and managing chemical risks." EPCRA has two basic purposes: (a) to encourage planning for emergency response to chemical accidents and (b) to provide local communities with information about possible chemical hazards. The law operates through provisions in four major sets of sections.

- Emergency Planning provisions (Sections 301-303) require state and local efforts to develop emergency response and preparedness capabilities based on chemical information provided by industry.
- Emergency Release Notification provisions (Section 304) require immediate emergency notification to state and local authorities when one of the hundreds of chemicals designated as hazardous under EPCRA or Superfund is accidentally released to the environment.
- Hazardous Chemical Reporting provisions (Sections 311-312) require all businesses to submit information on chemicals broadly defined as "hazardous" to local and state emergency planners and local fire departments.
- Toxic Chemical Release Reporting and Inventory provisions (Section 313) require certain manufacturers to file an annual inventory of chemical releases with EPA and state agencies.

What Is a SERC?

A SERC is a commission appointed by the governor of each state to serve as the main source of EPCRA authority and as a source of information for anyone interested in the emergency planning process. A SERC may be a newly-formed entity or one or more existing state agencies, such as the environmental, emergency, health, transportation, commerce, and other relevant agencies.

Who Serves on a SERC?

The commissions may be made up of members of trade associations, public interest organizations, and others with experience in emergency planning, including representatives of environmental, emergency management, and health agencies. In some states, SERCs consist solely of citizens, with no state representation.

What does a SERC do?

SERCs --

- Divide states into local emergency planning districts
- Appoint an LEPC for each district and help LEPCs and citizens to create effective plans
- Supervise and coordinate the activities of LEPCs and, with LEPCs, establish procedures for receiving and processing public requests for information collected under other sections of the law
- Review local emergency plans annually to ensure such things as coordination across the state
- Receive MSDSs, annual inventories about hazardous chemicals, and notification of accidental releases of hazardous chemicals from facilities

Emergency Planning (Sections 301-303)

Sections 301-303 are designed to help communities prepare for and respond to emergencies involving hazardous substances. Every community in the United States must be part of a comprehensive state emergency response plan.

The governor of each state was required to appoint a State Emergency Response Commission (SERC) by April 1987. A SERC may be housed within one or more existing state agencies, or it may consist solely of individual citizens.

Some SERCs have no state agency representative and are staffed entirely by private citizens. These commissions have been named in all 50 states and the U.S. territories and possessions. Contact information for the SERCs is available on the RTKNET Web site (http://www.rtk.net/lepc), at the EPA Web site (http://www.epa.gov/swercepp/sta.loc.htm), and the National Safety Council's Crossroads Web site (http://www.crossroads.nsc.org).

Each SERC in tum has divided the state into local emergency planning districts and appointed a Local Emergency Planning Committee (LEPC) for each district. The number of "local" committees varies widely from state to state. California has five committees to cover the entire State. New Jersey, on the other hand, has been divided into as many as 588 local committees.

SERCs are responsible for supervising the activities of LEPCs and annually reviewing local emergency plans to ensure uniform coordination throughout the state. Together the SERCs and LEPCs must establish procedures for receiving and processing requests from the public, the media, and others for information collected under other sections of EPCRA.

What is an LEPC?

An LEPC is a local group appointed by the SERC to develop an emergency plan to gather information on chemicals in the community and prepare for and respond to chemical emergencies. It serves as a focal point for the relationship between the EPCRA data and community action.

Who serves on an LEPC?

- Elected state and local officials
- Law enforcement officials, civil defense workers, and firefighters
- First aid, health, hospital, environmental, and transportation workers
- Representatives of community groups and the news media.
- Owners and operators of industrial plants and other users of chemicals, such as hospitals, farms, and small businesses

What does an LEPC do?

LEPCs --

- Receive MSDSs, annual inventories about hazardous chemicals, and notification of accidental releases .of hazardous
- chemicals from facilities
- Based on chemical information from local facilities, develop a local emergency response plan tailored to the needs of the district, then publicize it through public meetings or newspaper announcements, get public comments, and test the plan periodically with emergency drills
- Update the plan at least annually
- Make information available to the public
- Take civil actions against facilities if they fail to provide the information required under Title III
- Serve as a focus for community awareness and action concerning the presence of chemicals in the community

LEPCs are the local groups carrying out the law. To truly represent their communities, LEPCs are required to include the following members:

- Elected state and local officials
- Law enforcement officials, civil defense workers, and firefighters
- First aid, health, hospital, environmental, and transportation workers
- Representatives of community groups and the news media
- Owners and operators of industrial plants and other users of chemicals, such as hospitals, farms, and small businesses

Each LEPC must analyze hazards and develop a plan to prepare for and respond to chemical emergencies in its district. The plan should be based on the chemical information reported to the LEPC by local industries and other facilities dealing with chemicals.

All local emergency plans must --

- Use the information provided by industry to identify the facilities and transportation routes where hazardous substances are present
- Establish emergency response procedures, including evacuation plans, for dealing with accidental chemical releases
- Set up notification procedures for emergency response personnel
- Establish methods for determining the occurrence and severity of a release and the areas and populations likely to be affected
- Establish ways to notify the public of a release
- Identify the emergency equipment available in the community, including equipment at facilities with hazardous chemicals
- Establish a program and schedules for training local emergency response and medical workers to respond to chemical emergencies
- Establish methods and schedules for conducting exercises or simulations to test elements of the emergency response plan

- Identify a community coordinator and facility coordinators to carry out the plan

The focus of emergency planning is EPA's list of "extremely hazardous substances." This list is made up of more than 400 substances EPA has identified as having immediate toxic health effects and hazardous properties.

However, the emergency response plans must address all hazardous materials in the community that present risks to public health and safety, including, for example, widely used fertilizers, preservatives, photographic chemicals, and insecticides.

The list of extremely hazardous substances includes a threshold planning quantity for each substance. If at any time this amount or more of the chemical is present at any facility, the owner or operator must notify the SERC and the LEPC.

Violators of these reporting provisions are subject to civil penalties of up to $25,000 a day for each day a violation continues.

The facility's owners or operators must also name an employee as facility coordinator. He or she participates in the district's planning process. Obviously, this person is potentially a good resource for journalists.

Federal facilities were originally exempt from EPCRA's requirements.

The Bush Administration sought voluntary compliance by federal agencies, but critics said this left too many gaps in coverage.

President Clinton made federal compliance mandatory on August 3, 1993, when he signed Executive Order 12856, Federal Facility Compliance with Right-to-Know and Pollution Prevention Laws.

LEPCs must make most of their information available to the public. They must let their communities know about their emergency response plans by publishing notices and scheduling public meetings.

Their plans must be reviewed annually and updated as needed. LEPCs may be excellent sources of local information for reporters.

Emergency Release Notification (Section 304)

Chemicals covered by this section of the law include not only the 400-plus extremely hazardous substances, but also other hazardous substances subject to the emergency notification requirements of the Comprehensive Environmental Response, Compensation and Liability Act, (CERCLA, also known as Superfund).

Some chemicals are on both lists. If a covered substance is released in an accident at a facility or on a transportation route in an amount that exceeds the reportable quantity for the substance, the NRG and the appropriate LEPCs and SERCs must be notified immediately. Notification activates emergency plans.

Initial notification of a substance release can be made by telephone, radio, or in person. If the release results from a transportation accident, the transporter can dial 911 or the local telephone operator to report it.

All emergency notifications must include --

- The chemical name
- The location of the release
- Whether the chemical is on the extremely hazardous substance list
- How much of the substance was released
- The time and duration of the incident
- Whether the chemical was released into the air, water, soil, or some combination of the three
- Known or anticipated health risks and medical attention necessary
- Proper precautions, such as evacuation
- A contact person

As soon as practical after the release, the facility coordinator must submit a written report to both the LEPC and the SERC.

That report must update the original notification and provide additional information about the response actions taken; known or anticipated health risks; and, if appropriate, advice regarding any medical care needed by exposure victims. By law, this information must be available to the public.

Hazardous Chemical Reporting (Sections 311-312)

Under Sections 311 and 312, facilities must report the amounts, locations, and potential effects of hazardous chemicals present above certain specified threshold quantities on their property.

This means essentially any hazardous chemicals they use, handle, or store in significant amounts onsite-whether or not these chemicals are released into the environment.

All companies, whether manufacturing or nonmanufacturing, are potentially subject to this requirement.

They must report this information to the relevant LEPCs, SERCs, and local fire departments. Facilities must report on the hazardous chemicals in two different ways: Material Safety Data Sheets (MSDS) and annual inventories.

Reporting Method One: Material Safety Data Sheets

Under federal laws administered by OSHA, companies are required to keep MSDSs on file for all hazardous chemicals in the workplace.

Companies must also make this information available to employees so workers will know about the chemical hazards they are exposed to and be able to take necessary precautions in handling the substances.

MSDSs contain information on a chemical's physical properties and health effects and on whether it presents hazards in any of the following categories: immediate (acute)

health hazard, delayed (chronic) health hazard, fire hazard, sudden release of pressure hazard, or reactive hazard.

The relevant chemicals are those defined as hazardous chemicals under OSHA's requirements-essentially, any chemical that poses physical or health hazards.

As many as 500,000 products can be defined in this way. If hazardous chemicals are present, they must be reported under EPCRA's hazardous chemical reporting provisions.

Facilities must provide new MSDSs when new hazardous chemicals become present at a facility in quantities above the established threshold levels.

A revised MSDS must be provided if significant new information is discovered about a chemical.

Once submitted to the LEPC, SERC, and local fire department, the MSDS information is available to the public upon request.

Reporting Method Two: Annual Inventories

Companies must also report on hazardous chemicals by submitting annual inventories to their LEPCs, SERCs, and local fire departments under a two-tier system.

Under Tier I, a facility must (a) estimate (in ranges) the maximum amount of chemicals present at a facility at any time during the preceding calendar year, (b) provide a range of estimates of the average daily amount of the chemicals present in each chemical category, and (c) provide the general location of hazardous chemicals within the facility.

Tier-II information includes more specific information about each substance, including a brief description of how each chemical is stored and the specific storage locations of hazardous chemicals.

(For example: A facility stores 500 pounds of benzene in the northwest comer storage room of the warehouse.)

Tier-II reports also must indicate if the reporting facility has withheld location information from disclosure to the public for security reasons, such as protecting against vandalism or arson.

The information reported under Sections 311 and 312 generally must be made available to the public.

The public and reporters can gain access the MSDSs and annual inventory reports for particular plants or areas by contacting the LEPC or SERC.

The LEPC or SERC must respond within 45 days to written requests for Tier-II information.

The state commissions may require additional information under state law. Companies may also provide it directly upon request.

Congress gave companies the choice of filing Tier I or Tier II, unless the SERC, LEPC, or fire department requests Tier-II information.

EPA, in its own words, "believes that Tier-II reports provide emergency planners and communities with more useful information, and is encouraging facilities to submit Tier-II forms."

Toxic Chemical Release Reporting and Inventory (Section· 313)

The fourth key element of EPCRA is a requirement that certain manufacturing plants report annually on the amounts of extremely hazardous substances they release into the air, water, or soil.

This provision applies to more than 31,000 facilities with 10 or more employees. Companies with nine or fewer employees are exempt from Section 313. Toxic chemical release reports are required from facilities that use more than 10,000 pounds of a listed chemical in a calendar year or that manufacture or process more than 25,000 pounds per year.

Many companies have long been required to report data on chemical emissions to EPA and the states under other environmental laws such as the Clean Air Act, the Clean Water Act, and the Resources Conservation and Recovery Act.

What makes the annual toxic chemical release reporting requirement different, and particularly useful, is that estimated releases of a specific chemical to air, water, and land appear on one form and that the public and press have direct access to the data.

Facilities must annually file a Toxic Chemical Release Inventory Form (Form R) that estimates the total amount of each chemical they (a) release into the environment (either by accident or as a result of routine plant operations) or (b) transport as waste to another location.

A complete Form R must be submitted for each chemical. Releases covered include air emissions from stacks, liquid waste discharged into water, wastes disposed of in landfills, and wastes transported offsite to a public or private waste treatment or disposal facility.

Routine exposure to many of the chemicals covered by this section of the law poses long-term (chronic) health and environmental hazards, such as cancer, nervous system disorders, and reproductive disorders.

Among the most commonly used substances included on the list of the approximately 400 chemicals are ammonia, chlorine, copper, lead, methanol, nickel, saccharin, silver, and zinc.

The following information must be estimated and reported by manufacturers for these reports:

- The toxic chemicals released into the environment during the preceding year
- How much of each chemical went into the air, water, and land
- How much of each chemical was transported away from the site of the facility for disposal
- How the chemical wastes were treated onsite
- How efficient that treatment was

These reports must be submitted to EPA and the SERC by July 1 of each year and cover releases in the previous calendar year.

EPCRA set a precedent for increased public access to federal information by requiring EPA to compile these reports into the national computerized TRI database and make it available to the public.

EPA originally put the TRI database online in 1989 through the National Library of Medicine's TOXNET. It is now available through EPA's Envirofacts Warehouse, on CD-ROM, and through the RTKNET and Chemical Scorecard Web sites.

Trade Secrets: The One Exception (Section 322)

Under Section 322, companies reporting under EPCRA, under very limited conditions, can request that the specific identity of chemicals in their reports not be disclosed to the public.

This section takes a very cautious approach to allowing claims of trade secrecy, requiring that companies state and justify their claims up-front, rather than allowing the claims and then making them subject to challenge after-the-fact.

In addition, Congress specified in the law that a company claiming a trade secret must be able to prove that the withheld information is not subject to disclosure under any other federal or state law and that it is a legitimate trade secret-that disclosure could substantially damage the company's competitive position.

The chemical's identity must be included in the company's reports.

Furthermore, the organization claiming trade secret protection must demonstrate that it has taken reasonable measures to protect the confidentiality of the information and that it intends to continue taking such measures.

Once such a trade secret claim is withheld, information beyond the specific chemical identity will still be available to the public. Information (e.g., about the general category of the chemical) that will disclose the environmental and health effects of the chemical must be included in the public version of the reports, even after a trade secret claim has been approved.

Citizens may challenge a trade secret claim by filing a petition with EPA requesting disclosure of the chemical.

Enforcement Provisions (Section 325)

Companies that fail to comply with EPCRA's key provisions (emergency planning, emergency notification, and reporting requirements) face civil, administrative, and criminal penalties under the Section 325 enforcement provisions of EPCRA.

Violations of the law's emergency planning and emergency, response requirements under Sections 302(c) and 303(d) are subject to potential civil penalties of as much as $25,000 daily.

Once the accused is given notice and an opportunity for a hearing on the alleged violation, a civil penalty of up to $25,000 can be assessed for a violation of the Section 304 emergency notification requirements. Second and subsequent violations can draw fines of up to $75,000 for each day the violation continues.

Those found guilty of knowingly and willfully failing to provide Section 304 emergency notification reports on extremely hazardous substances under EPCRA or hazardous substances under CERCLA released from their facility face penalties, once convicted, face fines of up to $25,000 or imprisonment for up to 2 years.

These penalties are doubled for second or subsequent criminal convictions.

Section 325 authorizes civil penalties of up to $25,000 per violation for failure to meet Section 312 or 313 provisions for hazardous chemical inventory release forms. A finding by the EPA administrator that a trade secret claim is insufficient and frivolous can bring an administrative or judicial penalty of $25,000 for each such claim.

Also, a person who knowingly and willfully divulges or discloses information entitled to trade secret protection under the law can be fined up to $20,000 or imprisoned for as much as one year.

As is generally true under the environmental statutes, individual citizens have the authority to bring civil suits. They can sue a facility for (a) alleged failure to submit emergency notices, (b) failure to submit an MSDS or list of chemicals under Section 311, (c) failure to complete and submit a Section 312 inventory form, or (d) failure to submit a Section 313 toxic chemical release form.

Chapter 4: The 1990 Clean Air Act and the Risk Management Program

The next generation of chemical right-to-know was born when Congress passed a comprehensive and long-awaited set of amendments to the Clean Air Act and the president signed them into law on November 15, 1990.

Provisions under .the heading of hazardous air pollutants pushed chemical safety in the United States a major evolutionary step forward-moving the emphasis beyond merely reporting hazardous chemical releases to preventing them in the first place.

The new programs dovetailed with and added to EPCRA. In fact, these propositions had originally been proposed as part of EPCRA but were not adopted by Congress in 1986.

The CAA created a new Risk Management Program that expanded what facilities (formally known as stationary sources) were required, to disclose. It also required facilities to analyze hazards and show what they were doing to reduce hazards.

The law created the independent CSB as an aggressive watchdog· that not only would do post-mortems on chemical accidents, but would also push EPA and OSHA to reduce hazards.

Finally, the law required OSHA to issue rules to ensure the safety of industrial chemical processes.

The risk management program language in the CAA was really only a skeleton of the program, and Congress quite deliberately left it to EPA to fill in most of the details by regulation.

EPA took 6 years, until June 1996, to issue the main rule implementing the program. Another 3 years passed before the RMP Rule became effective. And the story is still unfolding.

Congress enacted the Chemical Safety Information, Site Security, and Fuels Regulatory Relief Act in August 1999 with the primary focus of limiting public access to key right-to-know data collected under the RMP Rule.

Risk Management Program of the Clean Air Act Citations

The CAA Amendments of 1990 were enacted as P.L. 101-549, and chemical accident prevention requirements were codified as 42 U.S.C. 4712(r).

The Chemical Safety Information, Site Security, and Fuels Regulatory Relief Act was codified as P.L. 106-40.

The Risk Management Program of the 1990: Clean Air Act: A Summary

The General Duty Clause

The owner or operator of a plant producing, using, handling, or storing hazardous substances has a general duty to design and maintain a safe facility, to prevent accidental releases, and to minimize the consequences of any releases that occur.

The duty applies to plants handling any extremely hazardous substance, regardless of whether it is specifically listed by EPA under this law. The general duty clause was intentionally written quite broadly.

It requires facilities to know the hazards of the chemicals they use; to maintain a safe workplace by incorporating the industry's best practices, codes, and standards; and to develop an emergency plan.

The List of Covered Substances

Under the law, the EPA administrator was required to issue a rule listing at least 100 extremely hazardous substances subject to the requirements of the Risk Management Program.

The law specified 16 chemicals required to be on the initial list and specified that the administrator use the list of extremely hazardous substances under EPCRA as a starting point for the RMP Rule list. The administrator can revise the list. Citizens and industry can also petition EPA to revise the list.

In listing substances for the Risk Management Program, the EPA administrator must consider the severity of harm to health that their release could cause, the likelihood of an accidental release, the severity of any acute adverse health effects, and the potential magnitude of human exposure.

On January 31, 1994, EPA promulgated its first version of the regulation and the list of regulated substances and thresholds for "accidental release prevention," often referred to as the List Rule.

That regulation identified the substances to be regulated though the Risk Management Program. The first version included three substance categories: toxics, flammables, and explosives.

On June 20, 1996, EPA published modifications to the List Rule, exempting from compliance several types of processes and "stationary sources." All were related to petroleum processing.

The List Rule was further modified on August 25, 1997, when EPA published its decision to exempt hydrochloric acid solutions with less than 37% concentrations of hydrogen chloride.

What Is a Process?

A process is defined as manufacturing, sorting, distributing, handling, or using a regulated substance. Chemicals in transit, including pipelines, are excluded.

Responding to concerns raised by regulated industries, the explosives category of substances was exempted when EPA published a revised Final Rule on January 6, 1998.

That action also exempted the thresholds of flammable substances in gasoline used as fuel and in naturally occurring hydrocarbon mixtures before initial processing.

On May 21, 1999, one month before the RMP Rule went into effect, EPA Administrator Carol Browner signed a stay of the effective date for facilities with no more than 67,000 pounds of certain hydrocarbon fuels (e.g., propane, butane, ethane) not used as feedstock for a process.

This action is particularly significant since more than 40% of the more than 66,000 facilities expected to be regulated under the RMP Rule were now exempted. The current list of substances and their thresholds is available on EPA's Web site (http://www.epa.gov/ceppo/caalist.html).

Regulations for Accident Prevention

The EPA administrator is authorized to issue regulations for preventing, detecting, and correcting accidental release of listed substances. The regulations may require monitoring; recordkeeping; reporting; training; vapor recovery; secondary containment; and other design, equipment, work practice, and operational requirements. The administrator may set different requirements for different classes of facilities considering factors such as size, location, substances handled, and emergency response capabilities.

The administrator must issue regulations to provide for emergency response to accidental releases by plant operators and owners. EPA must consult with the Departments of Labor and Transportation to minimize potential conflict among regulations. The regulations must cover the use, operation, repair, replacement, and maintenance of equipment used to monitor, detect, and control releases. Regulations must include procedures for training personnel and inspecting plants, and they must cover storage as well as operations. Plants have 3 years after the regulations are issued to comply or 3 years after they begin using a listed substance, whichever is later.

Risk Management Plans

Owners or operators of plants where listed substances are present in quantities above the threshold are required to prepare and carry out RMPs. The plans must include the following for each process:

- A hazard assessment of the potential effects of a release that includes estimates of potential release quantities, downwind effects, and exposure of populations; a 5-year history of releases (size, concentration, and duration); and an evaluation of worst-case scenarios
- A program for preventing accidental release of listed substances, including safety precautions, maintenance, monitoring, and employee training
- A program of specific actions to be taken in response to an accidental release to protect human health and the environment, including procedures for (a) informing the public and local HAZMAT responders, (b) emergency health care, and (c) employee training

The law states that the plans "shall be available to the public," except for information qualifying as trade secrets.

EPA can regularly audit, review, and require revisions to ensure RMPs comply with the law. EPA can require the plans to be updated immediately upon any change in the facility's processes. Otherwise, the update cycle is every 5 years. States, territories, tribes, and local governments may adopt chemical risk management requirements in addition to the EPA program. However, these requirements cannot be less stringent than those specified under the CAA.

State and Local Risk Management Program Implementation

States can choose to take delegation of the CAA Risk Management Program. If a state is granted delegation, it then becomes the implementing agency for that jurisdiction. If it does not take delegation, the EPA regional office is the implementing agency. Reporters should contact their SERC or the EPA to determine who is managing the RMP program in their area.

As of January 2000, Florida, Georgia, Puerto Rico, Ohio, the Virgin Islands, and Forsyth County, North Carolina, had obtained delegation. Fourteen other jurisdictions, including California, Kentucky, Louisiana, New Jersey, and Allegheny County, Pennsylvania, were seeking delegation.

The Chemical Safety and Hazard Investigation Board

The law establishes the CSB. The board is independent, that is, not under the jurisdiction of another federal agency. The CSB consists of five members appointed by the president with the approval of the U.S. Senate.

The CSB is fundamentally a research and investigative organization. It has no regulatory authority, with the sole exception of being able to establish requirements for reporting accidental releases. Otherwise, the job of the board is to --

- Investigate, determine, and report to the public the circumstances and causes of any accidental release resulting in death, serious injury, or substantial property damage
- Issue periodic reports with recommendations on how to reduce the likelihood and consequences of accidental releases in chemical production, processing, handling, and storage
- Investigate the potential for hazardous releases, even when they have not yet occurred

The board must submit an annual report to the president and the Congress detailing all accidental chemical releases reported and investigated during the previous year along with any recommendations for legislative or administrative action. To facilitate the board's ability to investigate incidents, its findings and recommendations cannot be used as evidence in civil damage lawsuits arising out of any matters it investigates.

The OSHA Process Safety Management Standard

In Section 304(a), the CAA mandated another part of a holistic program for preventing hazardous chemical releases. Closely interwoven with the RMP Rule is a regulation issued by OSHA titled Process Safety Management of Highly Hazardous Chemicals (29 CFR 1910.119), known as the Process Safety Management (PSM) Standard. OSHA issued the final rule on February 24, 1992. It became effective on May 26, 1992, although portions were stayed until August 26,

1992. PSM's list of regulated substances (termed highly hazardous chemicals) differs somewhat from those regulated under the RMP Rule. The PSM Rule and the list of highly hazardous chemicals and their thresholds (See appendix A of the standard) can be found on OSHA's Web site (http://www.osha.gov).

Three Levels of Stringency

The RMP Rule divides regulated facilities into three program focuses according to the level of potential danger they may present to surrounding communities.

The requirements the rule imposes on facilities become progressively stricter as the danger increases.

In the regulatory jargon, these categories are called Program 1, Program 2, and Program 3-with Program 1 being the least dangerous and Program 3 being the most dangerous.

Program 1

Program 1 requirements apply to plants (or processes) that meet three conditions:

- The plant has had no accidental releases in the past 5 years that led to offsite death, injury, or environmental cleanup.
- The worst-case toxic plume or fire hazard would not reach a populated area.
- The plant has coordinated emergency response procedures with local agencies.

Generally, Program 1 facilities are relatively simple operations or are quite distant from the property line.

Facilities with Program 1 processes are required to .do little more than document that they qualify for Program 1. They must analyze a worst-case release scenario and document that the danger of injury from toxics and fire will not reach the nearest populated area. They must compile a 5-year accident history showing no serious offsite effects. They must ensure that they have coordinated emergency response plans with local agencies. Then they must certify that they meet the qualifications for Program 1 and that no additional measures are needed to prevent offsite impacts.

Program 2

Program 2 requirements apply to processes that fall into neither Program 1 nor 3. Generally, they are processes of low complexity and do not involve chemical reactions. Program 2 RMP responsibilities include the following:

- Describe how their RMP management systems will be implemented
- Conduct hazard assessments, which includes analyses of worst-case and alternative release scenarios
- Establish emergency response programs that include plan's to inform the public and emergency response organizations about the chemicals onsite and their health effects and strategies to coordinate those plans with the community

Unlike Program 1 processes, those in Program 2 must report steps taken to prevent incidents that can release dangerous chemicals. The requirements of the prevention program are less stringent than those for the potentially more dangerous Program 3 processes. Some safety professionals view the Program 2 prevention requirements as a "lite" PSM program.

Program 3

Program 3 requirements apply to processes that do not fall into Program 1 and meet either of two conditions:

- They fall into at least one of nine specified SIC Codes (amended on January 6, 1999, as 10 NAICS Codes). These NAICS codes include pulp mills (32211), petroleum refineries (32411), petrochemical manufacturing (32511), alkalis and chlorine manufacturing (325181), basic inorganic chemical manufacturing (325188), cyclic crude and intermediate manufacturing (325192), basic organic chemical manufacturing (325199), plastics material and resin manufacturing (325211), nitrogenous fertilizer manufacturing (325312), and pesticide and agricultural chemical manufacturing (32532).
- They are subject to OSHA's PSM Standard.

Generally, Program 3 processes pose higher risks and involve complex chemical processing operations. As with Program 2 processes, facilities in Program 3 must (a) describe their systems for managing implementation of their risk management program, (b) conduct hazard assessments, and (c) establish emergency response programs. The prevention program requirements for Program 3 are nearly identical to those of OSHA's PSM Standard. These facilities must conduct a more formal, complex Process Hazard Analysis (PHA).

The Contents of a Risk Management Plan

The Offsite Consequence Analysis

An RMP must contain a hazard assessment, one part of which is an OCA. The OCA estimates what offsite harm to human health or the environment might be caused offsite if a release occurred. Release in this context is a fairly broad term. It could mean a leak of a toxic gas or liquid, whether sudden or gradual, that drifted or flowed offsite. It could also mean a fire or explosion and the shock wave from the explosion or the heat offsite from the fire onsite.

Facility owners and operators must fully document their offsite consequence analyses and must update them at least every 5 years or within 6 months of a change that would double the distance to endpoint.

What Is An "Endpoint?"

The RMP Rule uses the term endpoint in prescribing how offsite consequences should be performed. Although it is a rather obscure bit of technical jargon, reporters trying to understand an RMP will need to understand the term. Imagine a railroad tank car leaking green chlorine gas and a long plume (cloud) of that lethally toxic gas drifting steadily for miles downwind. A lay person might think of the "endpoint" of that toxic plume as the point at which it is no longer toxic. It's a useful image, although hazard analysts use the term in a sense that is a little more complex.

To say when that chlorine plume ceases to be toxic. Requires us to make a somewhat arbitrary definition of what we mean by toxic. Let's say, just for illustration, that the plume is toxic as long as it can cause some lasting harm to human health. Toxicologists have determined (with experience, experiments, and lab rats) what concentrations of chlorine (and what human exposures to them) cause lasting harm to human health. That concentration is a number – a number below which some standard human exposure will not result in lasting harm to health. With regard to the OCA, EPA hazard analysts have come to call the numerical value itself an endpoint.

People can and do argue about what the right number is. There are all sorts of standards for choosing it, but that is beside the point here. For the purposes of the RMP Rule; EPA has solved the problem by decree (although not arbitrary decree), setting the endpoints for certain hazards by regulation. The RMP Rue specifies endpoints for flammables, explosion, radiant heat, and a list of specific chemicals (given as concentrations).

So when the RMP Rule speaks of "the distance to a toxic or flammable endpoint for a worst-case release assessment" being "less than the distance to any public receptor," you will be ready to translate for your audience.

Receptors

The regulations define a public receptor as offsite residences; institutions (e.g., schools, hospitals); industrial, commercial, and office buildings; parks; or recreational areas inhabited or occupied by the public at any time without restriction by the stationary source where members of the public could be exposed to toxics. RMPs must estimate at-risk populations, including residential populations; schools; hospitals; and major commercial, office, and industrial buildings.

RMPs must also list "environmental receptors" within these circles-natural areas such as national or state parks, forests, or monuments; officially designated wildlife sanctuaries, preserves, refuges, or areas; and federal wilderness areas.

The Worst-Case Scenario

A worst-case scenario is based on the assumption that if anything can go wrong, it will. Worst-case chemical accidents are the most catastrophic in terms of human death and injury, and they are exactly the kind of accidents planners want to prevent. But they cannot be prevented unless they can be imagined. This exercise – so essential for public health and safety-has the paradoxical effect of making people feel very unsafe. That may be healthy if it motivates people to take action to prevent accidents.

This presents something of a challenge to reporters. Catastrophe stories are easy to get on the front page-even imaginary catastrophes. They are very tempting when all that matters is higher ratings and readership. But journalists who think their job is to offer some objective view of reality may want to give readers, listeners, and viewers a sense of the low probability of some of the worst imaginable catastrophes.

Worst-case release scenarios, as called for in the RMP Rule, ask what would happen if everything went wrong all at the same time. They make all the most unfavorable possible assumptions about the conditions under which an accident could occur.

For example, the rule requires analysts to assume that the tank containing a hazardous substance is completely full, that it is released in a very short time (e.g., 10 minutes), and that it is a very hot day (which makes chemicals evaporate or volatilize faster).

Alternative Scenarios

Program 2 and 3 facilities must also analyze alternative scenarios as part of their RMPs. They must analyze at least one alternative scenario for each listed toxic substance and another alternative scenario for flammable substances. They must choose scenarios that are more likely to occur than the worst case and that will still (if possible) pose hazards off site.

Alternative release scenarios may include far more common, and realistic, failures: split hoses, broken pipe welds or valve seals, spills from overfilled vessels, venting through pressure relief valves, broken shipping containers, and the like. And alternative scenarios may include the effect of process safety features: automatic shut-off valves to stop release and deluge systems to put out fires, for example.

The Five-Year Accident History

The RMP must also include a history of all accidental releases in the previous 5 years that resulted in deaths, injuries, or significant property damage onsite or known offsite deaths, injuries, evacuations, sheltering in place, property damage, or environmental damage.

Events in the accident history of the process may serve as a basis for alternative release scenarios. Unless effective

corrective action is taken, history may repeat itself. Investigate whether these contributing conditions, if uncorrected, led to a more serious outcome than the RMP's reported alternative scenarios.

Prevention Programs

While all facilities have a general duty to operate safely, the RMP Rule requires Program 2 and 3 facilities to carry out very specific accidental release prevention programs. The requirements for Programs 2 and 3 are similar in many ways, but they are generally more stringent for Program 3. The prevention program must be documented in the RMP, and where it consists of actions, the RMP will include information about actions to be taken. EPA audits this information, but the overarching strategy of the chemical safety program is one that relies on information (rather than command-and-control regulation) to achieve action. So it is very much incumbent upon reporters and people in communities to examine the prevention program information in the RMPs and ask the right questions about it.

Program 2 and 3 prevention programs are required to include the following:

- Safety Information: Information should include MSDSs; equipment inventory; safety limits for temperatures, pressures, flows, and compositions; equipment specifications; and design codes and standards.
- Hazard Review or Analysis: This review must include identification of the hazards associated with each industrial process, possible equipment malfunctions, or human error that could cause a release, as well as the safeguards needed to manage such malfunctions or errors.
- Operating Procedures: Facility owners and operators must prepare written operating procedures that provide clear instructions for operating each covered process safely.
- Training: Employers at covered facilities must ensure that each employee operating a process is trained and tests competent in the operating procedures.
- Maintenance and Mechanical Integrity: Facility owners or operators must maintain the ongoing integrity of process equipment. This requirement includes setting and carrying out regular maintenance procedures, making sure their own employees and those of contractors are trained in maintaining equipment safely, and maintaining equipment for safety.
- Management of Change and Pre-startup Review: Program 3 facilities must establish and follow written procedures for changes to chemicals, technology, equipment, procedures, and the plant itself that affect a covered process.
- Compliance Audits: Facility owners or operators must certify that they have evaluated their own compliance with the accident prevention program and the RMP Rule (PSM Standard) at least every 3 years.
- Incident Investigation: Owners or operators must investigate each incident that leads to a catastrophic release within 48 hours of the incident.
- Emergency Response Plans: Program 2 and 3 facilities must have emergency response plans that include procedures for informing the public and local emergency response agencies about accidental releases and documentation of first-aid and medical treatment for accidental exposures.

The Chemical Safety Information, Site Security, and Fuels Regulatory Relief Act

On August 5, 1999, President Clinton signed the Chemical Safety Information, Site Security, and Fuels Regulatory Relief Act imposing at least a 1-year moratorium on disclosure of OCA information (sections 2 through 5 of the RMP) concerning potential harm to communities from plants handling hazardous chemicals. The act exempts federal and state Freedom of Information Act disclosures for this period and also exempts rankings of sites based on that data. The act was the culmination of a campaign by the chemical industry and the Federal Bureau of Investigation to limit public access to the OCA data because of concerns about terrorism targeting the most vulnerable communities.

The act also removed flammable fuels (e.g., propane) from the RMP program when the substances are used as fuel or held for sale as fuel at a retail facility. A retail facility is a facility at which more than one-half of the income is obtained from direct sales to end users or at which more than one-half of the fuel sold, by volume, is sold through a cylinder exchange program. The basis for the exemption was that laws and regulations covering flammable fuel and propane dealers are adequate. EPA estimates that the act reduced the number of regulated facilities from more than 60,000 to approximately 30,000.

By August 5, 2000, the federal government must assess the security risks of posting OCA data on the Internet against the benefits of public access to that data. In the meantime, EPA will make all RMP data, including the OCA, available to federal, state, and local officials, including LEPCs, for emergency planning and response purposes. Qualified researchers can also have access to the data. However, EPA has not yet defined who is a qualified researcher. All of these persons are prohibited from publicly releasing OCA data unless the data have already been publicly released by the facility.

Within 180 days of enactment, larger facilities must hold public meetings describing local hazards and provide a summary of their OCA information. The remainder of the RMP data are available on RMP*Info™ and other sources. Much of this information is still important and valuable for investigating local chemical hazards. For example, both RMP*Info™ and RTKNET are publishing the RMP executive summaries. Many of the summaries include the actual worst-case and alternative scenario data that are

prohibited from disclosure if it is in sections 2 through 5 of the RMP. Information on chemical facilities, their location, their chemical inventories, and nearby population characteristics is also available. These are the key data elements needed for determining worst-case scenarios.

Chapter 5: Reporting on Chemical Emergency: Prevention and Preparedness

Wherever you are, there are probably dozens of good stories waiting to be written on chemical emergencies -- before they happen.

The RMPs for individual facilities are an obvious story opportunity. But once you cover the plans, don't presume the story is finished. The RMPs will really be just the beginning of a story. What they leave out may be as important as what they contain. RMPs give the press and the community a chance to ask some really key questions and give companies or facility operators a chance to give some really good answers. Some facilities may provide stories by themselves or there may be stories to write about groups of facilities (for example farm supply dealers in rural areas).

The information that the RMP Rule requires companies to submit to EPA (and EPA to make public) is only a fraction of the safety analysis companies are actually required to perform. Reporters and citizens have every right to ask companies to make more information public, and companies have a right to say no. How companies respond may itself be informative.

Other sources of information are reports under EPCRA and the OSHA PSM and Hazard Communication Standards. The PSM Standard covers a wider range of flammable and toxic substances than the RMP Rule does. It also covers explosives, which are not covered by the RMP Rule.

Under the PSM Standard, companies are required to give information only to employees, not to the general public. But nothing prevents employees from sharing that information with reporters. You may find that local labor union officials working on occupational safety and health issues are very good sources of information.

Another potential source of stories is information available under air and water permitting programs, hazardous waste handling and cleanup regulations, and hazardous substance transportation regulations. Also, states such as California and Oregon have their own chemical safety requirements.

Looking at Risk Management Plans

After a facility has filed, or "registered," an RMP, you can get the summary information from EPA through RMP*Info™ (http://www.epa.gov/enviro) fairly quickly. Another source for RMP executive summaries is RTKNET (http://www.rtk.net).

Once you get the summary of the RMP, visit your LEPC or SERC and ask them for the complete plan for some restrictions on what they can distribute). If your LEPC or SERC has no more information than EPA's RMP*Info™, call the company and ask them for the plan. If they are not willing to share it, ask them why not.

Program Classification

One of the very first things you want to look at when you get the RMP information on a facility is how it has classified its regulated processes -- as Program 1, 2, or 3. Although most processes are likely to be properly classified, you might want to check the basis for the facility's self-classification.

Hazard Assessment

Accident prevention begins with analyzing operations to identify equipment and procedure failures that could lead to unplanned spills and releases. Ask specifically to see as much as you can about the hazards revealed when the process was evaluated. The RMP Rule requires facilities With Program 3 processes to conduct a PHA. Program 2 processes, which are generally less complex than Program 3 processes, also must identify potential failures, but a formal PHA is not required. PHAs identify areas where improvements can be made in system design, operating procedures, training, and other incident prevention strategies. This is a critical step leading to the OCA. If all the potential hazards are not identified, then the potential effects cannot be analyzed.

Ask who performed the PHA or assessment. Ask what their qualifications are or were. Ask the company to give these people clearance to talk to you. Bring your own experts to review the analysis. The rule requires that the PHA be done by a team with professional competence in this field.

The Offsite Consequence Analysis

Also ask to see the OOA. This is the part of the plan that will probably get the most media attention. It is the part that speaks most directly of potential dangers to people and the part that is most controversial.

The OGA is one of the key tests that determine whether a process qualifies as a Program 1, 2, or 3 process. If the worst-case toxic plume or fire would not reach the nearest populated area, the facility may qualify as Program 1. Companies will want to qualify for the simpler Program 1 reporting and may have a motivation to minimize reportable hazards. So it is important that the OCA is done correctly.

A more important reason to examine the OCA is that the lives, health, and property of your readers, listeners, or viewers may be at risk. Whether a toxic cloud could reach 5 or 10 miles into a populated neighborhood can mean a great deal to people living in the area.

How do you know whether the OCA is done right? Find some experts to help answer that question. The accuracy of the OCA will depend on certain basics that you can examine. One basic is which chemical is involved and the maximum

quantity of it expected to be stored in one place onsite-information reported in the RMP. A second basic is the model that simulates air dispersion of the substance (or fire or explosion). Facilities can use the model under RMP Rule, called RMP*Comp, available on EP.Ns Web site. They can also use the lookup tables in the RMP guidance. A third basic is the set of assumptions that went into that model (e.g., the temperature of the chemical, how fast it was released and for how long, weather conditions). These are prescribed by the RMP Rule to some degree, particularly for the worst-case scenario. For more discussion of how an OCA works, see chapter 4.

As a local reporter, you probably have special expertise on one key element of the RMP's OCA-the description of the surrounding populations that might be affected by a release, fire, or explosion at the plant.

The OCA is supposed to contain a description of these populations. Check its accuracy and completeness. Is the population estimate within the circle drawn around the plant accurate?

Are any schools, nursing homes, or other vulnerable facilities left out? Are office buildings or shopping malls found nearby? Could the area be evacuated quickly?

The Five-Year Accident History

Another key element of the RMP is the 5-year accident history. To qualify for Program 1, a facility must have had no releases in the last 5 years that led to offsite death, injury, or environmental cleanup.

The accident history can tell you a lot about the potential dangers a plant poses. If the history in the RMP is accurate, it will check out in interviews with workers, unions, neighbors, and local officials, as well as your own newspaper morgue or database. Also, if incidents have occurred, they may show up in one of the HAZMAT incident databases.

Multiple Processes in One Facility

Most of the RMP requirements apply not to the plant itself, but to one or more processes within the plant. OSHA defines (and the RMP Rule accepts) a process as

> any activity or combination of activities including any use, storage, manufacturing, handling or the onsite movement of highly hazardous chemicals. A process includes any group of vessels that are interconnected and separate vessels located such that a highly hazardous chemical could be involved in a potential release.

While a fertilizer dealer may have only one regulated process, a large chemical plant may have dozens of processes. It is important to look systematically at all of the regulated processes within a plant, because any one could prove hazardous.

Natural Hazards

Consider what natural hazards might cause or add to dangers at your local plant. Some natural hazards are probably more likely to occur in your area. Is the plant near an earthquake fault? Pipes or tanks ruptured by a minor quake could be a major problem. Is it located on a flood plain? Propane tanks floated away by floodwaters are a common hazard (they need to be securely anchored). Lightning is a fairly common cause of fires, explosions, and releases. Has your plant taken measures to arrest lightning in vulnerable areas? Hurricanes, tornadoes, flood, drought, heat, and cold are among the other natural hazards to consider.

Power Supply and Computer/Communications Systems

Ask about the computer systems controlling the processes. Especially when hazards are involved, the systems they control should be designed to be fault-tolerant. That is, if the computer crashes or makes a mistake, the system should naturally revert to a safe condition. Think of the "dead man's throttle" on a locomotive. If the computers controlling valves at your plant fail, will the valves be closed or open? How old is the computer hardware controlling safety-critical systems at the plant? Has the software been updated recently to reflect new knowledge about safety and how the computer and mechanical systems can fail?

Consider, too, the possible consequences of the failure of electric power supply or telephone and telecommunication links that support the plant. What safety systems depend on electric power? For example, does the plant store liquids that remain safe only when refrigerated? Is there backup power for refrigeration?

If a chemical accident does occur, the plant may well rely on telephones to call for emergency help or to warn the community. What happens if an explosion knocks out the phone lines? How well are backup systems maintained, and how often are they tested? Hazard analysis is supposed to include such considerations. Has it? Accidents Waiting to Happen by U.S. Public Interest Research Group (USPIRG) and Y2K Readiness of Small and Medium Size Enterprises by the Mary Kay O'Connor Process Safety Center at Texas A & M University are two recent studies that analyze the potential relationship between computer problems and hazardous chemical releases.

Accidents Waiting to Happen can be downloaded at no charge from USPIRG (http://www.pirg.org/chemical). Y2K Readiness of Small and Medium Size Enterprises can be downloaded at no charge (http://process-safety.tamu.edu).

The Prevention Program

Probably the most important part of the RMP is not the account of what could go wrong, but the account of what is being done to keep it from going wrong (figure 7). While

hardly the most exciting part of the document, prevention may be the part where journalistic and public scrutiny is most needed. The RMP Rule and the PSM Standard require facilities to prepare, document, and carry out an accidental release prevention program that includes the hazard review described earlier. Facilities must also compile an array of safety information that includes MSDSs, equipment inventory, safety limits for operating conditions, and many other things.

As with other parts of the RMP, facilities are not legally required to show you the full information. But if they are doing a good job at accident prevention, they should be proud and eager to share this information with the press. Facilities are, however, required to share the information with employees. So if the company denies you information, you may be able to get it from employees.

Even the information that is publicly available can give you a handle. It can lead to questions about whether the company is following through on its prevention program. Many of the prevention programs have existed for some time because they are required under the PSM Standard.

RMP Versus LEPC Emergency Plans

A very handy tool in evaluating your local plant's safety and its RMP is the emergency plan developed by your LEPC under EPCRA. Conversely, the RMP may help you evaluate the local emergency plan. Is the information consistent? Are there hazards and risks mentioned in one but missing from the other? If an emergency occurs at the plant, will the plant's operators be effective in coordinating with community institutions that need to respond? Is your LEPC updating its plans in light of new RMPs?

Looking for Prevention Measures Beyond those Required

A good accident prevention program may well include elements not required by law. Look for these. Ask the company if it has looked for other opportunities to improve safety and implement changes. Environmental groups often emphasize that the intrinsic safety of an operation can be improved by fundamental design changes (e.g., switching to safer chemicals). Drinking water purification plants in many cities use chlorine to disinfect the water, and multi-ton tanks of chlorine are a serious hazard. Although proper handling makes accidents rare, toxic plumes from a release can injure or kill people miles away. Some cities have substituted sodium hypochlorite for chlorine, because it is intrinsically much safer. Sodium hypochlorite is the ingredient in old-fashioned laundry bleach.

Engineers may be able to find many other ways to build in safety. In some cases, companies can reduce risk by limiting their inventory of hazardous chemicals to the supply they will use quickly, rather than storing large quantities. Some chemicals can be handled at pressures closer to atmospheric pressure, thus reducing the speed of release if a leak occurs. Also, some chemicals can be handled at temperatures closer to the surrounding outdoor temperatures so that refrigeration failures need not raise the danger of a release. Ask independent process safety engineers what opportunities to reduce risk may exist. Ask the company if it has looked for such opportunities or carried out such changes.

Writing a Story: Questions to Consider

Questions for Plant Managers

- How dangerous are the chemicals you reported under the RMP? How toxic, flammable, or explosive are these chemicals?
- Have toxicity or exposure studies been conducted on these chemicals? Have credible scientists verified these studies?
- How reactive are these chemicals to water, heat, or other substances? Could this reactivity result in an explosion or create another dangerous chemical?
- What are you doing to reduce hazards (for example, reducing chemical inventories; substituting less hazardous chemicals; improving process design, training, or management controls)?
- What is the scope of chemical safety and emergency response training for employees and contractors? How do you know the training has been effective?
- Who is in charge of safety? What are their names and duties?
- How often does the facility conduct emergency response drills? When was the most recent one? How did it go? What was learned?
- If a release occurred, how would it be detected and who would be notified?
- Does the facility have warning sirens or other mechanisms to alert the community of dangerous releases? Do workers and neighbors recognize them? When was the last time they were tested?
- Were accident prevention and emergency plans developed internally, or was outside help used? Does the facility use internal audits or independent, third-party checks to evaluate the adequacy of the accident prevention program?
- What air dispersion model was used? If not RMP*Comp, why not? How were scenarios derived? What were the assumptions?
- Describe some of the routine steps taken to ensure safety.
- Describe the steps taken to maintain equipment and operate it safely.
- Does the facility send a representative to the community's LEPC meetings? If so, who? What other efforts have been made to coordinate with the community about safety and emergency response?

- What worries the plant manager and employees the most about safety at the facility? Why?
- If the facility is a chemical manufacturer involved in Responsible Care® (a safety program developed by the Chemical Manufacturers Association), ask engineers at a plant to describe the codes of practice and to give examples of how these practices are implemented.

Questions for the LEPC

- Who is on the LEPC? How often does it meet?
- Does the LEPC have information on hazardous chemical inventories throughout the community available for review?
- Have vulnerable populations (e.g., schools, nursing homes, hospitals, residences) been identified?
- Has the LEPC prepared and kept current site-specific emergency response plans?
- Has the LEPC conducted drills and exercises?
- Has the LEPC developed and communicated evacuation or shelter-in-place strategies?
- Have hazard analyses been integrated into fire and police response plans?
- Does the LEPC have documents of chemicals onsite from EPCRA, RMP, and other regulatory filings? Are the documents consistent?
- How does the RMP worst-case scenario compare to the worst-case scenario developed by the LEPC?
- Have the LEPC's emergency plans been implemented?
- Who would decide on an evacuate or shelter-in-place alert?
- How would the community be notified?

Questions Beyond the RMP

Preventing chemical accidents and preparing for them goes way beyond the RMP. Reporters trying to give their communities a holistic picture of chemical risks and what the community can do to reduce them might well look at a number of other questions:

- What dangerous chemicals do you have onsite that are not listed in the RMP regulation? Can you supply an MSDS or other chemical hazard information?
- Are any new hazardous chemical facilities (or expansions of existing ones) being planned for your community? If so, how close are they located to vulnerable· populations?
- What do the zoning laws in your community say about the siting of hazardous materials facilities in relation to populated areas? What decisions is your zoning board making about HAZMAT facilities?
- What do local zoning laws say about siting schools, daycare, hospitals, nursing homes, and the like near hazardous materials facilities? What decisions is your zoning board making?
- Have other community institutions done what they need to do to prepare for a chemical emergency at a specific plant? Do schools, nursing homes; daycare centers, or prisons have shelter-in-place drills and evacuation plans? Do hospitals, clinics, and trauma centers have the capacity to deal with casualties from a large accident? Have highway and traffic authorities taken steps to ensure bottlenecks don't impede evacuation?
- How does the information in the RMP stack up against other measures of a facility's environmental performance? How does the RMP information compare to information submitted under EPCRA? How does the RMP compare to what you know about the facility's production and use of raw materials? To its air and water discharge permits? To its shipments of hazardous wastes under the Resource Conservation and Recovery Act or releases of hazardous materials under CERCLA?

Questions to Answer for Citizens

Experts say that when citizens learn about hazardous chemicals used near them, they most want answers to questions such as the following:

- What are the health effects of hazardous substances at the site?
- Axe community injuries or deaths likely from this site's hazards?
- How does it affect the environment?
- Is the facility addressing this potential risk?
- Can alternative chemicals be used?
- Are community planners and responders aware of the facility's emergency response plans?
- How can I independently verify this chemical risk information?
- Is the facility reducing, eliminating, and preventing possible hazards?

Chapter 6: When the Siren Sounds: Reporting on a Chemical Emergency

This chapter highlights a few things reporters should consider when reporting on a chemical emergency -- before heading to the site, at the site, and after the event.

Even before an emergency, it is a good idea to compile a list of the names and phone numbers you are likely to need in case of a chemical emergency.

The list could include the members of the LEPC, the chief of your local HAZMAT team, the chief of the fire department, the director of the local emergency management office, the press and chemical emergency contacts for major local facilities, local university chemical engineers and toxicologists, the chair of the SERC, and the emergency contact at the EPA regional office.

You may find contact names and numbers in the LEPC's emergency response plan, TRI, or the local facilities' RMPs. A contact and referral guide is also included on the National

Safety Council's Crossroads Web site (http://www.crossroads.nsc.org). Also check EPA's Web site (http://www.epa.gov/ceppo). If you have a radio scanner, try finding out what frequencies local HAZMAT responders use, not only for dispatch but also for operations.

Understanding the existing chemical hazards in your community and facility and community emergency preparedness (discussed in chapter 5) is very helpful when reporting on an emergency.

This knowledge, for example, will allow you to be aware of the possible risks, the populations at risk, and the community's and the facility's emergency response plans ahead of time, which can make reporting more efficient and effective.

Preparation Before Heading for the Emergency Site

Before you head to an emergency site, have a copy of the LEPC's emergency plan and the facility's RMP (if it filed one), including its OCA and emergency response plan. Have hazards at the facility had been identified?

Did the LEPC identify this plant as a potential hazard? Did the plant notify the LEPC of its use or storage of hazardous substances?

Did it file a Tier-II form? Has a vulnerability zone around the facility been identified?

Was the LEPC aware of the presence of the affected chemicals at the facility?

Take with you a list of the names and phone numbers of people you may need to contact (e.g., LEPC members, local HAZMAT responders, facility spokespeople, and chemical emergency contacts).

A Reporter's Safety Checklist

A critical point to keep in mind is that the very aspect of the event that makes it newsworthy-the sudden and uncontrolled release of hazardous chemicals-may make it a risk for reporters covering the story.

You do yourself and your readers, listeners, and viewers no favors if you become involved in the story and suffer adverse health effects that either diminish your ability to cover the story or delay the cleanup efforts under way.

- DO NOT GO INTO THE "HOT ZONES." Hot zones contaminated with hazardous materials present health risks to reporters just like other people. Also, transgressing those borders can be dangerous to official response personnel whose full attention during such an emergency should be focused on the response and cleanup.
- Upon reaching the scene, find the designated emergency response officials who are responsible for dealing with news media while emergency response actions are underway. Many facilities will have spokespersons and meeting areas specifically for the media.
- Be aware that electronic equipment, such as cameras and recorders, can be damaged by hazardous materials and can cause sparks that could worsen the situation.

Questions to Ask at the Site

The Particular Chemicals and the Release

- What chemical or chemicals were involved in the incident?
- How much was released? When did the release occur?
- Is it a gas, a liquid, or a solid?
- At what temperature was it released?
- Where on the property was it released?
- How fast is the chemical likely to travel off site? How fast will it disperse? Where is it likely to go?
- Is the chemical reactive? When mixed with other materials, will it become more volatile or hazardous?

Meteorological Factors

- What are the current temperature, humidity, and wind conditions? Are they considered favorable or unfavorable as they affect the spread of the chemical?
- What is the short-term forecast for changes in the weather?
- How will it affect the chemical?

Physical Surroundings and the Community

- What is the nature of the area-is the terrain flat or hilly, wooded or open, rural or developed? How might the physical environment affect the seriousness of the incident?
- How close ·are the nearest residences or businesses? Are population centers nearby that might be particularly vulnerable such as schools, hospitals, nursing homes, prisons, or shopping centers? Have they been notified of the release?
- Are nearby residents being instructed to evacuate or shelter-in-place? What are the criteria for deciding?
- What key infrastructure facilities (e.g., water supply, sewer, power, police, transportation routes) might be affected by the incident?

Health Risks

- What are the potential health effects of the chemicals involved? How do health risks relate to the duration of exposure? Route of exposure? Concentrations?
- By what routes are humans exposed to the chemical? Is it inhaled? Is it absorbed through the skin? How do those routes of exposure relate to potential health effects?
- Would adverse human health effects from the chemical be made worse by exposure to a different chemical at the same time?

Protecting the Public: Shelter-in-Place Versus Evacuation

There are two basic ways to protect the public in the event of a chemical release into the air: evacuation away "from the toxic cloud or sheltering in a protected area. Emergency management professionals generally agree that evacuation is more effective -- if time allows. Because time is often not available, however, other options need to be considered to protect populations in areas around facilities with hazardous chemicals.

Shelter-in-place is simple in concept; it takes advantage of the inherent protection provided by buildings to limit people's exposure to toxic gases in a chemical release. The critical factors in the effectiveness of sheltering-in-place are how long the building is exposed to the toxic gas and how quickly the toxic material gets to where people are in the building. Several analyses have shown that in-place protection can be effective for up to several hours, depending on the "tightness" of the place used as a shelter. A few simple steps, such as turning off heating and air-conditioning, closing windows, and going to an interior room can significantly limit exposure. More extensive efforts could include sealing an interior room with tape and plastic. Even with these efforts, as a cloud of gas from a chemical accident surrounds a building, some of the toxic gas will begin to seep into the air within the structure. If the toxic cloud remains long enough, the toxic concentration within the building will eventually reach a dangerous level.

Shelter-in-place and evacuation both require that the public take some action to be effective. For either to work, the public must (a) believe that the action will be effective, (b) understand how to carry out the action, and (c) be capable of doing so. Some research shows that people are more likely to follow evacuation instructions than shelter-in-place instructions.

John Sorenson and Barbara Vogt (1999), of Oak Ridge National Laboratory, analyzed public response to a recent chemical emergency in Arkansas. People in part of the affected area were instructed to evacuate while people In another part of the affected area were Instructed to shelter-in-place. Those in the evacuation area generally did as they had been instructed. However, a significant number of people who were instructed to shelter-in-place also evacuated. Similarly, in Deer Park, Texas, where industry and local authorities have actively promoted shelter-in-place over evacuation for more than 5 years, a 1995 survey of Deer Park residents indicated that more than one in five said they would probably evacuate if warned of a chemical emergency (Heath et al., 1995).

Questions to Ask After the Event

Follow-Up Questions

- How many people were injured or killed? How many were employees? What is the nature of any injuries?
- How did the incident happen (e.g., negligence, poor safety procedures, storage conditions, act of nature)?
- What is the safety record of the facility involved (look at the 5-year accident history in its RMP, if it submitted one)? What about the record of its parent company?
- How was the incident cleaned up? How long did the cleanup take?
- How was the surrounding environment affected?
- Have similar incidents occurred in the area?
- What active (e.g., sprinklers) or passive (e.g., dikes) mitigation devices were in place?
- Was the facility required to report the incident under any federal legislation such as EPCRA, RMP, Spill Prevention Control and Countermeasures Plan Rule (40 CFR 112), or the PSM Standard? Under state or local regulations? Is it in compliance with these regulations?
- Did the facility have an emergency response plan? Did the plan work during the emergency?
- Had the facility defined a vulnerable zone? If so, how did this zone compare with the actual area affected?
- What chemical safety and emergency response training does the facility provide to its employees and contractors?
- What routes are used by the facility to ship and transfer its hazardous materials?
- If the incident involved a storage area, were the storage conditions adequate?
- Was the facility aware of the risk of an emergency? Was it identified in the RMP?
- Did the facility have equipment onsite to detect a release?
- Was emergency medical care available onsite?
- Are there any possible substitutes for the chemical released?
- What are the environmental and health issues posed by substitutes? What are the economic issues involved in using substitutes?

Questions for the LEPC

- Had the LEPC identified the facility as a possible hazard?
- Had the LEPC determined the potential vulnerable zone around the facility due to the chemicals stored onsite?
- Did the LEPC have an emergency response plan? Did it work during the emergency?

Questions for Emergency Response Officials

- Which emergency response teams responded to the incident and why?
- How did response personnel respond to the incident?
- Were they trained in hazardous materials response procedures?
- If not, why not?

Chapter 7: Reporting on Routine: Chemical Releases

In addition to information on accidental releases potentially resulting in emergency situations, TRI includes information on routine, planned releases of chemicals.

A number of organizations have drawn up suggested questions about routine releases based on the Section 313 TRI reports.

The following are some questions based on suggested questions from the Natural Resources Defense Council, a national environmental membership organization:

- What percentage of the total reported releases is routine?
- What percentage is accidental?
- What is the basis of the emissions estimate? Actual measurements provide the most accurate information. When and for what chemicals were they performed?
- Has the industry measured or estimated human exposure to the chemicals?
- Are there air or water monitors? Are they located downwind or downstream of the disposal locations? How far are they from the point of release? How often do the monitors collect the samples?
- What concentrations of the chemical have been detected? Is the chemical harmful in that volume? Which substances disperse or degrade?
- What are the environmental and health effects of the chemicals released? Are health effects long term (chronic) or short term (acute)?
- What health effects has the particular chemical been tested for? What health effects have not been tested for?
- Is the reported risk for a person with the most exposure or a person with average exposure?
- Do the major sources of the toxic releases within the facility have pollution controls? Are any additional control measures available? If so, have they been installed? If they have not been installed, why not?
- Has the company ever analyzed what can be done to reduce releases?
- Has the company reduced or increased releases from the fast year?
- Do federal, state, or local standards regulate the release of these chemicals? What federal, state, or local permits apply to the facility? Is the facility in violation of any of these permits?
- Are there less toxic substitutes that could be used?

Reporters might also consider some questions about what isn't available under TRI:

- Has the company kept the identity of any chemical releases secret? If so, why?
- Do other facilities exist in your community that are not covered under TRI but that may be releasing the same chemicals?
- Are there any local facilities that have not filed their required reports?
- What chemicals are released but not covered under TRI?

Activist environmental organizations, of course, are not alone in putting forth questions concerning chemical information.

The American Chemical Society poses the following questions for local public health officials to ask.

They are questions that in many cases cannot be answered based on the information available under EPCRA, but they are questions that might be sparked by the availability of that information:

- Were releases continuous, intermittent, or planned?
- What else is the chemical combined with or in the presence of?
- How often, when, and how are the releases occurring? What were the quantities emitted per day?
- At what height are emissions released?
- At what temperature are emissions released?
- Where on the property did the release occur?
- What is the predominant daily wind direction? Are releases restricted during certain wind or weather conditions?
- What are the potential exposure routes (e.g., drinking water, air, surface water) for the community?
- Are the concentrations safe? What is the danger of chemicals detected at low concentrations? What is the source of that information?
- How much of the chemical could be safely breathed or ingested by an individual?
- Is anyone in the community at risk? (LEPCs, using 302, 304, and 311/312 data, may be good sources of perspective on this question.)

Chapter 8: Your Computer as a Reporting Tool

The computer is as important a tool for reporters as the telephone and notepad.

Many media outlets hire specialists in computer-assisted reporting. While computer-assisted reporting has grown in popularity as a buzzword, many editors and reporters still don't fully understand its vast potential.

TRI came out shortly after the dawn of the computer-assisted reporting boom.

It was one of the earliest and biggest opportunities for reporters specializing in the environmental beat to do computer-assisted reporting.

Over the years, it supplied the raw material for a lot of stories, many of them good and some of them great.

Since the advent of the Internet and the World Wide Web, the possibilities for computer-assisted reporting have grown even further.

Most reporters now use the Web for basic information gathering, almost as a reference library.

This "lookup" function of the Web or computer databases is handy and certainly the most common way databases are used in reporting. Yet it scarcely begins to exploit the possibilities of the computer as an investigative tool.

One of the most useful resources for reporters wanting to explore the computer as an investigative tool is the National Institute of Computer Assisted Reporting (NICAR, http://www.nicar.org), an arm of Investigative Reporters and Editors (IRE). NICAR provides training and maintains a list-serve.

It also collects useful government databases, puts them into user-friendly formats, and then makes them available to reporters at nominal fees.

Environmental groups have also taken advantage of computer-assisted reporting opportunities.

A prominent example is USPIRG, which did a report in November 1996 titled, Costly Chemical Cover-Up: Anti Right-to-Know PAO Contributions.

It used Federal Election Commission data to examine the relationship between chemical company campaign contributions and congressional opposition to chemical right-to-know laws.

Another example is USPIRG's July 1998 report, Too Close To Home: A Report on Chemical Accident Risks in the United States.

It took available information from TRI and population data and used air-dispersion modeling to calculate worst-case chemical releases for areas all over the United States.

EDF's Chemical Scorecard Web site (http://www.scorecard.org) has essentially done the data crunching to make a "local story" on chemical hazards for any place in the United States.

National Databases

The quantity and variety of electronic data available to reporters interested in toxic ·and hazardous chemical issues have grown over the years. A few of the national databases are described below.

The Toxic Release Inventory

TRI is one of the major national environmental databases, and, because data have been accumulating for more than 10 years, it has become one of the largest. TRI has also become easier to access and use.

TRI is available through EPA's Envirofacts Warehouse (http://epa.gov/enviro).

You can query the database to request specific data. You could, for example, ask for complete TRI information on all the reporting facilities within your city.

Or you could ask for the names and cities of all the facilities nationwide releasing hydrofluoric acid.

If you have a more ambitious project in mind, or want to have it on your own computer for handy reference, you can also get a copy of the entire TRI database.

Most of the historical data are available free in CD form.

RMP*Info™

RMP*Info™ (http://www.epa.gov/enviro) is EPA's database that contains the registration and executive summary information from RMPs submitted by each facility.

Facility operators submit their data electronically through Submit™ and then certify it with signed hard copies.

Because of a law passed in August 1999, RMP"'Info™ and other electronic databases will not include information on the facilities' worst-case and alternative scenarios, at least not until after August 2000. (See chapter 4 for a discussion of restrictions on distribution of the OCA data.)

Envirofacts Warehouse

Envirofacts Warehouse (http://www.epa.gov/enviro), EPA's gateway to most of its online databases (including RMP*Info™ and TRI), is a valuable tool for environmental reporters.

Part of its usefulness lies in its comprehensiveness. It includes, for example, databases of wastewater discharge permits and air pollution discharge permits, as well as violations of drinking water standards.

The other part of its usefulness lies in the fact that it is geographically focused-you can get lots of data for a particular area.

Chemical Scorecard

Chemical Scorecard (http://www.scorecard.org) is an online interface that publishes EPA databases and other information on hazardous chemicals in the community. It is run by EDF with funding by various foundations. Scorecard heavily emphasizes local impacts, user-friendliness, and citizen action.

RTKNet

RTK Net (http://www.rtknet.org) is operated by the nonprofit OMB Watch and the Unison Institute.

It is funded by various government agencies and foundations.

RTK Net provides free access to numerous databases, text files, and conferences on the environment, housing, and sustainable development.

Others

Many other databases are available that relate to chemical releases and chemical hazards. A selection is listed

on the National Safety Council's .Crossroads Web site (http://www.crossroads.nsc.org).

General Project and Story Ideas
Accident History

Each RMP should have a 5-year accident history. To help determine whether it is complete, you can check RMP data against one of the six or more federal accidental release databases in the reference section of the RMP.

Of course, you should check human sources too, such as plant employees or local HAZMAT responders.

Federal-State Comparisons

Many states have their own reporting and database requirements, and each is different.

Try to confirm EPCRA, RMP, or PSM data against relevant portions of any state database available to you. Inconsistencies may help identify reporting violations or other stories.

Cancer and Disease Incidence

Look for whatever cancer (or other disease) data are available, for example through the National Cancer Institute's Surveillance, Epidemiology, and End Results (SEER) database (http://www-seer.ims.nci.nih.gov/).

Ask your county and state health departments what data they have available. Does disease incidence in your area correlate with toxic releases?

To properly understand these questions, you will need the expertise of professional epidemiologists.

Cumulative Exposure

Examine the data for your locality in EPA's Cumulative Exposure Project (www.epa.gov/oppecumm/index.htm).

This project is examining how much toxic contamination Americans are exposed to cumulatively through air, food, and drinking water.

Remember that these are estimates. Local breakdowns are currently available from the Chemical Scorecard Web site and may eventually be available from EPA. TRI data can be used to identify which releases may be responsible for the highest exposures in your locality.

Pollution Database Consistency

Check data on releases and chemical use from TRI and RMP against data from EPA's other pollution databases.

EPA's wastewater discharge permits (the Permit Compliance System database), air pollution sources (the Aerometric Information Retrieval System/AIRS Facility Subsystem database), and hazardous waste handling (the Resource Conservation and Recovery Information System database) are obvious starting points. All of these databases can be accessed through EPA Envirofacts (www.epa.gov/enviro).

Do data from one source suggest that data from another source may be unreported, underreported, or unaccounted for?

OSHA Violations

If there is a particular plant whose releases concern you, you may want to check out any OSHA violations. OSHA's Integrated Management Information System database (http://www.osha.gov/oshstats/) details OSHA plant inspections and whether or not violations were found.

Look into any violations involving hazardous chemicals you may find significant sub-threshold or unreported releases or careless practices that could result in releases.

You can also get the data from NICAR's database library for a fee.

Chemicals of Concern

One or more major plants in your area may have routine emissions (or potential releases) of particular chemicals that are especially large. TRI and RMPs will help identify them.

Are there other sources of the same chemicals (or family of chemicals) that might add to the total exposure? What are the health effects of these chemicals?

What are the estimates (if any have been made) of the actual exposures to these chemicals?

Nationwide Company Performance

Your local plant may be one of many owned and operated by a large corporation. Its toxic releases and the hazards it presents to your community may be part of a larger picture of corporate performance.

You can use TRI, RMP*Info™, and other databases to try to build a picture of the situation at the company's other plants.

Does the company have a good overall safety and pollution record? How does that record compare with those of other companies in the same industrial category?

Local Laws, Programs, and Codes

Explore how local laws and rules take chemical safety into account.

For example, what are the provisions in the local fire and building codes that apply to buildings where hazardous chemicals are stored, processed, or used?

Are there databases of fire inspections, building permits, or other local regulatory actions? Try matching these with TRI and RMP data.

Mapping Project and Story Ideas

As desktop computers have grown in power during the last decade, enormous advances have been made in the use of maps to organize and display information in databases. Such systems are often called geographic information systems (GIS).

A number of GIS databases and software packages have been developed specifically for environmental information.

When EPA began consolidating the user interface to its databases under Envirofacts, it suddenly became possible to easily see how many kinds of environmental information related to a single location.

Not only was it possible to see all the air and water pollution dischargers in a single town, for example, but it was also possible to further connect such data with local natural resource features or demographics.

A number of map-oriented systems have hazardous chemical data, in addition to Envirofacts. EDF's Chemical Scorecard does perhaps the best job of making data user friendly and community relevant.

There are numerous systems for organizing geographical databases. Explaining the complexities of them is beyond the scope of this guidebook, but you can find more information at the Census Bureau's Web site (www.census.gov/ftp/pub/geo/www/faq-index.html).

Most systems work by associating data with particular coordinates in two-dimensional geographical space, such as latitude and longitude on a map (a third dimension, altitude, is also common).

There are several widely used commercial software products such as ArcView (http//www.esri.com) or MapInfo (www.mapinfo.com).

Another, developed by the EPA, the National Oceanic and Atmospheric Administration, and the U.S. Census Bureau, is called LandView. LandView is distributed free online (www.rtk.net). Further information is available from the U.S. Census Bureau (www.census.gov/geo/www/tiger/landview.html).

GIS mapping is a great way to generate graphics that will be meaningful to your audience. Here are some ideas that may get you started on stories.

Map the Footprints

Map offsite footprints of the worst-case and alternative scenarios for all the RMP sites in your community. How would the footprints change if various assumptions were changed? How much of your community is potentially vulnerable to hazardous chemical accidents?

Map Vulnerable People

Use available maps (traditional and digital) to identify the human receptors that might be affected by hazardous chemical releases in your community: schools, hospitals, daycare centers, nursing homes, and the like. People in your newsroom are probably an excellent source of information about such facilities, even if the facilities are not on the maps.

How do the human receptors you can identify compare with the ones identified by companies in their RMPs?

Describe Vulnerable Populations

Use Census maps and data to describe the demographics of populations within the "footprint" areas that would be affected by a worst-case accident in the various RMPs.

What can you learn about the age, economic level, race or ethnicity, and possibly reproductive status of people who are most vulnerable to accidents?

Map Zoning Restrictions

Compare the vulnerable populations with the zoning maps or "Master Plan" maps (if any exist) for your community.

You may be able to layer onto this further data about property taxes or assessments or building permits, depending on what's available.

Has there been much recent new development in vulnerable areas?

Have facilities such as schools or hospitals been sited in vulnerable areas? Does existing zoning encourage development or siting in vulnerable areas?

Examine Government Programs

Do any federal, state, or local government programs encourage or subsidize siting of housing or vulnerable facilities within high-hazard areas?

Is the federal government building low-cost housing within the vulnerable zone? Is the school board building new schools there?

Map Cumulative Exposures

Get the estimate data for your community from EPA's Cumulative Exposure Project.

These estimates are made at the census tract level. Use mapping to compare how these data relate to demographics and to TRI releases and RMP footprints.

Map Weather, Climate, and Hydrological Data

Weather, climate, and hydrological data are available from the National Oceanic and Atmospheric Administration and the U.S. Geological Survey.

What are the prevailing winds? Are releases upwind of populations? How cold or hot does it get? This affects equipment and process performance and the behavior of hazardous chemicals.

Does it rain or snow a lot? Is the area subject to hurricanes, tornadoes, earthquakes, or landslides? Is the facility on or near a flood plain? A groundwater recharge area? The watershed of a drinking water source?

Map Natural Resource Data

Map the data for environmental receptors such as wildlife refuges, parks, forests, critical habitat for endangered species, lakes and streams (especially those used for drinking water, swimming, fishing, or _recreation), or other sensitive habitats.

Map Transport Routes

Map routes (road, rail, water, and pipeline) for vehicles involved in transport and disposal of hazardous raw materials, products, and wastes associated with the RMP or TRI facility.

How do these routes match up with accident patterns and vulnerable populations?

Some Issues and Cautions

Many of the problems of computer-assisted reporting have nothing to do with hazardous chemicals and everything to do with the computers themselves.

These issues are beyond the scope of this book, but information and advice is available from NICAR and other sources. Before you launch a computer-assisted reporting project, it is wise to know what challenges you will face.

Probably two of the key ingredients in a good computer-assisted reporting project are knowing where the data are and being able to ask good questions. This guidebook tries to help you find key sources of chemical hazard data, especially at the federal level.

But this book is far from exhaustive, especially when it comes to state and local data.

For local and state databases, you may find that a critical step in your project is getting a usable electronic copy of the database you seek. Your state may have open-records and freedom of information laws that will help.

But the data will do you no good if it is in a medium or format you cannot read. Also, data can have many errors and inconsistencies that have to be fixed before you can use it.

Close familiarity with the structure and content of available data will help you formulate questions that can be answered with computers. There is no substitute for manually "paging through" the data and eyeballing it to get a feel for it. Are there obvious misspellings? Are there a number of empty fields? If so, do you understand why? Are the data expressed consistently? Are the numbers plausible?

Computers need consistency. Your database may have entries for "Acme Corporation," "Acme Corp.," "Acme Chemical," and "Acme Chemical Specialties Corp." Are these all the same company? It makes a big difference.

In 1999, EPA began several initiatives aimed at standardizing its different databases.

The Facility Identification Initiative (www.epa.gov/enviro/html/fii/index.html) set a standard that allows most information about facilities in Envirofacts Warehouse to be linked. Another initiative was EPA's Sector Facility Indexing Project (http://es.epa.gov/oeca/sfi/index.html), which offers a fuller profile of selected facilities.

Chapter 9: Deciphering Hazards and Risks

Although effective reporting on controversial public health issues does not require coursework in toxicology and chemistry, some understanding of these subjects is clearly helpful. Understanding a hazard often comes down to knowing the following factors:

- A chemical's health effects
- The concentration of exposure
- The duration of exposure

Terms such as immediately dangerous to life and health (IDLH), emergency response planning guidelines (ERPG), endpoint, risk, distance to endpoint, level of concern, and toxic concentration are tools of the trade for emergency managers in government and industry to describe the health risks associated with hazardous substances in the community.

Hazard Versus Risk

A hazard is something that is capable of causing harm. The bigger the hazard, the greater the capacity to cause harm.

A chemical hazard is based on properties intrinsic to the material and the level of exposure. Hydrofluoric acid is toxic; propane is flammable. Little can be done to change these characteristics. The severity of the hazard often depends on its concentration and exposure.

Risk is a measure of probability. It refers to the likelihood that an event will occur -- the possibility of a release. The greater the risk, the more likely the hazard will cause harm. Ideally, risk should be quantified-for example, a 10% probability that a certain event will occur.

Too frequently, however, the data related to rates of equipment failure, human error, and other factors are unavailable, so it is not possible to reliably quantify chemical risk. Nevertheless, we know from experience that incidents happen more. Frequently during some events, such as transfer operations or process startups.

RMPs only provide information on the potential impacts of a chemical release (hazard), not the likelihood it will happen (risk).

Case Study: Chemical Release Incidents and Community Reaction

The Richmond County School Board in Augusta, Georgia, was accused by some of courting disaster by building a $20 million high school 670 yards from two large chemical plants. Others in the community were not concerned. In July 1998, EPA presented incident modeling data showing that the planned site for the high school was inappropriate because of its proximity to the Rutgers Organics and Amoco Polymers facilities, which used large amounts of hazardous chemicals. Richmond County Emergency Management Director Pam Tucker requested the EPA report. EPA's projected accident scenarios foreshadowed the real thing.

On November 17 and 20, 1998, according to reports from the Augusta Chronicle, General Chemical Corporation in Augusta, Georgia, accidentally released sulfur trioxide, which becomes deadly sulfuric acid when it comes in contact with moisture. The first General Chemical incident sent 51 people in the community to area hospitals complaining of eye and lung irritation. The release occurred at 2:35 P.M., while students were in school. Students and teachers at two schools, an elementary and a middle school, located less than 2 miles away, were affected. The elementary school had a shelter-in-place program, but it received no warning of the November 17th release. There was a 2-hour delay between the release and notification of emergency personnel.

Three days after the first release, the facility released a cloud of sulfur dioxide gas as part of a planned process. However, the weather conditions kept the cloud from dispersing as expected. Exposure to the cloud forced 39 workers at an adjacent facility to seek medical treatment for symptoms that included shortness of breath; burning and irritation of the eyes, nose, and throat; and nausea and vomiting.

A November 19th Augusta Chronicle story provides a concerned parent's assessment of the first accident. "That's exactly the type of thing we're concerned about," stated Dietrich Dellerich, a member of Citizens for Fair Schooling. "We're concerned about all of the schools near chemical plants, but to put a $20 million investment under one of the plants is ludicrous. I hope and pray nothing ever happens near the new school, but you can't eliminate human error. You have to eliminate the risk."

But other Augusta citizens believe they can live with these risks, the Chronicle reported. The school board approved the high school's construction. Seven schools, including the middle school and elementary school affected by the November releases, are already located less than 2 miles from an area of Richmond County with a significant concentration of chemical plants.

Deputy School Superintendent Gene Sullivan is one of those who view worry as needless. He was quoted in a December 12, 1998, Augusta Chronicle story as saying, "The area is booming; people are buying and building homes there. We keep harping on this issue. If it's such a scary area, why are people continuing to live and move there? We are building the school where the people live."

This case illustrates how information from a facility's RMP could be perceived in different ways and could affect community decision making.

Conditions and Factors Affecting Chemical Hazards

Chemical Reactions

The first step in recognizing a hazard is to identify the chemical or chemicals that could be released. Identification is relatively simple when a pure material or refined, final products are involved.

But identification can be more difficult if the release could occur while mixtures are reacting and several raw materials or reaction products are involved. For example, because the two Augusta incidents (see sidebar) occurred at different stages in the same chemical process, different chemicals were released by the two events.

In addition, the reaction of released chemicals to other materials in the environment may make it difficult to identify resulting hazards. For example, sulfur trioxide reacts with humidity and other water sources to create sulfuric acid. Although the RMP Rule does not regulate sulfuric acid, it does have corrosive properties that make it dangerous.

Amount, Rate, and Duration of Release

The amount and duration of a chemical release can affect the size of the area subject to the hazard, so it is often important to be able to identify how much material is released for how long. The concentration of the chemical in a cloud is also influenced by (a) the rate at which the release occurs, (b) the size of the area from which a liquid spill can evaporate, and (c) its temperature.

Government representatives questioned the Augusta chemical plant's initial report of the quantity and duration of the sulfur trioxide release because a larger-than-predicted area was affected. However, federal investigators found no evidence to contradict the reported release.

This example demonstrates that predictions may not always be reliable.

Weather Conditions

Variation in the weather conditions under which toxic chemicals are released can affect the extent of a hazard. Higher temperatures and less wind generally lead to a greater hazard. The sulfur dioxide release in Augusta in 1998 demonstrates some of the difficulties in recognizing and predicting hazards, because it was an expected and permissible startup release. Although this type of release normally dissipates quickly without impact, weather conditions on that day caused the vapor cloud to settle on the ground, creating a hazard that sent 39 people for medical treatment.

Physical State

The physical state of a substance -- solid, liquid, or gas -- affects its ability to spread after it is released into the environment (table 1). All of the chemicals regulated by the RMP Rule are either gases or liquids that evaporate quickly. Unlike solids, volatile liquids and gases can readily create large chemical clouds that can move off site. This is what happened in the Augusta incidents. Sulfur trioxide is a volatile liquid, and because it can evaporate rapidly, it formed a dense vapor cloud that affected people several miles away.

Gas clouds stop forming when the leak is stopped; however, liquids can continue to form a cloud after the leak has stopped. Without the means to control the spill, liquids can continue to evaporate, increasing the length of time a community can be exposed to its vapors and increasing the hazard. The faster a liquid evaporates, the more concentrated its vapor cloud may become. The higher the concentrations of chemical, the greater the hazard.

Flammable Chemicals

Clouds of flammable gases or vapors are dangerous because they may result in one or more of several outcomes:

- Vapor cloud fire (flash fire)
- Vapor cloud explosion (a more violent flash fire)
- Pool fire (burning of large puddles)
- Jet fire (pressurized gas or liquid escaping from a hole)
- Boiling liquid, expanding vapor explosion (BLEVE) (an explosive release of expanding vapor and boiling liquid following the catastrophic failure of a pressurized vessel holding a liquefied gas, such as propane)

Table 1: Summary of Hazardous Substances Properties

Property	Influence(s)
Physical State	The physical state of the substance affects its ability to move after it is released into the environment. Gas clouds stop forming when the leak is stopped. Liquids can continue to form a cloud after the leak has stopped, increasing exposure time.
Vapor Pressure	The higher the vapor pressure, the faster the chemical evaporates and the more concentrated, a vapor cloud may become.
Density	Heavy gases tend to create a larger hazard. They tend to settle at ground level, increasing their contact with living things.

Explosions can cause powerful shock waves that may directly cause injuries and property damage. Shrapnel and structural damage created by the blast may result in additional injuries.

Fires resulting from chemical releases generally do not have an offsite effect; they are typically confined to the property where the incident occurs. Sites with the potential for large fires often establish distance between the manufacturing processes that handle flammable materials and the end of the property line. That distance usually prevents fires from spreading offsite. The heat radiating from a fire may be more likely to cause injuries and property damage in the nearby community.

Vapor Pressure

The vapor pressure value is an index of how quickly a liquid will evaporate (table 1). The higher the value, the faster the chemical evaporates. Most toxic liquids regulated by the RMP Rule have a vapor pressure of at least 10 millimeters of mercury (mm Hg) at ambient temperature, usually assumed to be 68° Fahrenheit. As a point of reference, the vapor pressure of water is 23 mm Hg. Sulfur trioxide has a vapor pressure of 344 mm Hg at ambient temperature, indicating that it can quickly evaporate and create a dense vapor cloud. Only two regulated toxic substances (toluene 2,6 diisocyanate and toluene diisocyanate) have a vapor pressure less than 10 mm Hg.

Density

Another important property is the density of the gas or vapor (table 1). Many gases regulated by the RMP Rule are called heavy or dense gases because they are heavier than air. Heavy gases create a greater hazard because they tend to settle at ground level, increasing their contact with living things. Air has a density of 1; sulfur dioxide, a heavy gas, has a vapor density equal to 2.26. High humidity at the time of the November 20, 1998, release in Augusta helped to trap the sulfur dioxide gas, allowing it to settle and injure workers before it could be diluted and swept away by the wind.

The RMP Rule also regulates some neutrally buoyant gases. These gases have densities closer to that of air, so they tend to neither float nor sink in the atmosphere. Wind and atmospheric turbulence play a large role in determining the extent to which releases of these chemicals affect communities.

Toxicology for Journalists: How Toxic Is Toxic?

For environmental journalists reporting on a frequently controversial public health issue, a little knowledge of

toxicology can go a long way toward better reporting and better understanding and explaining "How toxic· is toxic?"

It's not enough for reporters to simply keep in mind the old toxicology saw that "the dose makes the poison." Although true, that point is subject to abuse from those wanting to minimize environmental risks. Dose is the quantity of chemical to which an individual is exposed over a given period. Two additional concepts – potency and exposure -- are particularly important. Only with an understanding of both of these concepts can the health risks of a given dose be assessed.

Potency refers to the toxicity of a chemical, that is "the ability of a chemical to do systematic damage to an organism," as the Foundation for American Communications' 1989 Toxicology Study Guide for Journalists describes it. Chemicals have potency regardless of whether humans or other living organisms actually come into contact with them. Different chemicals have different potencies.

One chemical is more potent than another if a given amount produces a greater adverse health or ecological effect than the same amount of the other. Amounts can be expressed in different terms -- as concentrations in the atmosphere or water or in grams ingested per unit of body weight. Once the amounts are expressed in equivalent terms, you can compare potency.

Exposure, on the other hand, refers to whether and how a human or other organism comes into contact with the chemical usually by eating or drinking it, inhaling it, or touching it and having it penetrate the skin. If there were no exposure, there would be no harm. The amount of risk can vary depending on the nature and duration of the exposure and the concentration of the toxic chemical in question. The human body metabolizes different toxins at different rates, and individual rates vary. When an individual's exposure exceeds the body's ability to metabolize it, the toxin accumulates.

When it accumulates to a certain concentration, it can cause injury or death. How and why a chemical affects or does not affect a human body is a function of its particular chemical structure.

Health Effects

Chemicals vary in potency and toxicity. A highly toxic chemical, such as sulfur trioxide, can cause harmful effects from exposure to a small amount in a short time. Less toxic chemicals require larger doses or longer exposure times to cause effects.

Michigan State University toxicologists Alice Marczewski and Michael Kamrin (1987), with the Center for Environmental Toxicology, write that "Every chemical is toxic at a high enough dose. The dose of a chemical plays a major role in determining toxicity.

Generally, there is no effect at low doses, but as the dose is increased, a toxic response may occur. The higher the dose, the more severe the toxic response that occurs."

In addition, the susceptibility of an individual to a chemical exposure is also critical in addressing the "How toxic is toxic?" question.

Factors such as age, health, nutrition, and medical history can influence an individual's sensitivity to a particular chemical. Previous exposures to toxic chemicals can worsen the effects of subsequent exposures to the same or different chemicals.

If a chemical does not penetrate far into the body, any effect would be local, at the site of contact, rather than systemic or system-wide. Some chemicals with local effects are considered corrosive rather than toxic.

On the other hand, if the toxic chemical is absorbed into the bloodstream, it can travel throughout the body and produce systematic toxic effects in the organs most sensitive to the chemical.

Chemicals are acutely toxic when they result in harm after relatively brief, one-time exposures. In these cases, the harm is manifested within minutes or hours of exposure and in areas other than just the site where the chemical first entered the organism.

The chemicals regulated by the RMP Rule are all acutely toxic. They may affect various parts of the body and result in several types of health effects.

For example, sulfur trioxide dissolves readily in water, creating a corrosive solution of sulfuric acid. Exposure could result in eye and respiratory irritation, such as that experienced by victims of the Augusta, Georgia, release, or skin and gastrointestinal tract burns.

Acute toxicity is often measured as "LD50" in rats or mice. That means the dose is lethal to 50% of the animals tested. Expressed relative to the test animals' weights to allow for weight differences between animals and humans, a lower LD50 means a more acutely toxic chemical. Of course human metabolism is not necessarily the same or similar to that of the test animals, so human sensitivity to the chemical may differ.

Chronic toxicity applies to a chemical's propensity for harming an organism over long periods of time-20 or 30 years in the case of cancers-and as a result of repeated, often low-level, exposures. Less is known about chronic toxicity than about acute toxicity, as testing is time consuming, complex, and expensive. Results are complicated by the need to extrapolate from exceptionally high test doses to doses representative of human exposures.

The specific toxic effects can take various forms. Some chemicals cause tumors in tissues (carcinogenic). Others may lead to gene and chromosomal mutations (mutagenic) or adverse effects on the central nervous system (neurotoxic). Still others may cause reproductive and developmental effects.

In summary, the potential health effects are determined by how much of which toxic chemical an individual is exposed to, how often, or how long a duration and by what means of exposure.

Facility Safety: A Key Risk Factor

The 1998 chemical release incident in Augusta, Georgia, illustrates the way release projection data, like the kind that RMPs include, and media coverage of incidents have informed local citizens.

Some people would find the risk in this situation intolerable. Others will choose to live with the risk and insist on better emergency planning from the plants, schools, and emergency response groups.

An Important component in determining a community's level of risk is the overall safety of the facility (e.g., its equipment; management practices, worker training, level of commitment to safety). Some ways to begin assessing how safe a facility is follow.

The Past Is Prelude to the Future

To assess top-level commitment to safety, reporters researching a story may want to look at the RMP section that details an organization's 5-year accident history. A history of safety is generally a good predictor of future safety.

Safe Facilities Have Several High-Level Personnel

Anticipating and Addressing Chemical Safety Problems

Research conducted by Garon Chess et al. (1992) suggests that top-level managerial commitment to safety increases the likelihood that organizations make improvements as a result of independent safety inspections, accidents, and community input.

Chess continues to say that safety and risk management should not be the responsibility of just one person or of too many people.

She found that organizations that perform well at risk management assigned several top managers to identify and solve safety problems. In fact, healthy competition developed between the managers, and bad news was more apt to travel upwards: the production manager, safety manager, environmental engineer, vice president for public relations, industrial hygienist, and the human relations manager all wanted to claim credit for identifying and solving problems (Chess et al. 1992).

Budget Allocations Suggest Priorities

Safe facilities invest in proactive safety measures and work to identify safety problems. Instead of waiting for accidents to reveal weaknesses, these facilities conduct routine safety audits, inspections, and emergency drills.

They secure multiple, independent safety audits from international, national, and local inspectors. Some companies use monetary rewards to encourage line workers to alert supervisors to safety problems.

Emergency Response Is Built on Strong Industry-Government Working Relationships

For example, before an accidental release (which harmed workers and caused a nearby daycare center to be evacuated) at its facility in West Lafayette, Indiana, Great Lakes Chemical had no representation on the LEPC.

After the release, and the adverse publicity resulting from it, company managers began meeting regularly with the LEPC. The company also has sophisticated hazardous materials response equipment it shares with the community.

Safe Facilities Encourage and Learn from Community Input

One company that uses community concern to improve its operations is Sybron Chemicals of Birmingham, New Jersey.

In 1988, Sybron released an acrid-smelling substance that caused area firefighters to evacuate citizens. In addition, a plant fire at the company seriously injured two workers. The community became hostile toward the company because of these incidents.

Top management might have reacted by stonewalling. Instead, the company invested money and time in developing systems that used community input to make it safer. The company installed an alert and warning telecommunications system, which can automatically dial Sybron's neighbors in the event of an emergency.

The system can also work like a sophisticated answering machine with recorded messages about the plant's status. In addition, callers can leave messages requesting further information.

Safe Facilities Are Situated in Communities with High Safety Standards and Regular Inspection Programs

Communities have the power to insist that those who handle hazardous chemicals do so responsibly. One mechanism for enforcing local safety standards is routine inspections. In large communities like Fairfax, Virginia, the county government routinely inspects and issues operating permits to dry cleaning facilities, printers, newspapers, and other facilities that handle hazardous substances.

For example, Steve Dayton, manager of the MBC Reproexpress copy shop in Fairfax, says that when he used anhydrous ammonia to produce blueprints, Fairfax County inspectors visited periodically to ensure that his ammonia tanks were chained to the wall, as local codes required.

In less populated areas, inspection may be more a matter of routine conversations between the emergency authorities like the fire chief and facility managers.

Whether inspection is a formal or an informal process, its use should reduce the risks associated with hazardous substances.

Effective and Assertive LEPCs Result in Strong Emergency Management Programs

Another indicator of local government's alertness to its role in preventing chemical accidents is the adequacy of the LEPC. LEPCs should meet regularly to identify trouble spots. LEPCs have significant authority, if they choose to use it. They can ask for any information relevant to preventing accidents.

Acceptable risk will vary by community and even location within the community. One community's infrastructure, environment, budget, and regulatory framework might be able to handle certain chemical processes that create intolerable risks in another. A community might believe hazardous substances are used safely within a company's walls but want their LEPC to inquire about the routes used to transport hazardous substances into their areas. For example, delivery routes for hazardous chemicals in mountainous areas add an extra element of risk. In Baton Rouge, Louisiana, the LEPC invites a U.S. Coast Guard representative to meet with its members to help them plan for emergencies involving hazardous chemicals carried by Mississippi River barges.

Safe Facilities Operate in Communities with Alert Local Media

The news media can help communities understand risks and what is being done to minimize them. Augusta Chronicle reporter Meghan Gourley, who had access to RMP-like information in 1997, said the biggest obstacle she encountered was that plant managers worried her stories would panic the public.

"The idea is to be up front, but fair," Gourley said. "In no uncertain terms, say [ill a story] that worst-case scenarios are practically impossible. Focus on those scenarios that are more likely. Be sure to detail not only the elements of the disaster, but also what steps officials are taking to help prevent the disaster." Gourley recommends asking facility managers many questions.

Safe Facilities Are Concerned About Security

The Federal Bureau of Investigation, EPA, Chemical Manufacturers Association, and Congress believe that chemical facilities are potential terrorist targets. These facilities contain hazardous substances that can cause mass casualties. This belief led to the enactment of the Chemical Safety Information, Site Security, and Fuels Regulatory Relief Act.

To reduce the risk of terrorism, the act limits access to right-to-know information. Nevertheless, the facility remains a security risk, and reporters should inquire about this vulnerability. Key questions include --

- How effectively does the facility secure its perimeter? What are its access policies and controls?
- Can personnel be located and tracked within the facility?
- Does the facility or its parent company have a program in place to safeguard its databases and communications?
- Are there protective buffer zones between chemical operations and neighbors?
- Are hazardous operations fortified against bomb attacks?

Community Reaction

In communities where RMP information has already been reported, citizens generally have reacted by being concerned about their personal safety. They have tended to decide they are willing to live with hazardous chemical risks if facilities can ensure good warning and emergency response systems. Once accidents occur, communities are often less tolerant. The news media can assist both communities and facility managers by helping facilities create awareness and understanding of risk management or risk reduction, instead of just waiting for accidents that harm people.

Tips for Interpreting the Statistics of Risk

Statistical claims associated with chemicals and chemical risks can be complex and even contradictory. Washington Post Senior Writer and Columnist Victor Cohn's book (1989), News & Numbers: A Guide to "Reporting Statistical Claims and Controversies in Health and Other Fields is a valuable tool for reporters covering environmental and other public health issues.

In Chapter 8, "The Statistics of Environment and Risk," Cohn writes,

> the media are typically accused of overstating, needlessly alarming, emphasizing the worst possible case, reporting half-baked and unsupported conclusions, or falsely reassuring. We do them all sometimes. Trying to be objective, perhaps stung by such criticism, we too often write only 'on the one hand, on the other hand stories – I like to call them, 'he said, she said' stories – without expending any great effort to find the most-credible evidence, the most-reliable statistics, the best-informed, least-prejudiced views, the greatest probabilities.

To Cohn the problem arises because environmental writers function in an arena in that --

- Uncertainty reigns, and data are incomplete, inadequate, or nonexistent.
- We are told different things by different people, and distinguished scientists make opposing, even warring, assertions, such as "The hazard is horrendous" and "The hazard is minimal or nonexistent."
- Many people don't worry greatly about driving, using seat belts, drinking, or smoking, while others are often concerned about lesser and less-certain dangers of nuclear power and chemicals in our foods.

Cohn, citing works of others, points to a few basic facts reporters should try to understand:

- The true complexity of the problem
- The limitations of science
- The limitations of analysis
- The limitations of risk assessment
- The limitations of scientists

Muddling one's way through this morass of uncertainty isn't easy, but Cohn suggests several factors reporters can consider to help identify the "most believable results" and claims.

- Have the results been successfully repeated? Reporters should verify that health claims have been successfully repeated and that different studies of different populations at different times show duplicate the results.
- Have the results been successfully tested using more than one method? Results should be reevaluated using different mathematical techniques.
- Do the claims test high for statistical significance? The probability that the same result could have occurred by chance alone should be small.
- What is the strength of the statistical claim? "The greater the odds of an effect, the greater the strength of an association," Cohn writes in his book. "If the risk is 10 times as likely -- the relative risk of lung cancer in cigarette smokers compared with nonsmokers -- the odds are pretty good that something is happening."
- Are the results specific? Cohn writes that A causes B "is a more specific association than a sweeping statement that substance A may cause everything from hair loss to cancer to ingrown toenails."
- Can the results be explained by confounding factors or other relationships?
- What is the amount of detail in describing data and possible weakness? "There is always a lot of missing data," Cohn quotes Michael Greenberg of Rutgers University as saying. "There are always missing variables. I tend to have more belief in the individual who admits data weaknesses."

Cohn offers numerous questions for reporters to consider asking scientists. A few of them are presented here for illustrative purposes:

- What is your evidence? What do you base your conclusions on?
- Have you done a study? Has it been published or (at least) accepted by a recognized journal?
- When told about ''rates" and "excess risks," ask, What are the actual figures? How many people are affected out of how large a population?
- What sort of rates would you expect normally? What are the rates elsewhere? How do you know?
- Are your assumptions based on human or animal data? How many people have you examined? What species were examined?
- Do you believe your sample -- the people studied -- is representative of the general population?
- How did you pick your sample -- at random?
- Could the association or result have occurred just by chance? Exactly what are your figures for statistical significance? Have you worked with a biostatistician?
- What is really known and what is still unknown? What is the degree of uncertainty? Are you missing any data you would like to have had?
- What evidence might have led you to a different conclusion?
- Are you concluding that there is a cause-and-effect relationship?
- Or only a possibly suspicious association? Or a mere statistical association?
- Have the results been reviewed by outside scientists? Do most people in your field agree that this relationship is right for this agent?
- What is the highest safe level we can tolerate? Is the only safe level zero? Might we be exposed to multiple risks or cumulative effects? Are there individual sensitivities?
- What is the relative importance of this risk compared with others that we face in daily life?

"What we need to tell people, basically, are the answers to these questions," Cohn writes:

- Is it a risk?
- If so, how great or small?
- Under what circumstances?
- How certain is this?
- What are the alternatives?

In addressing these questions, Cohn suggests that reporters "include the uncertainties." He says uncertainties "virtually always exist in any analysis or solution. If all the studies are weak, say so. If no one knows, say so." Reporters should also

> report probabilities ... rather than just that mainstay of jazzy leads, the worst case. This is also called the 'as many as' lead ([for] example: 'As many as a jillion could be killed'). This is not to say that worst cases should not be included -- or sometimes be the lead of the story -- if there is a good enough reason, not just a grab for a headline.

Cohn advocates that health and environmental reporters also "put numbers on risks" when possible and that they "compare risks when appropriate." He encourages reporters to address "scientific and technological fact."

In the end, he quotes Cornell University Professor Dorothy Nelkin, author of Selling Science, as saying, "The most serious problem" in reporting on risk is reporters' reluctance to challenge their news sources and "those who use the authority of science to shape the public view." Nelkin advised reporters, maintain "the spirit of independent, critical inquiry that has guided good investigation in other areas."

Chapter 10: Using the RMP's Offsite Consequence Analysis to Identify Community Hazards

The types of chemicals, their locations, and their quantities are available publicly through several EPCRA reportings. The RMP also provides this information and goes a step beyond by assessing the potential danger these chemicals pose to the community. Reporters will be most interested in the hazard assessment information provided in RMPs, including the worst-case and alternative release scenarios contained in the OCAs. These projections identify the populations in danger if a release occurs.

The OCA is an estimate of the potential harm to people and the environment beyond the facility's boarders of a chemical's release. It provides the four essential elements needed to understand the hazard: ·

- What hazardous substance(s) could be released?
- How much of the substance(s) could be released?
- How large is the hazard zone that could be created by the release?
- How many people could be injured?

Worst-case release scenarios will often tend to be the most sensational part of an RMP-but remember that they describe unlikely, catastrophic events. The alternative release scenarios provide more realistic predictions of events, which, while still serious, are typically smaller in scale. The RMP also identifies other risk factor information, such as the 5-year accident history, accident prevention activities, and emergency response plans.

While the OCAs provide valuable information, this information may be difficult to access, particularly detailed information. (See
Chapter 12 for tips on accessing the OCA information.)

Predicting the Extent of Harm from Chemical Incidents

For the purposes of the 'RMP OCA, EPA established specific endpoints (table 2) for toxic and for flammable and explosive chemicals covered by the RMP Rule. Although workplace exposures to many chemicals have been well studied, relatively little information is available about community exposure to these chemicals. Therefore, toxic endpoints used by the RMP Rule are often based on conclusions drawn from workplace data. More than the workforce in a facility, the general population consists of individuals who may be more sensitive and less able to protect themselves the very young, the very old, and the infirm.

Toxic endpoints used by the RMP Rule are typically more conservative and are believed by the EPA to represent better science. Many emergency response planners will be faced with the challenge of adjusting community response plans to account for differences between RMP endpoints and previously used level of concern values. (See "Dr. ALOHA: Choosing a Level of Concern," at www.crossroads.nsc.org for a discussion of approaches for selecting a level of concern).

Table 2: Four Methods of Predicting Responses to Chemical Exposure

Source	Agency/ Organization	Exposure Period	Population Protected	Goal
IDLH	NIOSH	30 minutes	Healthy, adult workers	Escape exposure without respirator
1/10 IDLH	EPA	30 minutes	General population	Allow the public to escape a hazardous area
ERPG-2	AIHA	60 minutes	General population	Prevent effects that could impair the ability to take protective action
TLVs	ACGIH	8 hours	Most workers	Work consistently with no harmful effects

The EPA used four different sources of information about responses to chemical exposures when it selected toxic endpoints specified by the RMP Rule: IDLH, One-tenth IDLH (1110 IDLH), ERPG, and threshold limit values (TLVs).

IDLH values represent the most commonly used source of toxic endpoints. IDLHs were originally developed by the National Institute for Occupational Safety and Health (NIOSH) to guide employee respirator selection.

Airborne concentrations above IDLH values are believed to pose a threat to healthy adult workers who are exposed for more than 30 minutes. Longer exposures are likely to cause immediate or delayed permanent, adverse health effects or to prevent escape from the hazardous environment.

1/10 IDLH measure reduces the acceptable exposure level by a factor of 10 and helps to compensate for exposures longer than 30 minutes. It also compensates for potentially higher sensitivities that can be expected within the general population. Local emergency planners frequently use this exposure value to analyze community hazard analyses.

ERPGs were developed by the American Industrial Hygiene Association (AIHA). They provide three tiers that predict the range of effects from a 1-hour exposure. The RMP Rule uses the second tier values, ERPG-2, as endpoints for nearly 30 toxic chemicals.

These values represent the maximum airborne concentration that nearly all individuals could be exposed to for up to 1 hour without experiencing or developing irreversible or other serious health effects or symptoms that could impair an individual's ability to take protective action. The ERPG values do not account for individual differences in sensitivities.

TLVs are used as the endpoints for two chemicals regulated under the RMP Rule. TLVs were established by the

American Conference of Governmental Industrial Hygienists (AGCIH). These occupational exposure limits represent concentrations that workers may be exposed to repeatedly for an 8-hour shift and 40-hour week without suffering adverse health effects.

Predicting Harm from Flammable Chemicals

The RMP Rule specifies that three endpoints may be considered when analyzing release scenarios for the 63 flammable chemicals regulated by the RMP Rule:

- A 1 pound per square inch (psi) increase in air pressure 1 resulting from a vapor cloud explosion: Exposure to a 1.psi shock wave will not cause direct injury; it can break windows and cause other property damage that could result in injuries. Some people within an area exposed to a 1 psi overpressure may be hurt. Because glass shards and other shrapnel from an explosion may travel a distance greater than the 1 psi shock wave, it is possible for injuries to result beyond the distance to a 1 psi endpoint.
- Radiant heat of 5 kilowatts/meter2 (kw/m2) for 40 seconds resulting from a fireball or pool .fire: Human skin exposure to radiant heat of this. intensity for more than 40 seconds causes second degree burns or blisters, at a minimum.
- A chemical's lower flammability limit (LFL): The LFL represents the minimum percentage of flammable chemical in the air that must be present for ignition to occur. When a gas or vapor is diluted to a concentration below its LFL endpoint, it can no longer create a fire hazard.

Predicting the Potential Hazard Zone -- the Distance to Endpoint

Once the endpoint is determined, the potential offsite hazard zone of an accidental chemical release -- the distance to endpoint -- can be predicted by air dispersion models.

The models integrate information about chemical properties and release conditions and forecast the area that may become hazardous under certain conditions. Although the flow of some dense gases and vapors will be guided by terrain features, wind direction will generally control movement, creating hazards downwind from the point of release. Since it is not possible to reliably predict when accidents will occur or what the wind direction will be when they do occur, released gases and vapors may travel in any direction. Therefore, the total area that may be affected by a release is represented by a circle with its center at the point of release. The radius of the circle represents the distance to endpoint.

Using EPA's chemical-specific endpoints, facilities can choose from several different methods of calculating the distance to endpoint. They can use the methodology outlined in the RMP guidance or a commercial air dispersion model as long as the model is (1) publicly available, (2) accounts for the required modeling conditions, and (3) recognized by industry as acceptable. An air dispersion model may be more accurate than EPA's methodology for predicting the mixing of pollutants in air and the distance to endpoint.

The results of any method should be viewed cautiously, because few of the fundamental algorithms used by models can be verified in actual field tests.

Models are designed to simulate reality-a very complicated set of variables and interrelations that is difficult to understand and replicate.

Differences in the methods used to combine the effects of each variable can result in hazard distances that vary widely. Predicted hazard distances often lie within a band of uncertainty.

Some OCAs will predict a very large distance to endpoint. However, estimating distances beyond 6 miles tends to be particularly uncertain because of local variations in meteorological conditions and topography.

For example, atmospheric turbulence is a major factor in determining how quickly a toxic cloud will mix with the surrounding air and become diluted.

And how quickly a cloud will be diluted to below the endpoint value will affect the distance it travels. It is dangerous to assume that atmospheric turbulence and wind speed and direction will remain constant from the point where a pollutant is being released (Evans 1998).

A Word of Caution on Using Worst-Case Scenarios

Characterizing danger using only worst case scenarios can be misleading and unnecessarily alarming. Worst-case scenarios estimate the maximum possible area that might be affected by an accidental release. They help ensure that potential hazards to public health are not overlooked. They are not intended to represent a “public danger zone.” Nor do worst-case scenarios reflect whether processes are safe. Both safe and unsafe processes using the same chemicals at the same quantity will have similar worst-case scenario outcomes.

The objectives of the worst-case scenario are (1) to create awareness about potential hazards at the facility and in the community and (2) to motivate a reduction of these hazards. Tim Gablehouse of the Jefferson County, Colorado, LEPC stressed that worst-case scenarios should not be the focus of public discussion. Instead, they should lead to an emphasis on emergency response, risk communication, and prevention efforts. The purpose of the RMP is not to generate unnecessary fear but to educate the public about hazard reduction and emergency response.

Understanding the Worst-Case Scenario

All RMPs are required to contain an OCA for a worst-case release scenario for each regulated process. RMP worst-case scenarios must assume there is a. rapid, ground-level release of the greatest possible amount of a chemical from a single vessel or pipe. Passive mitigation devices, such as dikes and containment walls around the process, may be assumed to capture or control the release if they would be likely to survive the incident.

However, active mitigation devices that require human, mechanical, or other energy to manage releases must be assumed to fail in the worst-case scenario. In addition, weather conditions must be assumed to be very mild, producing minimal mixing of the toxic gas or vapor cloud. These conditions produce a large, stable cloud with a persistent, high chemical concentration -- the most severe type of hazard. EPA states that the maximum hazard zone for worst-case scenarios may be quantified for distances' up to 25 miles. (Note: Some scenarios may extend farther than 25 miles, but will not be quantified beyond that point.)

Table 3: Worst-Case and Alternative Release Scenario Parameters

Factor	Worst-Case Release Scenario	Alternative Release Scenario
Event selection	Produces greatest distance to an offsite endpoint	More likely than worst-case scenario based on the 5-year accident history or failures identified in analysis of process hazards
Mitigation	Can consider the effect of passive systems that survive the event	Can consider the effect of passive and active systems that survive the event
Toxic endpoint	From Appendix A of RMP Rule	From Appendix A of RMP Rule
Flammable endpoint	Explosion of vapor cloud with 10% of available energy released (if endpoint is based on TNT-equivalent method)	Explosion or fire
Properties	Account for gas density	Account for gas density
Wind speed/ atmospheric stability class	3.4 miles per hour and F class stability, unless higher wind or less stable atmosphere can be shown at all times in last 3 years	6.7 miles per hour and D class stability or typical conditions for the site
Outdoor temperature and humidity	Highest daily maximum temperature in the prior 3 years and average humidity	Typical conditions for the site
Temperature of released substance	Liquids, other than gases liquefied by refrigeration, are released at highest outdoor temperature during the prior 3 years or the process temperature, whichever is higher	The appropriate process or outdoor temperature
Surface roughness and nearby obstacles	Urban or rural, as appropriate Urban or rural, as appropriate	Model accounts for gas density
Dense or neutrally buoyant gases	Model accounts for gas density	Determined by scenario
Height of release	Ground level	Determined by scenario
Amount released	Greatest possible amount from a single vessel or pipe	Determined by scenario
Toxic gas release rate	All in 10 minutes	Determined by scenario
Toxic liquid releases	• Instantaneous release • Pool area is 1 centimeter deep or size of passive mitigation area • Rate at which it evaporates must be calculated	Determined by scenario
Distance to endpoint	Greatest offsite distance, up to 25miles	Offsite, If appropriate

Understanding How Alternative Release Scenarios Differ from Worst-Case Scenarios

Alternative release scenarios are based on more likely conditions and offer more realistic, useful emergency planning information for the facility and the public (table 3). Facilities are given latitude in selecting credible release conditions for these scenarios and can use accident history information or other knowledge of the process for selecting the hypothetical incident.

Unlike worst-case scenarios, the weather conditions are assumed to be typical for the area. In addition, these more likely scenarios assume that both active and passive mitigation systems operate as intended.

Chapter 11: TRI and RMP: What They Can't Tell You

In a perfect world, all the chemical hazard information now available under EPCRA and the RMP Rule would be accurate and understandable. Potential health effects would be readily discernible. Quantities, concentrations, and timing and duration of emissions would be reported with precision. How chemicals interact with each other in the environment would be understood. Humans would be foolproof in entering that information into readily accessible and digestible formats. But the real world of chemicals in the community is far from perfect.

Although EPCRA and the RMP program are powerful tools, they can't provide all the information a community needs to know about chemical hazards. Rather, think of EPCRA and RMP as a starting point.

TRI Data Limitations

EPA has been candid in acknowledging the limits of TRI data. Even assuming that the TRI data submitted by industry is outstanding in overall quality, reporters need to appreciate other caveats if they are to take advantage of the full potential of EPCRA for improving public understanding of chemicals in the community. Here are a few issues to keep in mind when reporting on chemicals in the community.

The Data Are Estimates, Not Monitored Releases

Remember that annual release data submitted to state commissions and EPA in the TRI Form R reports represent company estimates of the releases, not measured quantities.

The Timing of Releases Need Not Be Reported

Companies reporting their emissions need not indicate the timing of those emissions data over the course of the year. If all of a particular facility's air emissions occurred during a 6-hour period during the peak of an atmospheric inversion (an unlikely event), you'd never know it just by reviewing the Form Rs.

"There is a considerable difference, from a public health standpoint, if the emissions were in several major bursts or a slow but steady stream," Washington Post health writer Cristine Russell wrote. But there's no requirement that industries provide a seasonal, monthly, or weekly breakdown of how their 1emissions occurred, just the total over the calendar year.

Data on Human Exposure Is a Major Gap

One of the most critical elements missing from the TRl is information on human exposure to the chemicals released. Release does not equal exposure. Exposure occurs only when a chemical is transported from the site of the release to population centers.

Estimates of exposures can be made from estimates of releases if extensive site- and chemical-specific data are available, for example, height of an air release, wind speed and direction, distance to populations, and chemical persistence. These exposure estimates, obtained through computer models, are only as good as the data on release, meteorology, and chemical fate.

Reductions May Be "Real" or "Paper"

Reporters also need to pay attention to how the annual emission and release estimates were calculated. Calculation methods can vary from year to year ai1d from facility to facility. Some facilities will report emission reductions not as a result of actual reductions, but rather because they used a different method of calculating emissions. Beware of this possibility. Ask about the calculation methods and how any changes in protocol may have affected results. Ask what led to any reported reductions in emissions.

The List Is a Moving Target

In making year-to-year comparisons, reporters also need to pay attention to the chemicals that are removed from or added to the reporting list.

For example, calendar year 1987 reports include data on sodium sulfate releases and transfers. This chemical alone accounted for 54% of tot3.I releases and transfers for all TRl chemicals. Just one facility in California reported releasing 5.2 billion pounds of sodium sulfate-23% of total U.S. TRl releases and transfers.

In May 1989, EPA granted a petition to remove sodium sulfate from the list of chemicals subject to TRl reporting on the grounds that it was not of significant concern as a toxin.

With sodium sulfate included in the database, California led the list of states emitting TRI chemicals into the environment in 1987. Without it, California dropped to ninth position.

Over the years there have been many changes in the list. EPA added some 286 new chemicals in November 1994.

Fortunately, EPNs annual "Public Data Release" reports have done a fairly good job of helping people compensate for such changes.

EPAs reports give year-to-year comparisons for "core chemicals"-the ones that have been on the list consistently over the years, so that apples and apples can be compared.

This problem is especially worth keeping in mind when evaluating companies' claims of reducing their releases over the years.

Make sure they are not claiming credit for reductions that have occurred because of delisting (or that they are not being unfairly criticized by environmentalists for increases that result from additions to the list).

The Facilities Covered Change

In May 1997, EPA added seven new industry sectors to the list of industries that must perform TRI reporting. These sectors included certain metal and coal mining facilities, electrical utilities, hazardous waste disposal facilities, chemical facilities, petroleum facilities, and solvent handling facilities. If you are making year-to-year comparisons, you will have to adjust for this change.

Chemical May Have Many Names

Chemicals can have aliases, synonyms, and multiple identifying numbers. It is a confusing world. If reporters use a popular name or a trade name, for instance, they may be missing all the other names under which a chemical is reported. Even the Chemical Abstract Service (CAS) number is not a guarantee of accuracy.

The Scope of Coverage Is Limited

Be aware that only a small fraction of all potentially toxic chemicals are covered by EPCRA reporting requirements. Moreover, these reporting requirements do not apply to all the facilities using and storing chemicals-just to those with 10 or more employees in specified standard industrial classification codes, specifically including manufacturing facilities. Only those facilities manufacturing more than 25,000 pounds or using more than 10,000 pounds annually of an affected chemical (with some exceptions) must submit Form Rs. Accordingly, the TRI database may say a lot about toxic emissions nationally, but it clearly understates the total amounts of those emissions.

RMP Data Limitations

While RMP information 1adds significantly to the amount and types of chemical information available, it too has limitations.

Not All Hazardous Substances Are Covered

Relying on the RMP to catalog community chemical hazards will miss some of the hazards. RMPs aren't required to be filed by a variety of facilities using hazardous chemicals such as propane, explosives, and some petroleum products.

Just because a facility or process is not required to file TRI or RMP information doesn't mean your community does not have to worry about chemical dangers.

Propane, for example, is frequently involved in accidents causing casualties from fire or explosion. However, as a result of the 1999 Chemical Safety Information, Site Security, and Fuels Regulatory Relief Act, most propane dealers are exempt from RMP requirements.

If you rely only on RMP data, you might miss significant propane ·hazards. Almost every c9mmunity has some propane facilities, and although many are small, it may be worth looking into.

Not All Scenarios Are Listed

The RMP's listing of worst-case and alternate scenarios is an important description of things that could go wrong. But it is not the only description. The worst-case scenario is the most catastrophic, but the least likely event.

Only a few alternate scenarios need to be included in an RMP, but there may be many ways that safety-critical systems can fail in a complex chemical plant.

Additional information maybe alluded to in the accident prevention program section of the RMP. Ask the facility for their PHA or hazard review to find out more.

Chronic Risks Are Not Addressed

The RMP is particularly aimed at identifying the hazards of sudden, catastrophic spills, releases, fires, and explosions.

Communities also face potential hazards from chronic exposure to lower levels of the same chemicals.

TRI quantifies the releases of many of these chemicals, but it does not estimate human exposure or health consequences. EDF's Chemical Scorecard has taken a step further in this direction by publishing some exposure estimates EPA doesn't publish.

Transportation Hazards Are Not Included

Most hazardous chemicals must be transported to or from facilities. Transportation and disposal of hazardous chemicals (which are regulated under the Hazardous Materials Transportation Act of 1975, the Hazardous Materials Transportation Uniform Safety Act of 1990, and other laws), may be a source of hazards.

Transportation accidents are about as common as accidents at fixed facilities, according to the CSB. DOT and EPA databases are available that can give you some information about what is going on. Much of the transportation and disposal data are in the public record and can be found within DOT's Hazardous Material Incident Reporting System.

Not All Health Effects Are Known

Scientists don't really know the health effects of human exposure to many of the hazardous chemicals in industrial use today.

The EDF's Toxic Ignorance report, published in 1997, found that health information was lacking for three-quarters of the chemicals in high-volume production use today. The "High Production Volume" initiative launched by EPA and industry in 1999 is designed to assess potential health effects, but results are years away.

Only a Summary of the RMP Must Be Submitted

While the RMP Rule requires companies to conduct numerous accident prevention response activities and to maintain a comprehensive record of its program, only a summary of this information must be submitted to EPA and disclosed to the public. For example, the law and rule require facilities to conduct a thorough PHA or review to identify all possible hazards at the plant. RMPs must include --

- The date of the most recent hazard review
- Expected completion dates for any changes resulting from it
- Major hazards identified and process controls in use
- Mitigation systems in use
- Monitoring and detection systems in use
- Changes since the last hazard review

But the summary submitted to EPA has only the date on which that review was conducted. That means all that reporters and the public can get from EPA electronically is the date-that is all that EPA has. The date alone is of modest help to communities in understanding the nature and magnitude of potential dangers. The PHA itself might be much more useful.

Chapter 12: Tips on Getting Offsite Consequence Information

The Chemical Safety Information, Site Security, and Fuels Regulatory Relief Act limits the distribution of RMP OCA data and prevents access for at least 1 year to a searchable, national, electronic database that could be posted on the Internet.

However, there are a number of possible ways to get information on facilities' potential offsite consequences. Facilities are allowed to disclose their own OCA information. Most of the facilities are required to hold a public meeting to discuss their RMP, including a summary of OCA information. Some companies have included a summary of their worst-case scenario in their RMP executive summaries. Some information may be available from state agencies, the LEPCs, or the EPA regional offices.

Getting Information from LEPCs and SERCs

For local stories, LEPCs and SERCs are usually key sources, but much depends on the capabilities of the particular agency you are dealing with. It is worth getting to know your LEPC, because it may consist of individuals, such as a local fire chief or HAZMAT responder, who can help you on all kinds of chemical release and emergency stories. LEPCs vary considerably. In some states, LEPCs scarcely exist, but parallel agencies under unique state laws take their place. In other states, a single LEPC may cover a large region or the whole state. Keep in mind that their staff resources are limited. Although SERCs and LEPCs are required by federal mandate, they typically do not receive any federal operating funds. Also be aware that some LEPC members may identify with the interests of local chemical companies. In addition, the reporting facility may actually be a municipal water or sewage plant, and a sister municipal agency on the LEPC may act protectively.

LEPCs and SERCs may have information that EPA does not. An example is the Tier II information facilities may make available under EPCRA. Once the LEPC has the information, they are required by EPCRA to make it available to the public on request. Moreover, if the public requests Tier II information that the LEPC does not have, the law strongly encourages the LEPC to request it from the facility.

Getting Information from Facilities

The horse's mouth, when it comes to information on hazardous chemical discharges and emergencies, may be the company or facility itself. It knows more about its own operations than anyone.

During the 1990s, many facilities handling hazardous chemicals opened themselves up to public scrutiny to a degree previously unimaginable. The chemical industry as a whole also appeared to open up in important ways. In the late 1980s, just before the EPCRA requirements kicked, the Chemical Manufacturers Association established a program called Responsible Care®. It amounted to a code of conduct that stressed continuous efforts at risk reduction, proper disposal of wastes, and openness to public scrutiny.

Many plants have thrown themselves into this effort wholeheartedly. Typically, they tend to be major plants of major companies: well financed and managerially and technically competent. It is worth remembering, however, that many small companies are not involved in Responsible Care®.

Attending Public Meetings

The Chemical Safety Information, Site Security, and Fuels Regulatory Relief Act requires facilities (except those under Program 1) to hold a public meeting to summarize their RMP including OCA information. Small companies may publicly post the information rather than hold a meeting. Even before the June 1999 deadline for RMP submittals, many companies were going public with RMP information. Groups of companies in various cities put on "rollouts" of their RMPs with press conferences and information on each company. While the companies can claim credit for initiative and openness in these events, critics in the environmental movement dismiss them as public relations exercises aimed at putting a preemptive positive spin on RMPs and limiting hostile questioning.

The key to good reporting on RMPs is getting beyond the press packets and asking probing questions. Use public data to generate questions. Ask to inspect the plant or go on an inspection tour when community and environmental groups

take one. Having an outside expert with yot'.1 during the tour might help. The "safety information" and "hazard review/analysis" documents generated during the PSM and RMP processes will be a gold mine of information. While companies are not legally required to disclose all of this information, ask to see it. A company's response to such requests may reveal a lot about their commitment to openness with the public.

Finding Other Information Sources

Local community action and environmental groups can be great sources of information on what companies are doing. They may be active in monitoring companies' actions and scrutinizing procedures and operations. Union representatives may be able to provide information related to worker safety and training. Other potential sources of information and insights may include a company's suppliers and vendors and individuals living near a facility.

Information submitted under other laws and regulations can also be useful. For example, CERCLA requires that facilities notify the NRC, EPA regional offices, the SERC, and the LEPC of chemical releases. There are federal and state plant siting and air emission requirements, and. some states have additional reporting and right-to-know requirements. Determining whether all required information has been submitted to the appropriate entity, and the extent to which reported values agree, can provide an indication of the reliability of particular RMP information.

Chapter 13: Some Issues for Journalists and LEPCs

EPCRA specified that LEPCs should include representatives of the media among their membership. However, relatively few committees have managed to include reporters as members. This was not simply the result of reluctance on the part of LEPCs, nor was it the time pressures of reporters' jobs. It was partly a matter of professional ethics. The law's vision of reporters as partners in a community education enterprise conflicted with the media's vision of journalists as independent, disinterested observers. A reporter could have a hard time writing objectively about the proceedings of a committee of which he or she was a member. However, the reporter who writes about the LEPC does not need to be the same one who sits on the LEPC.

LEPCs need critics. Some are failing to plan effectively for community safety. Yet few newspapers and stations have held LEPCs to account by examining how well they are doing their job or how they might do it better.

In the years since EPCRA was passed, the so-called "civic journalism" movement picked up steam in the United States. In a nuts**hell, its premise was that media had a responsibility to be more actively involved, and to get the public more involved, in government policy decisions. The idea was that people needed to understand the choices that government was making and that government needed to understand what the people thought should be done. Journalists can do this job on or off an LEPC.**

Reporters and Emergency Preparedness

Does the media have a responsibility to educate the public about how to protect themselves, even if there is no immediate news hook? A legitimate argument could be made that it does. In addition, discussions with LEPC members and others could result in all sorts of stories.

When hazardous chemicals are involved, an unprepared community may well be a community in danger. For example, do people know when and how to shelter in place? If evacuation is called for, will people be alerted quickly? Will they know if evacuation routes are choked with traffic? Do people know what the plant's emergency siren sounds like? Can they hear' the sirens indoors? If the plant has an automatic phone-dialing system to alert neighbors, does it work? Would a new bridge or ramp speed evacuation? Do local hospitals have enough capacity and skill to handle a chemical disaster? Are their disaster plans adequate?

Good preparation can cost money. While LEPCs may be reticent to propose costly solutions, the news media may be better situated to ask aggressive, unsettling questions about chemical emergency preparedness and to help the public understand the risks and the options. The news media can play an important role in chemical safety-building public awareness, and promoting prevention and preparation efforts that will lead to greater public safety.

The One Important Question

In the end, there may be only one important question that your audience or community' wants answered more urgently than any other does: Am I safe? Are my children and family safe? If you get lost in the details and technicalities of EPCRA and RMP data, you may easily lose sight of the question and the answers to it, in human terms.

EPA has tried to focus on this question. One way it has done this is by stressing the general duty clause of the CAA. This provision states that facilities have a general duty' to operate safely, whether or not they are handling listed chemicals or are covered by the specific requirements of the RMP Rule. So if you think a facility is doing something unsafe, and it tells you everything is perfectly legal because the RMP Rule doesn't cover the facility or allows the behavior, don't necessarily believe it.

People want a yes-or-no answer to the "Am I safe" question, and the most authoritative answers tend to fall somewhere between "probably" and "probably not." Sometimes a crusading reporter or environmental group tends to think that once they have identified a previously unknown hazard, they have discovered a "truth" that the public needs to know about. The public certainly needs to know about potential hazards. And while alarm is a great way

to drive up ratings and readership, realism is just as important. The journalist's responsibility is just as much to avoid excessive alarmism as it is to avoid excessive complacency.

A Focus on Prevention

A lot can be done to make most plants that handle hazardous chemicals safer. Safety is something that can be designed into a facility or process and built from the ground up. When processes are inherently safe, human error or equipment failure is much less likely to result in a disaster: Making processes safer might require redesign or substituting less-hazardous chemicals for more-hazardous ones. It might mean maintaining smaller chemical inventories. It might mean moving at-risk populations away from plants by buying up properties within a buffer zone.

Writing a story that scares people and blames someone is easy. It is easy to write and easy for people to understand. It is much harder to write about what can be done to make a hazard safer, because it requires more detailed understanding and often complex and difficult choices. The answer to the "Am I safe?" question is ultimately written not in the present tense, but in the future tense. The answer comes not just from alarm, but from knowledge and action.

Glossary

Active mitigation: Equipment, devices, or technologies that need human, mechanical, or other energy input to capture or control released substances (e.g., interlocks, shutdown systems, pressure relieving devices, flares, emergency isolation systems).

Acute toxicity: The ability of a toxic substance to cause serious adverse health effects shortly after exposure.

ANSI: The American National Studies Institute, which is the organization that coordinates development of national, voluntary standards for a wide variety of devices and procedures.

ASTM: The American Society for Testing and Materials, which is a developer and provider of voluntary standards.

CAA: The Clean Air Act. Section 112(r) of the Clean Air Act includes requirements for establishing the RMP Rule and other related activities.

CAS Registry Number: A unique identification number assigned to a chemical by the Chemical Abstracts Service, a division of the American Chemical Society.

CERCLA: The Comprehensive Environmental Response, Compensation, and Liability Act of 1980, also known as Superfund, which established requirements for closed and abandoned hazardous waste sites and for liability for releases of hazardous waste sites. CERCLA authorizes EPA to respond to releases of hazardous substances that may endanger human health or the environment.

CHEMTREC: The Chemical Transportation Emergency Center is a hotline operated by the Chemical Manufacturers Association. It provides advice on responding to chemical transportation emergencies.

CSB: The Chemical Safety and Hazard Investigation Board, commonly referred to as the Chemical Safety Board or CSB, is an independent, federal agency whose chief mission is to improve chemical safety by protecting workers, the public, and the environment from the dangers of chemical related accidents. It was established under section 112(r)(6) of the Clean Air Act.

Chronic toxicity: The ability of a toxic substance to cause adverse health effects from repeated exposure over a relatively prolonged period of time.

Distance to endpoint: The estimated distance from a point of toxic release to the point where it is no longer considered hazardous to people.

Dose: The quantity of a chemical to which an individual is exposed over a given period.

Environmental receptors: As used in the CAA, a natural area that could be exposed to a chemical hazard as a result of an accidental release (e.g., national or state parks, forests, or monuments; wildlife sanctuaries and preserves; wildlife refuges; and federal wilderness areas).

Extremely hazardous substance: A substance identified under EPCRA whose release may be of immediate concern to the community because of its irreversible health effects.

EPCRA: The Emergency Planning and Community Right-to-Know Act of 1986 (Title 'm of the Superfund and Reauthorization Act of 1986 or SARA Title III) established chemical emergency planning and community right-to-know requirements for federal, state, and local governments and industry.

ERPG: Emergency Response Planning Guidelines, which were developed by the American Industrial Hygiene Association. ERPG values provide estimates of maximum airborne concentrations of toxic chemicals that most people could be exposed for up to 1 hour without developing certain health effects.

Exposure: Whether and how a human or other organism comes into contact with a chemical-usually by eating or drinking it, inhaling it, or touching it and having it penetrate the skin.

General Duty Clause: The section of the CAA that directs owners and operators of facilities producing, using, handling, or storing hazardous substances (whether or not they are regulated under the RMP Rule) to design and maintain a safe facility, to prevent accidental releases, and to minimize the consequences of any that occur.

Hazard: Something that is capable of causing harm. For chemicals, the inherent properties that represent the potential for personal injury or environmental damage that can result from exposure. The severity of the hazard often depends on its concentration and exposure.

IDLH: Immediately dangerous to life or health values are the maximum airborne concentrations of chemicals to which healthy adult workers can be exposed for 30 minutes and

escape without suffering irreversible health effects or symptoms that impair escape. IDLH values are set by NIOSH.

LEPC: Local emergency planning committees are groups established by EPCRA to coordinate the development of community chemical emergency plans and coordinate to communicate the plans to local stakeholders.

List Rule: The List of Regulated Substances and Thresholds for Accidental Release Prevention (40 CFR 68.130) identifies acutely toxic substances and highly volatile, flammable substances that are regulated under the RMP Rule.

LFL: The lower flammability limit is the lowest concentration in the air at which a substance will ignite.

MSDS: A Material Safety Data Sheet contains information related to the particular hazards of a chemical and protective measures.

NAICS Code: The North American Industry Classification System is the new standard coding system to categorize businesses and industries. It replaces the Standard Industrial Classification (SIC) code system.

OCA: The offsite consequence analysis is a determination of the potential effects of a chemical accident in the area surrounding the facility property.

OSHA: The Occupational Safety and Health Administration establishes standards to protect employees from workplace injuries and illnesses.

Passive mitigation devices: Equipment, devices, or technologies that function without human, mechanical, or other energy input to capture or control released substances (e.g., building enclosure, dikes, and containment walls).

Potency: The toxicity of a chemical that is the ability of a chemical to do systematic damage to an organism.

ppm: Parts per million is a unit used to express the concentration of a substance in air, water, or land. It is commonly used in establishing maximum permissible amounts of contaminants.

Process: Under the PSM Standard and the RMP Rule, any industrial activity involving a regulated substance, including any use, storage, manufacturing, handling, or onsite movement. Includes any group of vessels that are connected and separate vessels located where they could also become involved in a release.

Public receptor: Off-site residences; institutions (e.g., schools, hospitals); industrial, commercial, and office buildings; parks; or recreational areas inhabited or occupied by the public.

PSM Standard: OSHA's 1992 Process Safety Management of Highly Hazardous Chemicals Standard (29 CFR 1910.119) is intended to prevent or minimize the employee consequences of a catastrophic release of toxic, reactive, flammable, or highly explosive chemicals from a process. It served as a model for the RMP Rule prevention program' requirements.

Retail facility: A facility at which more than one-half of the income is obtained from direct sales to end users or at which more than one-half of the fuel sold, by volume, is sold through a cylinder exchange program.

RMP: The risk management plan is a summary of a facility's risk management program, as required under the RMP Rule.

RMP Rule: The Risk Management Program Rule is a set of regulations established under Section 112(r) of the Clean Air Act that provide guidance for the prevention and detection of accidental releases of regulated hazardous substances and preparation of RMPs.

RMP*Submit™: Software, available free from EPA, that facilities can use to submit RMPs.

SARA Title III: See EPCRA

SERC: The State Emergency Response Commission, which under EPCRA, each governor must appoint. The SERCs are responsible for appointing LEPCs, reviewing local emergency plans, and receiving chemical release notifications.

Shelter-in-Place: The practice of staying inside homes or other building to provide temporary protection from chemical releases rather than evacuating the area. It may include closing and sealing doors and windows and turning off heating and air conditioning.

SIC: Standard Industrial Classification codes were assigned to categories of U.S. industries and are referenced in the RMP Rule. They have been replaced by NAICS codes.

Stationary source: Any buildings, structures, equipment, installations, or related stationary activities that produce pollution; often facilities using industrial combustion processes. A fixed-site facility.

Threshold limit value: A workplace exposure standard -- the concentration of an airborne substance that a healthy person can be exposed to for a 40-hour workweek without adverse effect. The American Conference of Government Industrial Hygienists recommends occupational exposure guidelines.

Threshold quantity: The quantity of regulated chemicals, in pounds, specified in EPA's List Rule. Any facility that has more than the threshold quantity amount of a listed substance for use in a single process must file a RMP.

TRI: The Toxic Release Inventory is an EPA database of information about toxic chemicals used, manufactured, treated, transported, or released into the environment, based on reports submitted to EPA under EPCRA

Acronym List

1/10 IDLH	One-tenth IDLH
ACGIH	the American Conference of Governmental Industrial Hygienists
AIHA	the American Industrial Hygiene Association
BLEVE	boiling liquid, expanding vapor explosion
CAA	Clean Air Act
CERCLA	The Comprehensive Environmental Response, Compensation, and Liability Act
CSB	Chemical Safety and Hazard Investigation Board
DOT	The Department of Transportation
EDF	The Environmental Defense Fund

EPA	The Environmental Protection Agency
EPCRA	Emergency Planning and Community Right to Know Act
ERPG	emergency response planning guidelines
FEMA	the Federal Emergency Management Agency
GIS	geographic information system
IDLH	immediately dangerous to life and health
IRE	Investigative Reporters and Editors
kw/m2	kilowatts/meter2
LD50	a dose that is lethal to 50% of the animals tested
LEPC	local emergency planning committee
LFL	lower flammability limit
mm Hg	millimeters of mercury
MSDS	material safety data sheets
NICAR	the National Institute of Computer Assisted Reporting
NIOSH	the National Institute for Occupational Safety and Health
NTSB	the National Transportation Safety Board
NRC	National Response Center
OCA	offsite consequences analysis
OSHA	the Occupational Safety and Health Administration
PHA	process hazard analysis
ppm	parts per million
psi	pound per square inch
PSM	Process Safety Management
RMP	risk management plan
SEER	National Cancer Institute's Surveillance, Epidemiology, and End Results
SERC	state emergency response commission
TLVs	threshold limit values
TRI	the Toxic Release Inventory
USPIRG	U.S. Public interest Research Group

EPA 500-F-10-001, June, 2010

EPCRA: GUIDANCE ON REPORTING OPTIONS FOR SECTIONS 311 AND 312, AND SOME INTERPRETATIONS

HOME

EPA provided draft guidance in the preamble to the June 8, 1998 proposed rule (63 FR 31268) to streamline the reporting requirements for facilities under sections 311 and 312 of the Emergency Planning and Community Right-to-Know Act of 1986 (EPCRA).

The Agency did not propose any regulatory changes, but sought comments on the following reporting options.

1. Underground Storage Tank (UST) Forms to fulfill the requirements for Tier I information under EPCRA section 312;
2. Partnership Programs for joint access to information and streamlined submission of EPCRA sections 311 and 312 reporting. If a single point submission is allowed for facilities, then one agency would receive the information and provide access to the other agencies;
3. Electronic submittal and certification for EPCRA section 312 reporting;
4. Incorporation of previous submissions into EPCRA section 312 reporting;
5. Electronic access to facility Material Safety Data Sheet (MSDS) database; and
6. EPCRA section 312 reporting to fulfill reporting requirements under section 311.

EPA is now providing guidance on these reporting options.

The objective for this guidance is also to provide state and local agencies with flexibility in implementing sections 311 and 312 of EPCRA.

Who is Affected by this Guidance and Interpretation?

Entities that will be affected include those organizations and facilities subject to sections 302, 304, 311 and 312 of EPCRA and the implementing regulations found in 40 CFR parts 355 and 370.

EPA's Decision on These Proposed Options

UST Forms

- Since all states now require facilities to submit a Tier II inventory form or the state equivalent form, this reporting option is no longer useful.

Partnership Programs for Joint Access to Information and Submission of EPCRA 311 and 312 Reporting

- States may implement the Partnership Programs for Joint Access reporting option; however, they must ensure that statutory and regulatory requirements are met. If states choose to implement this option, a formal agreement is necessary between the State Emergency Response Commission (SERC), Local Emergency Planning Committee (LEPC), and fire department. States should then notify the facilities about this agreement and the new submission process.
- States must also meet the March 1 reporting deadline, as specified in the statute.

Electronic Submittal and Certification for EPCRA Section 312 Reporting

- States may require facilities to submit information using Tier2 Submit, the federal electronic reporting format, or the state equivalent electronic reporting format. If facilities do not have the capability to file information electronically, states should allow these facilities to submit paper copies of the Tier II report.
- The original signature requirement in 40 CFR 370.41 and 370.42 could be met by providing the certification statement on paper or by any electronic certification established by the state and local agencies.

Incorporation of Previous Submissions into EPCRA Section 312 Reporting

- Facilities are required to submit a Tier I form or, if requested, a Tier II form annually to the SERC, LEPC, and the fire department, even if the information from the previous year has not changed.

  Most states have established electronic reporting or are using Tier2 Submit software developed by EPA. Therefore, the burden for facilities to re-create information on paper does not exist for most facilities.
- States may adopt this reporting option for those facilities that submit section 312 information on paper.

Electronic Access to Facility MSDS Database

- Section 311 of EPCRA requires facilities to submit MSDSs for hazardous chemicals that meet or exceed the reporting thresholds to the SERC, LEPC, and the fire department.

  The Agency suggested electronic submission of MSDSs or providing access to facilities' MSDS database to reduce the burden on the regulated community and reduce the information management burden on implementing agencies.
- Due to security concerns and several entities lacking access to computers or on-line systems, EPA has rejected this reporting option.

EPCRA Section 312 Reporting to Fulfill Reporting Requirements under Section 311

- This reporting option is only beneficial to those facilities that acquire a new chemical between October 1 and December 31 of any given calendar year.
- States may implement this reporting approach ensuring that facilities comply with section 312 three months after acquiring a new chemical.

What are the Interpretations of Emergency Release Notification and Hazardous Chemical Exemption for solids?

The Agency is also providing new interpretations and revising existing interpretations to help facilities comply with certain requirements under EPCRA.

Emergency Release Notification

- Under EPCRA section 304, facilities may have up to 30 days to submit a written follow-up report to state and local agencies. States may implement more rigorous requirements.

Hazardous Chemical Exemption for Solids under EPCRA Section 311(e)(2)

- Facilities would only have to count the amount of fume or dust given off a piece of metal, brick, or any other manufactured solid item that undergoes a modification process. States may implement more rigorous requirements.

Where Do I Go For More Information?

For more information on this guidance, please visit the Office of Emergency Management Web site: http://www.epa.gov/emergencies/.

OECD-06-13, June, 2013

MEASURING PROGRESS IN CHEMICAL SAFETY: A Guide for Local Emergency Planning Committees and Similar Groups

HOME

Introduction

The Emergency Planning and Community Right to Know Act of 1986 (EPCRA) called for the establishment of local emergency planning committees (LEPCs).

LEPCs have broad-based membership whose primary work is to receive information from local facilities about chemicals in the community, use that information to develop a comprehensive emergency plan for the community, and respond to public inquiries about local chemical hazards and releases.

There are more than 3,000 LEPCs and they reflect the diversity of the country. Most LEPCs are organized to serve a county, some are for a single large city; others cover a larger area of the state.

Many LEPCs have expanded their activities beyond the requirements of EPCRA, encouraging accident prevention and risk reduction, and addressing homeland security in their communities.

Composed of representatives from all segments of the community interested in emergency planning and preparedness, LEPCs foster a valuable dialogue among members of the public, industry and government. In some communities LEPCs have formally aligned themselves with FEMA's Citizen Corps Program. These and similar groups can also use this guidance.

There is no doubt that LEPCs have made valuable contributions in chemical safety. This guide provides information about how LEPCs can measure their progress and determine if the actions they are taking continue to achieve the desired outcomes.

This approach is based on "Guidance on Developing Safety Performance Indicators related to Chemical Accident Prevention, Preparedness and Response for Public Authorities and Communities" published by the Organization for Economic Development (OECD) in December 2008. There is also a Guidance on Developing Safety Performance Indicators for Industry.

The full guidance may be found at www.oecd.org/ehs. An interactive website allows LEPCs to select and customize their review program at http://oecdsafetyindicators.org/.

Why Measure Progress?

LEPCs have important roles to play with respect to chemical safety. Setting goals and measuring progress allows you to take a step-by-step approach to reducing the likelihood of accidents and improving preparedness and response capabilities.

Depending upon local risks, capacities and conditions, there are several possible goals and metrics that can be applied to the activities of LEPCs. One size does not fit all. The advantage of this program for LEPCs is the ability to set goals and measure progress in a way that is specifically relevant to the community the LEPC serves.

Your LEPC may be evaluated by local government entities, the mayor, the city council, or a similar group, in order to determine an appropriate level of funding as well as whether the work of the LEPC deserves the time and attention of the membership. Industry may want to know if the chemical information (and often, the financial support) they provide is being used wisely and efficiently. Individual citizens may wonder if your work is effectively protecting them.

Federal agencies may use indicators of success to support grant funding and other decisions related to LEPCs. And, of course, you, as LEPC members may want to study what you are doing to see if you are satisfied with your work and whether your efforts have led to better protection of the community from chemical risks. All these and other issues can provide the reason to measure the progress of your LEPC.

How to Measure Progress

Many LEPCs expect a checklist of what they should be doing. However, it is better for LEPCs to have their own vision of success based upon the risks, capacities and conditions in the community they serve. That vision should be written, clear, and come from a group discussion of the concerns and motivations that caused the participants of the LEPC to join.

It may be that none of the LEPC members believe the vision is obtainable given current resources. That does not matter as long as the LEPC understands its mission is to make progress towards the vision.

The vision of success is an aspirational goal and should set the long-term objectives for the work done by the LEPC. Some LEPCs have adopted a vision of success along the lines of:

An engaged community with a broad safety and preparedness culture as show by:

- Robust emergency planning and personal preparation
- Effective and safe response
- Chemical accidents are prevented

Obviously, this or any vision of success cannot be achieved in one or two steps. It is, instead, achieved through a progression of activities designed to achieve milestones along the path to success. To define these steps LEPCs should establish both long-term and short-term goals that it believes will lead to achieving the vision of success. These goals should be a product of clear discussion and agreement among the LEPC membership.

Do not get distracted by terminology. For purposes of the Safety Performance Indicators (SPI) program, goals are often called "outcomes." The key distinction is that "outputs" are the products that your LEPC makes (e.g., your emergency plan, your evacuation plan) or things that you do (e.g., conduct monthly meetings) but they are not the goals or outcomes that lead to your vision of success. Instead, achieving a goal or outcome requires measuring the results from outputs or activities in a way that is relevant to the goals or outcomes.

For the purposes of SPI these results are called targets or metrics. In other words, when you set a goal it should be paired with what you are going to measure that tells you whether you are making progress towards the goal and when you have achieved the goal.

The following examples might help clarify the outcome/output distinction and the role of targets.

1. If your community has recently had a chemical release that led to injuries and deaths, the mayor or LEPC could establish a goal: no more injuries and deaths from a chemical accident in this community. That is a clear goal, perhaps overly ambitious in the eyes of some people, but one that is understandable and sensible in the context of your community's recent history.
    a. There are a variety of possible metrics/targets: no deaths or injuries this year, no accidental releases this year, and/or a 30% reduction in the number of accidental releases this year.
    b. As for "outputs," the products and/or activities that the LEPC undertakes to meet the metric/target for the goal, it could be a revised emergency plan, exercises to test the emergency plan, training for local responders, outreach materials for local citizens to ensure that they know the appropriate steps to take if there is an accidental release, improved notification systems to ensure that citizens are aware of a release, establishing a continuous dialog with industries in your community on risk reduction and accident prevention, and so forth.
    c. The LEPC then looks at the metrics/targets, including trends and changes over time, to determine if the outputs are productive and useful in achieving the goal.
2. You might have as a goal that local citizens be aware of the chemical hazards present in the community combined with a goal that will involve increased awareness of personal responsibility and appropriate actions in the event of an accident. Your target could be a specific annual increase in the number of people familiar with local chemical hazards. Measuring success could involve some process for interviewing citizens annually or citizen performance in exercises or other tests of emergency plans. "Activities or outputs" to achieve this goal could be public meetings at which chemical hazard information is shared, printed materials with maps showing the location of specific chemicals, video materials for use on television programs and/or at public meetings.
3. Another possible goal is to have all facilities in your community that are subject to EPCRA be in full compliance with the law. Targets could be an annual increase in the number of facilities that have submitted information or a reduction in the number of facilities found to be in noncompliance during inspections. Activities to accomplish these targets, might include an annual campaign focused on a specific industry sector, or a public campaign urging all facilities to submit the required information.
4. A specific preparedness goal might be for all students and teachers in local schools to be familiar with what actions they should take if there is a chemical release in the community with a possible impact on the school. A possible target could be the number of students/teachers who take the appropriate action during an exercise. As activities the LEPC could conduct training on hazard awareness, shelter in place, develop print and audio/visual materials, and/or prepare signs to post at strategic points.

Why Should You Care?

LEPCs face a terrible burden in demonstrating their worth and the worth of the activities they conduct. LEPCs lack a convincing way to demonstrate this worth because of a tendency to "do things" that seem obviously helpful, for example, hold meetings, make TV announcements describing your LEPC, practice implementing an emergency plan, and share information with the public about the dangers of chemicals in their community.

But it is not always clear that these apparently good activities actually contribute to reaching some vision of success. The various audiences served by LEPCs will have their own vision for the success of what LEPCs do and that vision may not be the same as what the LEPC would craft for itself.

As these examples and the discussion in Appendix I demonstrates, LEPCs should have a goal oriented reason when they choose their activities, and then be able to demonstrate that those activities helped them make progress in achieving their goals in a measurable fashion.

APPENDIX I

What Are Safety Performance Indicators and How Are They Used?

The OECD guidance uses the term "indicators" to refer to measures that provide insights into a concept (i.e., safety) that is difficult to measure directly.

Simply put, the group first identifies some area of concern, then describes the target they want to accomplish in that area.

Subsequently, they identify outcome indicators and activities indicators that can help them determine if they are meeting the target they established.

(This is probably a bit murky to you. We will provide a detailed example in a bit.)

Outcome indicators help assess whether actions (e.g., policies, procedures) are achieving their desired results. Activities indicators provide you with a means to check regularly whether you are implementing your priority actions in the way you intended.

In this way, the activities indicators provide you an opportunity to understand why you are, or are not, achieving your target in a specific area.

As you might be guessing by now, choosing the indicators related to your situation is the key step in this entire process. And the good news is that the OECD guidance, often a bit difficult to understand (it was developed for use in many countries with varying safety customs and practices, with different words to describe their safety practices), is actually very helpful when it comes to choosing performance indicators.

In fact, once you have identified an area of concern and an appropriate target, the OECD guidance offers a list of possible outcome indicators and even more activities indicators.

You can choose to adopt the OECD language directly, or you can use the OECD list as a way to get you thinking more about the topic with the result that you develop your own indicators. (If you want to use the OECD language, the interactive website mentioned on the first page, http://oecdsafetyindicators.org/, will help you lift the OECD language directly into your local evaluation plan.)

Let's look at an example. Let's say that your LEPC wants to focus on communication with the public. You should find the OECD guidance for Public Authorities and Communities to be helpful.

There is suggested "target" language ("The public understands chemical risk information, takes appropriate actions in the event of an accident and has an effective channel to communicate with relevant public authorities.") Then there are at least eight outcome indicators, for example:

- Extent the public understands and remembers the chemical risk information that has been provided to them by public authorities.
- Extent the public is satisfied with chemical risk information provided to them by public authorities.
- The number and quality of comments provided by the public on the information they have received.

You can see that, if you chose these outcome indicators, you will need to develop a method for gathering data, and then actually gather the data, to know if the outcome indicators are being achieved. Next, you will find a list of potential activities indicators, for example:

- Is there a specific mechanism to share information between public authorities and the public openly and actively? Has this mechanism been designed in consultation with the public and other stakeholders?
- Is there a mechanism for the public to request information from public authorities and/or industry?

The activities indicators suggest actions and processes that you might want to have in place in order to ensure that the outcome indicators (and the underlying "target") are reached.

The activities indicators can often be answered with a "yes" or "no," but the real question is: will these activities promote chemical safety?

You can see that the options for activities indicators are very wide-ranging.

The good news is that, even though the OECD guidance does not provide an exhaustive list of activities indicators, it does provide some very good suggested indicators, which you can start with and adjust to meet your organizations specific needs

The SPI Process

Step 1: Gather a team.

Someone must be responsible for conducting the evaluation for your LEPC. The SPI Team could be the LEPC itself, a subcommittee made up of LEPC members, a committee whose members are totally outside the LEPC membership, or some combination of the latter two options.

In fact, there is another possibility: you might have a one-person team.

You will know if there is someone in your community with special talents for this job. Even if you go with the idea of a committee, that "one-person team" could be the ideal chairman for the committee.

Whomever you choose as members, be sure that they are interested in evaluation, have the time to commit (one year, at a minimum), and enjoy the respect of your LEPC and political leaders.

You do not want the public to criticize the SPI results on the basis that the team members were not trustworthy.

Step 2: What are the key hazardous materials issues and concerns?

The OECD guidance has some good advice for this step. You probably know one or two issues that you would like to analyze.

Or your SERC might identify an issue that it would like every LEPC in the state to address.

Some very good advice from the OECD guidance: do not fall into the trap of asking what you can measure instead of what you should measure.

Step 3: What does success look like? & Step 4: Identify activities and establish a "yardstick" (outcomes) to show progress.

See the discussion above under "What are safety performance indicators."

Step 5: Do the activity. Collect the data.

See the OECD guidance. Note what they say about using existing data as well as not using too many data points when briefing upper management.

Step 6: Act on the findings.

See the OECD guidance. Note that, if there are inconsistencies in the results, it may indicate a problem in your safety program or a problem in the construction of your SPI program. This step involves addressing problems in your safety program.

Step 7: Evaluate and refine the process.

The results in Step 6 should lead you to look at both the safety program and the SPI program. Recall that you need a good list of activities indicators, and it might take time to come up with the right ones.

The list in the OECD guidance should be helpful, but only your experience (plus some advice from your SERC if they are involved in the SPI process) can tell you if you need to revise the activities indicators.

If Step 6 leads you to conclude that you have to change your activities indicators, do that and repeat the process as needed. (If you change or revise the activities indicators, you have already gotten to Step 4 for the second time.)

Some Specific Examples

The OECD guidance develops three scenarios (one each for a public agency, the local fire department, and a citizen committee) and shows what the SPI team would do at each step of the process.

As an LEPC, you will relate most closely to the citizen committee scenario, but you can also profit from following the other two scenarios through the process. Begin by reading the scenarios, and then study what actions are taken at each SPI step for each scenario.

You may find that one of the scenarios fits your situation; in that case, you might be able to lift a lot of material directly from the OECD guidance.

Let's go through one more example in detail so that you can see how the SPI process could be applied to a school lab cleanup project.

Scenario: Parents of students from the local high school, who are also members of the LEPC, discover storage of chemicals in the school lab while visiting the school during a parent/teacher conference.

Upon researching this further, the parents discovered that if these chemicals are not stored and handled properly, they can create a substantial hazard to students and first responders in the event of fire or spill.

The parents have approached the school and LEPC to work together to ensure processes are in place for the proper storage and handling of these chemicals and identify a mechanism to evaluate these processes.

The Process of an LEPC / High School Example	
1. Gather a team	• Representatives of the LEPC, fire department, and other relevant regulatory agencies. If any, along with the school principal and parents meet to scope the project.
2. What are the key hazardous materials issues and concerns?	• Following discussions among the team members, it was agreed that the "vision of success" was to reduce risk to students and faculty from chemical accidents. Key issues of concern included: o Developing appropriate procedures for the safe storage and handling of hazardous chemicals in school o Reducing the risks of a chemical accident by removal of old, unneeded, excess quantities or otherwise hazardous chemicals, and o Education of students and faculty on the hazards of chemicals used in the school labs.
3. What does success look like?	• The team determined that success of this effort would include: o Safe removal and disposal of unused, outdated and hazardous chemicals from the school lab. o All teachers and students are properly educated regarding the hazards presented and how to handle those chemicals. o Programs are implemented to prevent re-accumulation of chemicals, and o Procedures are implemented for proper storage and use of hazardous chemicals.
4. Identify activities and establish a "yardstick" (outcomes) to show progress.	• The metrics would include: quantities of chemicals removed, all teachers and students educated on chemical hazards of school chemicals, institution of inventory control programs measured by whether old or excess quantities are present term-to-term, and development of proper chemical storage procedures as measured by inspectors.

5. Do the activity. Collect the data.	• The team decided they would take an inventory of the amount and location of the hazardous chemicals and remove those that were a risk to the students and community. This is to be reported to the school, LEPC, and public via a public meeting and report. • The team also decided to institute procedures on the safe handling and storage of hazardous chemicals as well as a training program for teachers and students. Procedures are to be reviewed by the science faculty and re-evaluated each term. • The following data will be collected and reviewed: o Number of teachers/students trained on the procedures and competence of the teachers/students based on post-training/test. o Number of times procedures are not followed which will be tracked using log book sign in, observations by teachers of students using the chemicals, and number of accidents which occur due to misuse of the chemicals. o Number of times inspections showed a failure to follow procedures.
6. Act on the findings.	• The team agreed that each term, reports would be submitted to the school superintendent, PTA, student body, and LEPC with the results of the tracking of the activity indicators on inventory practices and chemical accidents. These reports would be reviewed by the LEPC/fire department and school administration and faculty to determine if changes need to be made in the procedures and/or the training program.
7. Evaluate and refine the process.	• At the end of each school year, the team would meet with the LEPC and PTA in order to review the project outcome and the activity indicators to determine if they need to be revised or eliminated and whether new indicators need to be developed and implemented, based on the results of the previous year and the experience gained in implementing the SPI programs.

Additional examples

LEPCs can submit to EPA any additional examples developed and implemented. These lessons learned will be shared on EPA's website, http://www.epa.gov/emergencies/.

Additional information and assistance

The "Guidance on Developing Safety Performance Indicators related to Chemical Accident Prevention, Preparedness and Response for Public Authorities and Communities" was published by the Organization for Economic Development (OECD) in December 2008.

The full guidance may be found at www.oecd.org/ehs. LEPCs can use the interactive website at http://oecdsafetyindicators.org/ to select and customize their review program.

Go to the website, click on "Communities," and then click on "My Targets and Indicators."

After creating an account, you can log in and create pages appropriate to your scenario.

You can receive additional assistance by using the "Contact Us" function on the interactive website or by contacting EPA through our website www.epa.gov/emergencies/.

TITLE III ON INDIAN LANDS: A GUIDE TO THE EMERGENCY PLANNING AND COMMUNITY RIGHT-TO-KNOW ACT

HOME

About This Bulletin...

In 1986 Congress passed a law to help local communities, including Indian reservations, protect public health and safety and the environment from chemical hazards. This law, the Emergency Planning and Community Right-to-Know Act, known as Title III of the Superfund Amendments and Reauthorization Act (SARA), requires that detailed information about the nature of hazardous substances in or near reservations be made available to the public and that comprehensive emergency plans be prepared to deal with chemical accidents. The law also provides stiff penalties for companies that do not comply, and it allows citizens to file lawsuits against companies and government and Tribal agencies to force them to obey the law.

EPA published a rule-making in the Federal Register (July 26, 1990) designating Indian Tribes and their chief executive officers as the implementing authority for Title III on all Indian lands. EPA policy is to work with Tribes on a "government-to-government" basis. Unless Tribal leaders choose another of their various options to comply with Title III, EPA will regard Federally recognized Tribal reservations as a Tribal Emergency Response Commission (TERC), with the same responsibilities as States for carrying out provisions of the law.

This bulletin is intended to make Indian leaders familiar with Title III requirements and provide guidance for complying with Title III. The bulletin is divided into three parts: (1) How Title III Works; (2) Resources Available to TERCs and LEPCs Implementing Title III; and (3) Everyone Is Involved in Title III.

PART ONE: How Title III Works

Title III contains four major provisions: (1) planning for chemical emergencies, (2) emergency notification of chemical accidents and releases, (3) reporting of hazardous chemical inventories, and (4) toxic chemical release reporting.

The law also deals with trade secrets, disclosure of information to health professionals, and public access to information gathered under the law. Each of the main provisions of the law are described in this section.

1. Emergency Planning (Sections 301-303)

- Tribal chief executive officers appoint Tribal emergency response commissions (TERCs). Governors appoint State emergency response commissions (SERCs).
- TERCs (or SERCs) establish emergency planning districts and appoint, supervise, and coordinate local emergency planning committees (LEPCs).
- Facilities notify TERCs (or SERCs) and LEPCs if they have extremely hazardous substances present above "threshold planning quantities," and participate in emergency planning.
- LEPCs develop focal emergency response plans and review them at least annually.

The emergency planning section of the law is designed to help your reservation prepare for and respond to emergencies involving hazardous substances. Every community in the United States, including Indian reservations, must he part of a comprehensive plan.

Indian leaders may select one of the following options in order to comply with this part of Title III:

- Form an independent TERC and either appoint a separate LEPC or act as a TERC/LEPC and perform the same functions as a SERC and LEPC respectively.
- Indian Tribes may enter into cooperative agreements with another Tribe or a consortium of Tribes or the State within which its lands are located to achieve a workable Title III program.

For the purposes of Title III, a cooperative agreement is any formal agreement reached by the States and Tribes that meets the needs of the parties to the agreement and is entered into with full knowledge and consent. Each agreement is expected to be unique and to meet the specific needs of the parties. Some examples of these would be the following:

- A Memorandum of agreement (MOA) with the SERC to become a Tribal LEPC or join an off-reservation LEPC and coordinate with the SERC.
- An MOA with the SERC to work with the SERC so that the Tribe implements some but not all of the new law's requirements, while the State implements the rest of the requirements.

a. Tribal Emergency Response Commission (TERC)

The TERC should include broad-based representation, including Tribal public agencies and departments concerned with issues related to environment, natural resources, emergency services, public health, occupational safety, and transportation, as well as any other groups with interest in Title III issues. If the Tribal chairperson does not designate a TERC, the Tribal leader operates as a TERC until a commission is appointed, and assumes all responsibilities described for the TERC. Among the TERC's duties are to:

- Designate local emergency planning districts;
- Appoint a local emergency planning committee (LEPC) to serve each of the districts;

- Coordinate and supervise LEPC activities;
- Coordinate proposals for and distribution of Federal training grant funds;
- Review LEPC plans, recommending any needed changes;
- Notify EPA of all facilities covered under emergency planning requirements, or designated by the TERC as subject to the requirements;
- Establish procedures for receiving and processing public requests for information collected under Title III;
- Ask for further information about a particular chemical or facility, when needed;
- Request information from EPA on the health effects of chemicals that EPA has agreed to designate "trade secret," and ensure that this information is available to the public; and
- Take civil action against facility owners or operators who fail to comply with reporting requirements.

The TERC should ensure that its program is integrated with the federal law in order to strengthen enforcement.

b. The Tribal LEPC

There may be a need for only one LEPC on a reservation. The Tribal LEPC -- whether it is coordinating with a TERC or a SERC -- should be broadly representative of the community and include the Tribal chief, elected Tribal officials, chairmen of appropriate council committees, fire chief, emergency or environmental manager, Indian Health Services (IHS) official, Bureau of Indian Affairs (BIA) official, local news media representatives, Tribal elders, police chief, school official, Tribal attorney, technical personnel or first responder, pesticide officer, representatives of railroads or trucking firms, representatives of chemical or related industries on or near the reservation, and community representatives.

The Tribal LEPC's first jobs are to get organized, receive information, and analyze hazards. The information submitted under Title III will enable the LEPC to conduct a community hazards analysis, identifying the types and locations of chemical hazards, vulnerable areas and populations (e.g., children, elders, and even livestock), and the risk of accidents and their effects on the community. On most Indian reservations in the past, chemical emergencies have resulted from spills of chemicals in transit; as economic development progresses, accidents from fixed facilities may become a larger concern for Indian Tribes.

The list of 360 extremely hazardous substances (EHSs) identified by EPA as having immediate health effects and hazardous properties may serve as a focus for emergency planning, but plans should address all hazardous materials in the community that present risks to public health and safety. These substances are found in some widely used insecticides, herbicides, fertilizers, preservatives, photographic chemicals, and solvents as well as in wastewater treatment and drinking water treatment processes.

The list of EHSs includes a threshold planning quantity for each substance. If this amount or more of the chemical is present at any manufacturing plant, warehouse, hospital, farm, small business, or other facility, the owner or operator must notify both the TERC and the local emergency planning coordinator. This lets the planners know what hazardous chemicals are being used, stored, or transported on or near your reservation.

Once the hazards have been analyzed, the LEPC can work with local facilities to identify opportunities for reducing risks (e.g., by reducing chemical inventories). The LEPC will also prepare various potential accident scenarios and develop a local emergency response plan that must be exercised, reviewed annually, and updated. As required by Title III, the plan should:

- Contain an analysis of hazards on or near the reservation, including both fixed facilities and transportation routes;
- Identify in detail the on-reservation and off-reservation resources, both personnel and equipment, available to respond to a chemical emergency;
- Designate a community coordinator and, where appropriate, identify the facilities coordinator to assist in preparing and implementing the plan;
- Describe emergency response procedures;
- Outline procedures for notifying the community that a release has occurred;
- Describe methods for determining the occurrence of a release and the probable affected area and population;
- Outline evacuation plans;
- Describe a training program for emergency response personnel; and
- Present methods and schedules for exercising emergency plans.

Since membership on the LEPC is broad-based, the LEPC should be familiar with the reservation; it should know about the capacities of local hospitals, and about the location of schools, nursing homes, and other special considerations on the reservation. It should consider all these factors in developing its emergency response plan.

Each facility's owner or operator must also name an employee as facility coordinator, and that person must participate in the planning process. The LEPC will appoint an information coordinator who will receive and process information as it is submitted to the committee and make it available to the public.

The LEPC must publish notices and schedule public meetings to give citizens an opportunity to comment on the LEPC's activities. LEPC meetings will provide a forum for discussions of how the reservation should address hazardous situations identified during the planning process. The LEPC must also conduct emergency drills to make sure the plan will work if an accident occurs.

TERCs must review local emergency plans to ensure coordination across the reservation if there is more than one LEPC, or if coordination with an LEPC beyond reservation

boundaries is necessary. EPA encourages Indian Tribes, SERCs, and LEPCs to participate in joint planning and cooperative efforts on a regular basis to prepare for potential emergencies.

2. Emergency please Notification (Section 304)

- Facilities notify TERCs (or SERCs) and LEPCs immediately of accidental releases of hazardous substances in excess of reportable quantities and provide written reports on actions taken and on medical effects.
- TERCs (or SERCs) and LEPCs make accidental release information available to the public.

If there is a chemical accident at a commercial, municipal, or other facility or on a transportation route on your reservation, and if the accident results in the release of any one of a large number of hazardous substances, citizens have a right to know about it. Under Title III, a facility, including facilities owned by the Tribe, must immediately notify the Tribal LEPC and the TERC of the release of more than the predetermined amount of one of these chemicals. If the release results from a transportation accident, the transporter can dial 911 or the local telephone operator to report it. Chemicals covered by this section include not only the 360 EHSs, but also more than 700 hazardous substances subject to the emergency notification requirements of the Superfund hazardous waste cleanup law (some chemicals are on both lists). Superfund requires notification of releases to the National Response Center (NRC), which alerts federal responders. You can notify the NRC of releases 24 hours a day by calling (800) 424-8802.

Immediate notification must include the name of the chemical; the location of the release; whether the chemical is an EHS; how much of the substance has been released; the time and duration of the incident; whether the chemical was released into the air, water, or soil, or some combination of the three; known or anticipated health risks and necessary medical attention; proper precautions, such as evacuation; and a contact person at the facility. The notification will activate emergency plans.

The law also requires follow-up reporting. As soon as practicable after the release, the facility coordinator must submit a written report to both the LEPC and the TERC. The follow-up report must update the original notification and provide additional information on actual response actions taken, known or anticipated health risks, and, if appropriate, advice regarding any medical cart needed by exposure victims. Information on emergency releases will also be considered in the TERC and LEPC planning process.

3. Right-to-Know Reporting (Sections 311-312)

- Facilities submit material safety data sheets (MSDSs) or lists of hazardous chemicals on-site (above "threshold quantities") to TERCs (or SERCs), LEPCs, and local fire departments.
- Facilities submit emergency and hazardous chemical inventory forms (amounts and locations of chemicals) to TERCs (or SERCs), LEPCs, and local fire departments,
- TERCs {or SERCs) and LEPCs make hazardous chemical information available to the public.

Information about accidental chemical releases is only the beginning of the public's "right to know" about hazardous substances. Citizens also have a right to information about the amounts, location, and potential effects of hazardous chemicals being used or stored on the reservation. (For a description of the differences among "hazardous chemicals," "extremely hazardous substances," and "toxic chemicals," see the box "Lists of Chemicals.") Facilities must report this information to the LEPC, the TERC, and local fire departments. The LEPC and TERC, in turn, must make the information available to the public.

Lists of Chemicals

There are four groups of chemicals subject to reporting under Title III. Some chemicals appear in several groups. The groups are:

- Extremely Hazardous Substances (Sections 302 - 304). 360 substances chosen because of their extremely toxic properties. These substances provide an initial focus for chemical emergency planning. Releases must be reported immediately.
- Hazardous Substances (Section 304). About 720 substances listed under previous Superfund hazardous waste cleanup regulations (Section 103(a) of CERCLA). Releases must be reported immediately because they represent an immediate hazard to the community.
- Hazardous Chemicals (Sections 311- 312). Not on a list, but defined by OSHA regulations as chemicals that represent a physical or health hazard. This definition could potentially include many thousands of chemicals. Inventories of these chemicals and material safety data sheets for each of them must be submitted.
- Toxic Chemicals (Section 313). Over 320 chemicals selected by Congress because of their long-term toxicity. Estimates of releases of these chemicals into all media -- air, land, and water -- must be reported annually and entered into a national data base.

This information provides a tool which can be used to lower chemical hazards in the community by reducing chemical inventories and possibly eliminating some hazards by substituting less hazardous chemicals. The reports are also essential for LEPCs and emergency response workers, providing the raw material for the emergency planning

process. Fire departments and public health officials will use the information to plan for and respond to emergencies.

Facilities must report on the hazardous chemicals they use and store in two different ways. The first is through material safety data sheets (MSDSs), which contain information on a chemical's physical properties and health effects. Under federal laws administered by the Occupational Safety and Health Administration (OSHA), companies are required to keep MSDSs on file for chemicals used in the workplace. They must also make these sheets available to their employees, so workers will know about the chemical hazards they are exposed to and can take necessary precautions in handling the substances.

Under Title III, facilities must submit either actual copies of the MSDSs, or lists of MSDS chemicals that are present at the facilities in excess of certain amounts. EPA encourages facilities to submit the list of chemicals. This information must be sent to the LEPC, the TERC, and the local fire department. The reporting for this part of the law is based not on any list of specific chemicals, but on a definition of "hazardous chemical" under OSHA's requirements -- essentially any chemical that poses physical or health hazards. As many as 500,000 products can fit this definition and thus, if present above the threshold quantities, must be reported.

The second way that companies must report on hazardous chemicals is by submitting annual inventories of these same hazardous chemicals to the same three organizations -- the LEPC, the TERC, and the local fire department. The law includes a "two-tier" approach for annual inventory reporting. Under Tier I, a facility must report the amounts and general locations of chemicals in certain hazard categories. For example, a Tier I report might say that a facility stores 10,000 pounds of substances that cause chronic health effects. A Tier II report contains basically the same information, but it must name the specific chemical. A Tier II report might say that the facility has 500 pounds of benzene, and it would indicate the physical and health hazards associated with benzene.

Congress gave companies the flexibility to choose whether to file Tier I or Tier II forms, unless State or local laws require Tier II reporting. EPA encourages facilities to submit Tier II reports. In fact, some States require submission of Tier II forms only. TERCs may pass similar Tribal laws regarding section 312 reporting. EPA believes that Tier II reports provide emergency planners and communities with more useful information, and encourages facilities to submit Tier II forms.

Many companies have voluntarily provided Tier II reports. Citizens can gain access to MSDSs and annual inventory reports by contacting the TERC or LEPC. While the information is available to the public, companies can ask that the identify and locations of specific chemicals within the facility be kept confidential.

This means that TERCs, LEPCs, and local fire departments can use the location information but not disclose it to the public.

4. Toxic Chemical Release Reporting (Section 313)

- Covered facilities submit annual reports on yearly routine and accidental toxic chemical releases to States, Tribes, and EPA.
- EPA establishes a national toxic chemical release inventory based on facility reports.
- TERCs (or SERCs) and EPA make release information available to the public and communities, EPA makes the information accessible on a national computerized data base, and by other means.

Along with the information on hazardous chemical usage, storage, and accidental release described above, citizens also have the right to know if certain manufacturing plants are routinely releasing any of some 320 toxic chemicals into the air, water, or soil of the reservation.

This element of Title III applies to facilities in the manufacturing sector (Standard Industrial Codes 20 - 39) with ten or more employees that manufacture, process, or use more than threshold amounts of these chemicals.

They must estimate each year the total amounts of chemicals that they release into the environment -- either accidentally or as a result of routine plant operations -- or transport as waste to another location. Reports must be filed by July 1 of each year covering releases in the previous calendar year.

The annual release reports are submitted to EPA headquarters and to the Tribal environmental, health, or emergency response agency which coordinates with the TERC. EPA is required to compile them into a national computerized data base called the Toxic Release Inventory, or TRI.

This data base must be accessible to the public through computer telecommunications and other means. The data are available on the National Library of Medicine's Foxnet data base.

The annual release data can be used, along with the other information the TERC and LEPC receive, to put together a more complete picture of the hazardous substances found on the planning reservation.

Companies can also use the release information they collect to assess their operations with an eye to reducing the amount of toxic chemicals they use and release into the environment.

What the TRI can do best is to serve as a "pointer" to potential toxic chemical problems. The TRI will enable EPA, Tribal leaders, and citizens to look for "hot spots," or areas with apparently high emission levels.

Using this information, environmental agencies can set priorities for further investigation and possible regulatory or other action, if needed, to protect public health and the environment. Environmental agencies, as well as public-interest organizations and LEPC's, can also use the data to encourage facilities to cut back on their releases.

5. Trade Secrets (Section 322)

- Facilities may claim chemical identify information trade secret, but must substantiate the claim.
- Trade secret information may be disclosed to health professionals for diagnostic, treatment, and prevention purposes.
- Citizens may challenge trade secret claims by petitioning the EPA.

PART TWO: Resources Available to TERCs and LEPCs Implementing Title III

Guidance and Technical Assistance

To help Tribal officials as they develop their emergency plans, the National Response Team (NRT) has published the Hazardous Materials Emergency Planning Guide (NRT-1). In addition, EPA, the Federal Emergency Management Agency (FEMA), and the Department of Transportation (DOT) have published a follow-up document Technical Guidance on Hazards Analysis which tells emergency planners how to identify the hazards in the planning district, determine vulnerable zones for each hazard, assess risk, and then set priorities among hazards and begin to develop an emergency plan.

Computer Aided Management of Emergency Operations, CAMEO™, is a software program which can assist you to manage and use information collected under SARA Title III and conduct a community hazards analysis. It also includes response information for over 3,000 chemicals commonly transported in the United States.

The system was developed by the National Oceanic and Atmospheric Administration (NOAA) and EPA to assist emergency responders, emergency planners, and others involved in activities concerned with the safe handling of chemicals, and is being used by local governments, fire departments and industry throughout the United States.

CAMEO™ is now available for both Macintosh and IBM-compatible computers. For information regarding CAMEO™, contact your EPA regional office or the Emergency Planning and Community Right-To-Know Information Hotline at (800) 535-0202.

EPA has also published documents to help industry comply with the reporting provisions of Title III, and to help Tribal and local officials manage and analyze the information submitted.

For example, the requirements of Section 313 are described in *The Emergency Planning and Community Right-to-Know Act: Section 313 Release Reporting Requirements.*

EPA and FEMA staff are also helping TERCs administer the law by sponsoring workshops, speaking at meetings of TERCs and LEPCs, and providing guidance for developing and testing local emergency plans and managing, understanding, and communicating the information submitted under Title III.

Training

EPA offers a number of training activities in preparing for, responding to, and preventing chemical accidents through the Agency's Environmental Response Team and joint efforts with FEMA, DOT, and other federal agencies. FEMA provides training grants that may be used by Tribal officials, which will be provided through the TERCs or other agencies. The purpose of the grants is to allow Tribal communities to gain or improve on the skills necessary for carrying out emergency planning and preparedness programs.

The Hazardous Materials Transportation Uniform Safety Act of 1990 (HMTUSA) includes funding grants for States and Indian Tribes for training public sector employees in hazmat response; these funds may be used for tuition costs, employee and trainer travel expenses, and employee room and board at training facilities. Eligibility for these grants requires compliance with Title III. HMTUSA also provides for planning grants for developing, improving, and implementing Title III plans, including the determination of transportation flow patterns of hazardous materials, and for determining the need for regional hazmat emergency response teams. Finally, HMTUSA provides for grants for developing a training curriculum that will be distributed to TERCs and LEPCs. Tribes should contact EPA Regional offices to learn how to apply for training grants as well as to learn whether and how they can qualify for planning grants.

Toxic Release Inventory

EPA annually compiles the computerized Toxic Chemical Release Inventory. The national data base is made available to the public through computer telecommunications. TRI information is also available in other formats including: microfiche, which is available for free in many Federal Depository Libraries and other libraries, and on computer diskettes, CD-ROM, magnetic tape, and in a published annual report all of which are available for sale through the Government Printing Office and the National Technical Information Service. Information about the TRI data base can be obtained by writing to:

U.S. Environmental Protection Agency, Attention: TRI Public Inquiry

P.O. Box 70266, Washington, DC 20024-0266

or by calling the TRI User Support Service at (202) 260-1531.

Enforcement

- The government may assess civil and administrative penalties of $10,000 to $75,000 per day against facilities that fail to comply with the above provisions.
- Anyone who knowingly and willful& fails to provide emergency release notification is subject to criminal penalties of up to $50,000 or five years in prison.

- The TERC, SERC, LEPC, or the State or local government may initiate actions against facility owners or operators for failure to comply with Title III requirements.
- Citizens may initiate civil actions against EPA, TERCs, SERCs, and facility owners and operators for failure to comply with certain aspects of the law.
- Anyone who knowingly and willfully discloses trade secret information may face penalties up to $20,000 and/or one year in prison.
- States may sue EPA for failure to provide trade secret information.

EPA has a major role to play in the enforcement of Title III. The Agency is providing assistance to Tribal communities for specific enforcement actions against violators of sections 302, 311, and 312. Since EPA does not receive or process information under these sections, and TERCs and LEPCs do, actions should be initiated at the reservation and district levels. EPA will assist as much as possible. Under sections 304 and 313, EPA does have a statutory mechanism to receive information directly from submitters. The Agency has already taken the lead in bringing enforcement actions against violators of these sections.

PART THREE: Everyone Is Involved in Title III

The Emergency Planning and Community Right-To-Know Act is meant to involve everyone – including ordinary citizens, health professionals, industry, public-interest organizations, and the local, Tribal, State, and federal government agencies responsible for emergency planning and response, public health, and environmental protection -- in the process of understanding chemical hazards and planning for chemical accidents. In the past, most of the responsibility for these activities fell to experts in government and industry. To the extent that members of the community participated, it was generally "from the outside looking in." They did what they could to influence decisions that were, for the most part, out of their hands. But under the provisions of Title III, everyone has a role to play in making the law work for the benefit of the entire community. The law requires facilities to provide information on the presence of hazardous chemicals on your lands directly to the people who are most affected, by the potential risks posed for public health and safety, the environment, jobs, the local economy, property values, and other factors. These people are also best able to do something about assessing and managing risks, through inspections, enforcement of local codes, reviews of facility performance, and, when appropriate, political and economic pressures.

This relationship between the Title III data and community action can best occur at the local level, through the work of the TERC or Tribal LEPC. For example, if a firm on the reservation has reported the presence of extremely hazardous substances at its facility, several accidents, substantial quantities of chemicals, and continuing releases of toxic chemicals, the Tribal community has the data it needs to seek appropriate corrective action. In short, the law opens the door to community-based decision-making on chemical hazards for citizens and communities throughout the nation.

Citizens

The TERC or Tribal LEPC serves as a focal point on the reservation for information and discussions about hazardous substances, emergency planning, and health and environmental risks. The TERC or Tribal LEPC can most effectively carry out its responsibilities as a community forum by taking steps to educate the public about chemical risks, and working with facilities to minimize those risks. The LEPC's ability to improve the safety and health of its community will be greatly enhanced by the support of an informed and active community. By volunteering to work with LEPCs, citizens can play a major role in making the law work. There are several ways you as individuals can become involved in obtaining and using this information:

- Make sure that the TERC or LEPC has been formed, attend its meetings, and make sure it is fully representative of the Tribe. Volunteer to serve as a community representative.
- Make sure that the TERC or LEPC has obtained all the information it needs from local facilities to prepare a comprehensive emergency response plan.
- Review and comment on the emergency response plan, and ask questions about how procedures set out in the plan affect you, your family, or your place of business.
- Ask for information from the LEPC or TERC about chemical hazards, inventories, and releases on your reservation. Make sure both the TERC and LEPC have established procedures to make the information reported under Title III readily available to the public. Ask the LEPC what facilities are doing to reduce chemical hazards.
- Use the national Toxic Release Inventory (TRI) data base to obtain information on routine releases of toxic chemicals on your reservation. Your LEPC should have this information. If not, you or your LEPC can get the TRI information from a local library, your State, or the EPA Reporting Center in Washington, DC.
- Call or visit facilities on the reservation and ask if they have complied with the reporting requirements.

Title III allows citizens to sue the owner or operator of a business or facility who does not comply with the law, as long as that person is not facing a government administrative order or civil action to force compliance. Citizens can also sue EPA or the TERC if they fail to provide information that must be made public under Title III, petition EPA to add or delete chemicals from the list of toxic chemicals that must be reported under the toxic chemical release inventory, and petition to change the list of extremely hazardous substances

used for emergency planning and accidental release notification.

Fire Departments

Because fire departments are often the first to respond to a hazardous chemical emergency, they must be involved in every aspect of the emergency planning and community right-to-know program. Fire departments will be involved in emergency planning through their participation in the work of LEPCs. It is essential that fire departments are involved in their LEPCs not only to ensure they are a part of the system but because fire departments have important expertise regarding chemical hazards and emergency planning. The community emergency response plan must include hazardous chemical emergency training for response workers, including firefighters. Federal programs are available to train firefighters for dealing with emergencies involving chemical hazards.

Fire departments will also receive information about hazardous chemicals from facilities within their jurisdiction. This information, in the form of either material safety data sheets (MSDSs) or lists of MSDS chemicals and hazardous chemical inventory forms, will be the same as the data submitted to LEPCs and TERCs. For facilities located on Indian reservations, the fire department run by the Tribe will be the fire department designated to receive section 311 and 312 reports.

Hospitals, Schools, and Other Public Institutions

Public institutions such as hospitals, schools, and Tribal governments are vital to the success of any emergency response plan. Ambulance crews and emergency room personnel must know how to transport and treat victims of exposure to hazardous chemicals. Victims of chemical accidents can contaminate emergency rooms and cause hospitals to close temporarily. Schools and public buildings should plan for emergencies and may be identified as emergency shelters for evacuees. The following are other ways in which public institutions can participate in emergency planning and hazardous chemical risk reduction:

- Representatives of these institutions should be members of the LEPC, or at least learn who represents public institutions on the committee and stay in contact with that person.
- The institutions' officers should inform the LEPC of sensitive facilities within the community (e.g., hospitals, schools, and nursing homes) that should be included in the emergency response plan. These officers should know how they will be notified in the event of an accident and be prepared to respond in accordance with emergency response plans.
- Community environmental and health agencies, in addition to participating on TERCs and LEPCs, should take advantage of the new reporting requirements to build an information base about hazardous chemicals on their reservation. The agencies can use this information to work with industry on voluntary programs to reduce the amounts and risks of hazardous chemicals used or released on the reservation.

Health Professionals

Doctors, nurses, and other trained medical professionals who serve in government health departments, hospitals, and private practice can be a valuable resource in emergency planning and response. They can also be an important source of information about risks to the public health in their communities. Some of the ways they can participate in emergency planning include:

- Volunteering to be a health professional representative on the LEPC, or offering to assist the LEPC in its work.
- Participating in programs to train medical personnel to deal with emergencies involving chemical hazards.
- Screening the information submitted under Title III to determine if any acute or chronic health effects may be associated with hazardous substances on the reservation.

In a more general sense, health professionals may be approached to provide and interpret information on chemicals available under the law. The law allows health professionals to gain access to chemical identity information, even if it is claimed as trade secret, in three different situations:

- If the chemical identity is needed for the diagnosis and treatment of an exposed person.
- If a medical emergency exists in which the chemical identity is needed to aid in diagnosis or treatment.
- If a health professional who is a local government employee requests a chemical's identity to conduct preventive research studies and to render medical treatment.

Except for medical emergencies, the request for a chemical's identity must be accompanied by a written statement of need and a confidentiality agreement.

Industry and Small Businesses

Hazardous substances are not only found at large chemical plants. They are also used routinely in many small operations like garages and dry cleaners, which are more likely to be present on Indian lands than large manufacturing facilities. Not all chemicals are hazardous in normal practice, but they may be of concern if stored or used improperly, or during an emergency such as a fire. A company's initial responsibility under Title III is to determine whether it has reporting and emergency planning obligations, and if so, to meet them. The Indian leaders should check to see if any

listed chemicals are present in buildings owned by the reservation.

The annual toxic chemical release reporting requirement (Section 313) applies only to manufacturing facilities with ten or more full-time employees. Therefore, many small businesses on Indian lands will not be subject to this requirement because they do not meet the manufacturing, processing, or use thresholds. All businesses, however, both manufacturing and nonmanufacturing, are required to report under the emergency planning, emergency release notification, and hazardous chemical reporting provisions of the Act if they have specified chemicals in amounts greater than the threshold quantities for those chemicals.

Farmers

The presence of pesticides and fertilizers on a farm can present a potential hazard to the community – especially if the farm is located near a populated area or near transportation routes. Farmers on your reservation, therefore, may be subject to one or more of the reporting requirements of Title III.

- Sections 301 - 303. Farmers should determine if they are using any of the 360 extremely hazardous substances that trigger the Act's emergency planning reporting requirement. If so, and if one or more of the substances exceeds specified amounts, the farm must notify the TERC and LEPC that it is covered by the emergency planning requirements. The farm must also name a contact person in case the LEPC needs additional information to develop the emergency response plan for the community. Because the circumstances under which farmers have and use extremely hazardous substances may be different from other businesses, it is important that an agriculture representative be included on the LEPC.
- Section 304. Generally, farmers must notify the TERC and LEPC if there is a release of an extremely hazardous substance, or a substance listed under the Superfund hazardous waste cleanup law, in excess of its "reportable quantity." There are two exceptions that may exclude farmers from this reporting requirement. First, reporting is required only by facilities that produce, use, or store a "hazardous chemical." Under the definition of a hazardous chemical, substances that are used in routine agricultural operations and household or consumer products are specifically exempt. Second, the proper application of a registered pesticide or fertilizer in accordance with its intended purpose is exempt from emergency release notification. In other words, farmers do not need to report routine pesticide and fertilizer application as emergency releases. An accidental release above a reportable quantity of those substances should, however, be reported.
- Sections 311 - 312. These reporting requirements are tied to the worker notification rules of OSHA, so farmers may be covered if they already must comply with the OSHA regulations. Farms with fewer than ten full-time employees are not covered by OSHA and consequently are exempt from this requirement. Chemicals used in routine agriculture operations and household and consumer products are exempt from reporting because they do not meet the law's definition of hazardous chemicals.
- Section 313. These requirements cover only manufacturing facilities with ten or more employees. Thus, only farms that are involved in manufacturing operations as a primary activity (such as food and tobacco manufacturing) would be covered under this section, but only if their use of listed chemicals exceeds the threshold levels for reporting.

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CHEMICAL EMERGENCY PREPAREDNESS AND PREVENTION IN INDIAN COUNTRY

HOME

The Emergency Planning and Community Right-to-Know Act (EPCRA) and the Clean Air Act's (CAA) chemical accident prevention provisions in section 112(r) require facilities to provide information on the presence of hazardous chemicals in communities. These laws have built better relationships among government at all levels, business and community leaders, environmental and other public-interest organizations, and individual citizens.

The purpose of this fact sheet is to familiarize tribal leaders with EPCRA and CAA Section 112(r) Chemical Accident Prevention Program requirements. The information available under these laws can promote an integrated approach to chemical safety on tribal lands.

HOW DO EPCRA AND CAA APPLY TO TRIBAL LANDS?

EPCRA and the CAA Section 112(r) Chemical Accident Prevention Program require facilities to report on hazardous chemicals they store or handle.

These two laws provide an array of complementary information on what chemicals are in the community, what chemicals are present at each location, what hazards these chemicals pose, what chemical releases have occurred in the area, and what steps industry is taking to prevent additional accidents.

Both laws give the public access to these reports. The information can be used to enhance the community emergency response plan and protect local communities from chemical hazards.

Because of the importance of making this information available to all communities, EPA recognized tribal governments as the appropriate implementing authority of EPCRA in Indian Country. Through regulation, federally recognized tribes have the same role as states in the development of chemical emergency preparedness programs under EPCRA. In addition, the CAA provides that eligible federally recognized tribes may implement provisions of the CAA in the same manner as states within reservations and non-reservation areas under their jurisdiction.

WHAT ARE TRIBAL ROLES UNDER EPCRA?

Under Sections 301-303 of EPCRA, states form State Emergency Response Commissions (SERCs). Similarly, tribal chief executive officers appoint Tribal Emergency Response Commissions (TERCs) to accomplish the following:

- Designate local emergency planning districts as needed.
- Appoint a local emergency planning committee (LEPC) to serve each of the districts.
- Coordinate and supervise LEPC activities.
- Coordinate proposals for and distribution of federal grant funds for TERCs and/or tribal LEPCs.
- Review LEPC plans and recommend any needed changes.
- Establish procedures for receiving and processing public requests for information collected under EPCRA.
- Obtain further information about a particular chemical or facility, when needed.

Forming a TERC

Through TERCs, tribes can ensure the development of an emergency planning and implementation structure relevant to community needs. Additionally, TERCs can provide training, technical assistance, and information to communities within Indian Country so that persons know what to do in the event of a chemical accident.

There are several options available to tribes in the implementation of EPCRA programs. A tribe may choose to enter into cooperative agreements with another tribe, a consortium of tribes, or the state within which its lands are located to develop an EPCRA program that meets specific tribal needs. Some examples of EPCRA implementation include:

- A tribe may directly implement the program within Indian Country.
- Through a cooperative agreement with the SERC, a tribe may choose to implement some, but not all of the law's requirements, while the state implements the remainder.
- A tribe authorizes the SERC to perform the functions of the TERC within Indian Country and the tribe establishes an LEPC or joins an off-reservation LEPC that works directly with the SERC through a cooperative agreement.

The tribal chief executive officer operates as the TERC when a TERC is not established or a cooperative agreement is not developed.

LEPC Responsibilities

Local circumstances will determine how extensive a chemical safety program should be. Tribes often find that the TERC itself can accomplish the work of the LEPC. However, if an LEPC is formed, its membership must include, at a minimum, local officials such as police, fire, civil defense, public health, and transportation; environmental professionals; industry representatives of facilities subject to the emergency planning requirements of EPCRA; community groups; and the news media.

Among other things, LEPCs develop a contingency plan to prepare for and respond to emergencies involving hazardous

substances in their communities. The plans should be reviewed, exercised, and updated annually and should include:

- Identity and location of hazardous materials.
- Procedures for an immediate response to a chemical accident.
- Public notification of evacuation or shelter-in-place procedures.
- Industry contact names.
- Timetables for testing and updating the plan.

Chemical facilities are required to notify LEPCs of emergency releases and to submit annual information on their hazardous chemical inventory (see the "What Information Is Needed?" section of this fact sheet). This information can help the LEPC keep its plan and response procedures up to date.

WHAT ARE TRIBAL ROLES UNDER THE CAA SECTION 112(R) CHEMICAL ACCIDENT PREVENTION PROGRAM?

Under CAA section 112(r), all chemical facilities with processes exceeding a threshold quantity for 77 acutely toxic substances (such as chlorine and ammonia) and 63 highly volatile flammable substances (when not used as a fuel), must implement a Risk Management Program. An example of a facility subject to the Chemical Accident Prevention Program requirements would be a drinking water facility holding more than 2,500 pounds of chlorine. All facilities subject to such requirements must submit a summary of the program, known as a risk management plan (RMP) to EPA. The RMP includes:

- The facility hazard assessments, including worst-case release and alternative release scenarios.
- The facility accident prevention activities, such as the use of special safety equipment, employee safety training programs, and process safety hazards analyses conducted by the facility.
- The past chemical accidents at a facility.
- The management system in place at the facility.
- The facility's emergency response program.

There are special procedures for the public to access RMPs. These procedures are described in the fact sheet Chemical Safety Information, Site Security and Fuels Regulatory Relief Act: Public Distribution of Offsite Consequence Analysis Information at: www.epa.gov/emergencies/docs/chem/ocafactsheet.pdf

Tribes that EPA finds eligible for treatment in the same manner as a state under the Clean Air Act Tribal Air Rule (40 CFR part 49) can apply for authorization to administer the Chemical Accident Prevention Program. If the tribe passes its own chemical safety legislation, it should ensure that its program is at least as stringent as the federal law in order to strengthen enforcement capabilities. For more information on how to receive delegation for your tribe, see Risk Management Programs Under CAA Section 112(r) - Guidance for Implementing Agencies (http://www.epa.gov/oem/docs/chem/iguidfnl.pdf).

WHAT INFORMATION IS NEEDED?

Regulatory requirements, by themselves, do not guarantee safety from chemical accidents. Both EPCRA and the Chemical Accident Prevention Program encourage communication between facilities and the surrounding communities about chemical safety and chemical risk. In this way, accident prevention is focused at the local level where the risk is found. For example, talking with industry about both the quantities of a chemical and a facility's prevention program allows local emergency officials and the tribe as a whole to gain a clearer picture of the chemical risks within Indian Country.

Under EPCRA, you receive information from covered facilities on the chemicals they have, the quantities of chemicals stored, the hazards associated with those chemicals, and information on storage locations and conditions.

In addition to the RMP database information, TERCs and LEPCs can access offsite consequence analysis (OCA) information about facilities that have submitted a RMP. A TERC or tribal LEPC member can receive the information directly from EPA for official use (e.g., to incorporate the information into their emergency preparedness plans). For more information on how to access the OCA information, visit the OEM Web site (http://www.epa.gov/oem/content/rmp/readingroom.htm).

HOW CAN TRIBES USE THIS INFORMATION?

Combining the EPCRA and Chemical Accident Prevention Program information allows tribes to gain a better understanding of the chemical risks within Indian Country. For example, what precautions are in place to avoid a chemical release? Is a facility near a medical clinic or a highly traveled area? What procedures have been developed to notify and assist the people affected by an accidental release?

Has the fire department coordinated with the facility to determine the best response procedures? If the tribe does not have a fire department, are mutual aid agreements in place with non-tribal departments? Using the chemical information available to you opens a new avenue of communication between you and the chemical facilities within Indian Country.

These programs also offer tribes an opportunity to partner with other tribes, states, and/or towns that border Indian Country. In reviewing your emergency response plan, do you see some sections that need to be updated or otherwise improved?

Are there chemical risks in a locality bordering your community that need to be addressed? Some tribes have

developed memorandums of agreement (MOAs) and/or mutual aid agreements with their neighbors in order to meet these needs, thereby creating better prevention and response plans.

WHAT ELSE SHOULD TRIBES CONSIDER?

EPCRA can provide tribes with the following:

- Notification from facilities that have extremely hazardous substances (EHSs) in excess of a certain threshold (EPCRA sections 302 and 303).
- Notification from facilities if there is an accidental chemical release of an EHS or any hazardous substance under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). This information is reported to the TERC and LEPC community emergency coordinator (EPCRA section 304).
- Material Safety Data Sheets (MSDSs) or lists of hazardous chemicals. MSDSs contain chemical-specific information such as type of chemical, toxicity, hazard category, and emergency response procedures. This information and emergency and hazardous chemicals inventory forms (TierI/II) are directly reported to the TERC/LEPCs and the appropriate fire department (EPCRA sections 311 and 312).
- Information on planned releases of toxic chemicals from regulated facilities through the Toxics Release Inventory (TRI) database (EPCRA section 313).

Chemical Releases Due to Criminal Actions

TERCs and LEPCs should also address the possibility of deliberate chemical releases in their emergency response plans. For example, accidental releases often occur when illegal drug makers steal anhydrous ammonia to produce methamphetamines. Another possible scenario would be a terrorist incident. TERCs and LEPCs should use already established mechanisms, when applicable, to address these issues rather than creating new organizations. Several sections of a tribe's response plan, including emergency contact information, response functions, and hazards analysis, should be evaluated to consider the effect of a deliberate release. The EPA Chemical Safety Alerts Anhydrous Ammonia Thefts and LEPCs and Counter-Terrorism provide more information on this topic (http://www.epa.gov/oem/publications.htm#alerts).

EPCRA Section 326 Considerations

EPCRA section 326 allows citizens to initiate civil actions against EPA, SERCs, and the owner or operator of a facility for failure to meet EPCRA requirements. The EPA rulemaking designating federally recognized Indian tribes as the EPCRA implementing authority does not preclude the use of sovereign immunity defense on legal actions against Indian tribes or tribal officials.

WHAT RESOURCES ARE AVAILABLE?

Chemical Data Sources

These are several Web sites that provide information to help you implement EPCRA and the CAA Chemical Accident Prevention Program:

- Profiles of the EPCRA extremely hazardous substances are available at: www.epa.gov/emergencies.
- Information on accidental releases reported under EPCRA is available through the National Response Center at: http://www.epa.gov/emergencies/content/learning/response.htm. Material Safety Data Sheets (MSDS) do not have a standard format and can sometimes be confusing. On-line databases, which often have multiple versions of MSDSs for individual chemicals, can assist in finding an MSDS that is well organized and easy to read. Online copies of MSDSs are maintained by universities at www.hazard.com.
- TRI and RMP data can be accessed through Envirofacts at www.epa.gov/enviro. Envirofacts also provides data on facilities that have:
    - Permits to release substances to water, in the Permit Compliance System database.
    - Permits to release hazardous pollutants to air, in the air release database.
    - Permits to store and treat hazardous wastes, in the RCRA database.

Guidance

To help officials as they develop their emergency plans, the National Response Team (NRT) has published the Hazardous Materials Emergency Planning Guide (NRT-1), which is available at www.nrt.org. In addition, the Federal Emergency Management Agency (FEMA) has published the State and Local Guide (SLG) 101: Guide for All-Hazard Emergency Operations Planning, which tells emergency planners how to identify hazards in the planning district, determine vulnerable zones for each hazard, assess risk, and then set priorities among hazards and begin to develop an emergency plan. This publication is available at http://www.fema.gov/plan/gaheop.shtm or by calling FEMA's Printing and Publications Branch at 1-800-480-2520.

EPA has also published documents to help industry comply with the reporting provisions of EPCRA and to help Tribal and local officials manage and analyze the information submitted. One of these documents is a fact sheet entitled The Emergency Planning and Community Right-to-Know Act (EPA 550-F-00-004), which is available at: http://www.epa.gov/oem/docs/chem/epcra.pdf.

EPA and FEMA staff also help TERCs administer EPCRA and understand the Chemical Accident Prevention Program by sponsoring workshops; speaking at TERC and LEPC meetings; providing guidance for developing and testing local

emergency plans; and managing, understanding, and communicating the information submitted under EPCRA.

OEM has published several guidance documents that may assist TERCs and LEPCs with the Chemical Accident Prevention Program requirements. Examples of current guidance documents include the following:

- Risk Management Programs Under CAA Section 112(r) - Guidance for Implementing Agencies (EPA 550-B98-002) at: http://www.epa.gov/emergencies/docs/chem/iguidfnl.pdf
- Guidance for Auditing Risk Management Plans/Programs under Clean Air Act Section 112(r) (EPA550-B99-008) at: www.epa.gov/emergencies/docs/chem/audit_gd.pdf

OEM has also published a Chemical Safety Network series, which shares successful practices in RMP implementation, risk communication, and use of the data.

These documents are available electronically on the OEM Web site. Copies of EPA guidance documents can be obtained by calling EPA's distribution warehouse at 1-800-490-9198.

Software

Computer-Aided Management of Emergency Operations (CAMEO) is a software program that can assist you to manage and use information collected under EPCRA and conduct a community hazards analysis. It also includes response information for over 3,000 chemicals commonly transported in the United States. CAMEO can be accessed at: www.epa.gov/emergencies/content/cameo/request.htm

RMP*Comp helps users complete the offsite consequence analysis that is required under the Chemical Accident Prevention Program. RMP*Comp can be used to verify data submitted by industry. When RMP*Comp is used, by hand calculations are not necessary; the program guides the user through the process of making an analysis. RMP*Comp is available at: www.epa.gov/oem/content/rmp/rmp_comp.htm.

Financial Assistance

One comprehensive source of financial assistance information is the Tribal Environmental and Natural Resource Assistance Handbook produced by the Domestic Policy Council Working Group on American Indians and Alaska Natives. This handbook provides a central location for federal sources of technical and financial assistance available to tribes for environmental management. The handbook is available at: www.epa.gov/indian.

The Department of Transportation's Hazardous Materials Emergency Preparedness (HMEP) grant program is intended to provide financial and technical assistance to enhance state, territorial, tribal, and local hazardous materials emergency planning and training. The HMEP Grant Program distributes fees collected from shippers and carriers of hazardous materials to emergency responders for hazmat training and LEPCs for hazmat planning. For more information, visit http://www.phmsa.dot.gov/hazmat/grants or call 202-366-0001.

FEMA has a grant program to fund six major firefighting preparedness categories: training, wellness and fitness programs, vehicles, firefighting equipment, personal protective equipment, and fire prevention programs. Visit FEMA's Web page at www.fema.gov.

EPA Regional Contact Information

EPA has Regional representatives that can provide you with more information on the subjects discussed in this fact sheet. Please contact the Call Center or use the OEM Web site to find the appropriate EPA Regional point of contact.

OSWER-92-009.1, September, 1992

MAKING IT WORK: HAZARDS ANALYSIS

HOME

What's Inside…

The Making It Work bulletins are intended to provide technical assistance to those responsible for implementing the Emergency Planning and Community Right-to-Know Act of 1986, commonly known as EPCRA or Title III.

Hazards Analysis, the second in the series, is intended for members of Local Emergency Planning Committees (LEPCs), State Emergency Response Commissions (SERCs), fire departments, and other agencies responsible for emergency planning and hazards analysis. The first bulletin addressed Title III compliance and future bulletins will cover such subjects as SERC operations and funding.

Inside you'll find practical information on hazards analysis, with examples drawn from successful or unique state and local programs.

You'll also find information on resources available to help you establish your own hazards analysis program. If you know of other innovative hazards analysis programs, we'd like to hear about them. Contact your EPA Regional Title III office or the Emergency Planning and Community Right-to-Know Information Hotline at 1-800-535-0202.

Why Conduct a Hazards Analysis?

Are your community planners trying to answer the following questions:

- What are the major chemical hazards in our community?
- How can we determine the area or population likely to be affected by a release?
- What emergency response resources (personnel and equipment) does our community need?
- What kind of training do local responders need?
- How can we help prevent chemical accidents?

The hazards analysis process described in this bulletin can assist local planners in answering these and other important planning questions.

Hazards analysis is a way of identifying the threats that hazardous substances such as ammonia, chlorine, and other chemicals pose in the community.

Under the Emergency Planning and Community Right-to-Know Act (commonly known as EPCRA or Title III), communities conduct hazards analyses to develop and revise emergency plans.

These plans are based on facilities where extremely hazardous substances (EHSs) are present in amounts exceeding the threshold planning quantity (TPQ), and for other facilities or transportation routes that the Local Emergency Planning Committee (LEPC) identifies as a focus of planning efforts.

The following three steps to a community-level hazards analysis are described in the Technical Guidance for Hazards Analysis, or "Green Book."

- **Hazards identification** identifies the location, quantity, storage conditions, and the specific hazards posed by the hazardous chemicals transported, manufactured, stored, processed, and used in the community.
- **Vulnerability analysis** locates geographical areas and the people, property, services, and natural areas that may be affected by a release.
- **Risk analysis** provides a ranking of specific release scenarios (e.g., X pounds of chemical Y released from facility Z under certain conditions) based on the likelihood and severity of the release.

The Handbook of Chemical Hazard Analysis Procedures, or "Brown Book," describes four steps within the hazards analysis process. The extra step, consequence analysis, is simply an elaboration of the risk analysis step discussed above.

To be successful, hazards analysis must be an ongoing process – the three steps should be repeated to address changes in the hazards and other circumstances in the community that affect emergency planning and response.

Coordination between facilities and local emergency planners and responders during the process will ensure a thorough evaluation of the community's hazards and allow planners to focus their efforts on the greatest Potential threats to the community.

Local emergency planners should consider conducting the hazards analysis process in phases.

This "phased" approach will allow planners to reduce the initial expenditure of valuable resources on analyzing less significant hazards and instead focus their efforts on the most important hazards in the community. There are three phases, as follows:

- Screening phase. Using readily available information and worst-case assumptions, determine which facilities and hazards in the community should be the subject of a more detailed analysis. LEPCs can use Technical Guidance for Hazards Analysis to complete this phase rather quickly.
- Planning phase. Refine the initial (worst-case) assumptions and get up-to-date information from the priority facilities identified in the screening phase and begin to develop the local emergency plan.
- Scenario phase. For priority facilities and transportation routes, develop a range of specific release scenarios that could pose the highest risk to the community. These

more detailed scenarios can be used to develop site-specific emergency response plans.

The Hazards Analysis Training Systems (HATS) is a computer program developed by EPA to introduce local planners to the hazards analysis process, the planning process, vulnerable zone calculations, and scenario development.

Various screens from the program appear throughout this document. Contact your Regional Title III office or the Title III Hotline for more information about obtaining HATS.

KNOW THE HAZARDS: HAZARDS IDENTIFICATION

As illustrated by HATS, identifying the hazardous chemicals that pose a serious threat to the community is the first stage of hazards analysis.

Communities of all sizes can develop simple programs, which meet their needs and match their resources, to locate these chemicals and to identify specific information on hazardous situations and the risks they pose.

Using information submitted to LEPCs, planners should first identify the facilities that use, produce, process, or store hazardous chemicals.

Under Title III, facilities that have EHSs in amounts exceeding a TPQ are required to notify the LEPC and designate a facility emergency coordinator to serve as the contact between the facility and the LEPC.

Planners may also consider identifying other hazardous chemicals that may pose significant hazards to the community.

These include flammable, reactive, and explosive substances; pesticides in rural areas; other chemicals present in substantial quantities; and even EHSs present in smaller quantities.

Contacting Facilities

The first step is to determine which facilities have hazardous chemicals. Conducting a survey of facilities in the community that handle hazardous chemicals can be a time-consuming process.

Developing a comprehensive list of facilities to contact can be difficult if there is no unified source of information about companies in the community. Local, state, and federal environmental records; Dun and Bradstreet and Chamber of Commerce listings; telephone directories; tax rolls; police and fire department records; and industry itself can be sources for compiling this list.

Once a list has been compiled, communities with a small number of facilities may find it more effective to take a more personal approach: contacting facilities by telephone, or visiting in person.

For most communities, success will depend upon the involvement of the fire service. Fire departments conduct fire prevention inspections, develop pre-incident plans, approve occupancy permits, serve on the LEPC, and are usually the first responders during an incident. As seen in the examples cited below, fire departments can play a critical role in gathering information for Title III plans.

If facility cooperation is a problem, fire departments have the authority under Title III section 312(t) to conduct on-site inspections and obtain specific location information on hazardous chemicals.

For instance, in Prince George's County, Maryland, fire stations conduct inspections and hazards analyses and prepare response plans at facilities covered under section 302.

An Alexandria, Virginia, ordinance requires businesses that store, use, or handle hazardous chemicals to obtain a hazardous substances use permit from the fire department.

As part of the review and approval process, the fire department conducts a facility inspection to verify the types and quantities of the hazardous chemicals present at the facility; this process provides an accurate record for hazards identification purposes.

Communities with a more extensive list of facilities could create outreach materials to maximize the response from industry and the usefulness of the information that is provided.

Mailing out a comprehensive survey may be necessary. For example, the Wyandotte County, Kansas, LEPC developed a chemical hazards survey to identify the facilities in the county that handled EHSs. Facilities were issued a questionnaire that addressed EHSs and 26 other potentially hazardous chemicals.

If any of these chemicals were present, the facility was asked to supply information on quantity; conditions of handling and use; special safety precautions and control devices; transportation; and facility preparedness, such as contingency planning, employee safety training, and response equipment.

The success of the Title III planning process depends upon the active involvement of both public and private individuals; local planners should support facility involvement in emergency planning, not simply as an attempt to force facilities to provide the required information -- although Title III section 303(d)(3) authority can be referenced if necessary -- but to tap into industry's resources in prevention and response efforts.

Local planners may want to designate a contact person for facilities that may be unfamiliar with the requirements of Title III.

Some facilities have developed community outreach programs as a part of the Chemical Manufacturers Association's Responsible Care program. Responsible Care facilities are committed to effective public dialogue and addressing public concerns by improving facility performance. Local planners should strive to coordinate efforts with these companies and encourage other facilities to become involved.

Right-to-Know

For each facility, planners should identify the quantity of each hazardous chemical present at any storage or processing location, the physical and chemical properties of each substance of interest, and the conditions of storage.

This information may be drawn from Title III reports under sections 311 or 312, as well as inspection and permitting records of state and local agencies; additional data may be requested from the facility itself.

As part of Title III's "Right-to-Know" concept, section 303(d)(3) requires facilities reporting under section 302 to provide the LEPC, upon request, with any information necessary for developing the local emergency plan, and can serve as compliance leverage for uncooperative facilities throughout the planning process.

Transportation

Emergency planners also need to identify the various routes through a community over which EHSs are transported. Identifying the dangers associated with the transportation of hazardous chemicals will be more difficult than for fixed facilities because transporters are not required to report under the planning provisions of Title III.

Nevertheless, transportation-related hazardous chemical incidents are a significant hazard, and such spills and releases pose an immediate threat to the public since they usually occur along normal traffic routes.

Representatives of trucking, railroad, air freight, and shipping industries, as well as representatives of the facilities that receive or produce transported products may be able to provide the following information:

- the hazardous chemical involved;
- the frequency of shipments (daily, weekly, or irregular schedule);
- the form of shipment (tank truck, tank car, drums, boxes, carboys in trucks or vans, pipelines, barges); and
- the quantity of each . shipment (tons or gallons), and/or the number of drums, tanks, vats, or carboys.

Planners in Butler County, Kansas, a relatively rural area, initially assumed that few hazardous chemicals where the hazardous were used or stored in chemicals are and which their community.

The county, however, has five major highways, two railroad lines, and 800 miles of pipelines, so the LEPC conducted a survey to identify the hazardous chemicals transported into, out of, or through the county. The LEPC developed a form for traffic watchers asking for the type of vehicle carrying a hazardous chemical and its placard number.

Eight major entrance points to the county, as well as seven points within the county, were surveyed over 12 hours to determine peak transportation times.

When the survey was completed, the information was plotted on a large map to give the LEPC a picture of where the hazardous chemicals are and which are the major routes of concern for planning purposes.

Planners may also want to coordinate with adjoining communities to share transportation information and reduce their collective workload.

For example, although Alexandria, Virginia, does not have any heavy industry, it is part of the major transportation corridor through and around Washington, D.C.

An Alexandria LEPC representative serves on a multi-jurisdictional task force on hazardous chemicals transportation which is exploring ways to reduce the likelihood of hazardous chemical accidents and developing incident response procedures for multijurisdictional events.

In addition, the Alexandria LEPC requests transportation route information from facilities as part of its hazards identification program under the authority of Title III section 303(d)(3).

The Hazardous Materials Transportation Uniform Safety Act of 1990 (HMTUSA) provides funding for determining flow patterns of hazardous materials. Contact your SERC and/or the state HMTUSA contact for more information.

KNOW THE POTENTIAL EFFECTS: VULNERABILITY ANALYSIS

After identifying the chemical hazards in the community, but before making an assessment of the overall risk they pose, local planners should conduct a vulnerability analysis to estimate who is at risk from a potential hazardous chemical incident.

Using specific assumptions, vulnerability analysis estimates the geographical area that may be affected as a result of a spill or release.

Specifically, the vulnerability analysis identifies people (numbers, density, and types – facility employees, local residents, and special populations) within the vulnerable zone; private and public property and essential support systems (water, food, power, and communications sources, as well as facilities such as hospitals, police, and fire stations) that could be damaged; and sensitive natural areas and endangered species that could be affected.

In Pierce County, Washington, the LEPC also incorporates natural hazards, such as fault lines and floodplains, into the mapping system that identifies vulnerable zones.

During an actual incident, the area potentially affected by a release is simply the area downwind. But because the wind direction at the time of the release cannot be predicted, planners must consider all possible wind directions and subsequent toxic plume paths.

Consequently, vulnerable zones are circles with the release site located at the center.

Estimating vulnerable zones for toxic hazards may be done by hand or with the assistance of a computer modeling program.

If the task is to be completed by hand, the Technical Guidance for Hazards Analysis provides complete step-by-

step instructions, including the mathematical formulas and tables for calculating the radius of the zone.

Planners will also need to gather maps of the planning district and surroundings, and information sources (e.g., Material Safety Data Sheets and section 312 Tier II reports) on the hazardous chemicals involved.

Always keep in mind that the vulnerability analysis results are only as good as the assumptions that were made throughout the process. The results are estimates, best used for planning and training, and not to be relied on during an actual response.

If sufficient resources are available, a computer modeling system will reduce the time spent calculating vulnerability zones.

Plume modeling software packages are often included as part of a more complete emergency planning system designed to address many elements of the emergency planning process. ARCHIE and CAMEO are two computer systems that the federal government has designed and made available to and assist local emergency planners in preparing for and responding to an airborne release of a hazardous chemical.

CAMEO also provides the tools necessary to manage and use information collected under Title III.

The system was developed by the National Oceanic and Atmospheric Administration (NOAA) and EPA to assist LEPCs, emergency responders, emergency planners, and others involved in activities concerned with the safe handling of chemicals.

CAMEO is being used by local governments, fire departments, and industry throughout the United States, including the cities of Miami (Florida) and Portland (Oregon).

Several other systems are also available and have been documented in EPA's CEPP Technical Assistance Bulletin: Identifying
Environmental Computer Systems for Planning Purposes (OSWER-89-005). Contact your Regional Title III office for a copy.

Protective Actions: Evacuation and In-Place Protection

Although decisions on personal protection must be made at the time of an actual event, effective hazards analysis will assist in training and planning for protective actions. Short-term releases, fast-moving plumes, or unstable weather conditions can make evacuation difficult; often the danger is over before an evacuation can be completed. In these cases, in-place protection may be the most appropriate action during the release of a chemical. On the other hand, if the release occurs over an extended period of time, or if a fire cannot be quickly controlled, an evacuation may be the appropriate option. Decisions should be based on several important factors:

- Physical and chemical properties of the hazardous substance;
- Short-term exposure effects;
- Dispersion patterns;
- Weather conditions;
- Anticipated size, duration, and rate of the release; and
- Concentration of the release in the surrounding air, water, or land.

The emergency planning process can help build a sense of trust between citizens and emergency responders to improve public understanding of the need and methods for conducting effective protective actions. For example, parents must be confident that local school officials will take appropriate protective measures during an incident, so that their first action is not to rush outside to pick up the children at school, but to protect themselves. In St. Charles Parish, Louisiana, the LEPC annually issues a brochure to all citizens on protective action procedures, and takes a pro-active approach to communicating this message to the public. Full community emergency siren drills are held annually, and three full-scale chemical release exercises are held at local facilities during the course of the year. The Harford County, Maryland, LEPC, in conjunction with a local cable television company, produced a video to identify the proper steps to take in response to a potential hazardous materials incident The video also suggests that families should conduct hazardous material release drills just like a family fire drill.

KNOW THE ODDS: RISK ANALYSIS

Once the chemical hazards in the community and the potential areas of impact for their release have been identified, the third stage in a hazards analysis, risk analysis, can be conducted. Risk analysis is a judgment made by the LEPC based on an estimate of:

1) Likelihood of an accidental release, based on various factors such as the history of releases at fixed facilities and in transport, current conditions and controls at facilities, unusual environmental conditions, and the possibility of simultaneous emergency incidents (such as flooding or fire) resulting in the release of hazardous chemicals; and
2) Severity of consequences – the people, places, and things located within the vulnerable zone. Risk analysis does not require extensive mathematical analysis (although probabilistic risk analysis can provide valuable information to community planners), but instead relies on the knowledge, experience, and common sense of local emergency planners and responders using

information gained from hazards identification and vulnerability analyses.

In Wyandotte County, Kansas, for example, the LEPC ranked facilities based on the ratio between the total amount of the hazardous chemical on site and the quantity of concern (a measure of a substance's acute toxicity).

The ranking was thus a measure of the relative health threat that a release might pose to the surrounding community.

Facilities that had at least 1,000 times the quantity of concern for a chemical were given first priority in the planning process; a second tier of facilities with a smaller multiple of the quantity of concern were addressed in a second phase of the process.

TIPS FOR SUCCESS

Across the country, there are several thousand LEPCs and tens of thousands of facilities that have made the required notification under section 302 of Title III.

Inevitably, there will be differences between the hazards analysis process in one community and that of another, but any successful program will be driven by three features:

- Focus on the most severe threats to the community;
- Responsiveness to the community's chemical emergency preparedness and prevention concerns and interests and the community's right-to-know; and
- Effective coordination and involvement among planners, responders (e.g., the fire service), and industry.

Address Priority Hazards

Because planners are usually not able to evaluate and address the risks posed by every facility at the same time or to the same extent, priorities must be set among the potential hazards in the community.

The Technical Guidance for Hazards Analysis suggests that planners perform an initial screening of hazards using readily available information (e.g., Tier II reports) and certain credible worst-case assumptions.

Once this initial three-step hazards analysis (i.e., hazard identification, vulnerability analysis, and risk analysis) has been completed, planning officials should consider redoing the analysis based on the priority ranking obtained from the initial round of risk analysis.

These revised analyses will be based on more realistic assumptions about site-specific conditions derived from consulting with facility representatives and other local officials.

To perform such analysis, local planners may want to request additional information to evaluate specific release scenarios for each priority facility, including the adverse health effects of each substance; successful required by OSHA's approach to hazards mitigation approaches used in the past; lessons learned from past events; and facility process hazard analyses.

In addition, existing emergency response plans may also be a valuable information source. Planners may want to review:

- Their community's FEMA local multi-hazard emergency operations plans (required and funded by FEMA);
- Facilities' transportation-related hazard plans;
- Facilities' emergency response planning required by OSHA's HAZWOPER (SARA section 126) and process safety management standards;
- Facilities' emergency response program required as part of the risk management plan under section 112(r) of the Clean Air Act;
- The Spill Prevention, Control, and Countermeasures plans (required under the Clean Water Act), if they are available; and
- State and local planning requirements.

HATS also provides additional guidance on the phased approach to hazards analysis.

The Hamilton County, Ohio, LEPC identified ten priority facilities and requested that they conduct the hazards analysis themselves, using the Technical Guidance for Hazards Analysis and an LEPC worksheet for vulnerability and risk analyses.

After LEPC review, the initial facility risk analyses appeared to underestimate both the likelihood and the severity of consequences of an accidental release, so the LEPC developed a second, more quantitative risk evaluation form.

Probability is estimated based on contingency planning, storage conditions, monitoring and inspection procedures, history of leaks and spills, and employee hazardous chemical awareness.

Severity of potential consequences is rated based on the capacity of on- and off-site response personnel and the anticipated property damage and environmental effects.

Points are assigned for factors that reduce the probability and severity of a release -- the lower the score, the higher the probability or severity of a release.

Maximizing Your Hazards Analysis Resources

Coordinate to Avoid Duplicative Efforts

- Use existing Title III, inspection, and permitting records to avoid time-consuming data collection efforts.
- Share computer resources to avoid expensive purchases.
- Coordinate with adjacent localities to share the burden of evaluating hazards.
- Identify and use chemical-specific and hazards analysis expertise of local industry.
- Review existing emergency operations plans to identify hazards.
- Support chemical emergency prevention and other emergency preparedness efforts to maximize value of hazards analysis task.

Take Advantage of Free or Inexpensive Federal Resources

- Technical Guidance for Hazards Analysis ("Green Book")
- Computer-Aided Management of Emergency Operations (CAMEO)
- Handbook of Chemical Hazards Analysis Procedures
- Automated Resource for Chemical Hazard Incident Evaluation (ARCHIE)
- Training and workshops on hazard analysis (e.g., HATS program).
- Emergency Planning and Community Right-to-Know Information Hotline: l-800-53S-0202.

Apply for Grants under HMTUSA

The Hazardous Materials Transportation Uniform Safety Act of 1990 (HMTUSA) provides for grants to support LEPCs in conducting hazards analyses. Hazards analysis is identified as one of the activities eligible for funding under the planning grant program. These grants, and grants for training efforts, will be available through 1996. LEPCs should contact the state agency designated by the Governor as the primary lead for the HMTUSA program to learn more about the state's planning grant application.

Adapt Analysis to Local Circumstances

Even though the federal government has provided guidance and software to assist SERCs and LEPCs, Title III is a local program and decisions about relative risk and planning priorities are local decisions that will differ from place to place, depending upon circumstances.

For example, the availability of resources (i.e., equipment, expertise, volunteer time, and dollars, as well as the creativity and resourcefulness of LEPC members and the willingness of facilities to cooperate with LEPCs) will play a major role in shaping the scope of local planning activities. A number of ways to stretch local resources are highlighted in the box.

Rather than ranking facilities or release locations, the Pasadena, Texas, LEPC focused its hazards analysis on fifteen priority chemicals manufactured or stored in the community that facilities judged to be of major concern in the event of a release. For each chemical, the LEPC identified locations and quantities, modes of transportation, and the substance's hazardous properties. The LEPC then conducted a vulnerability analysis for each chemical location using typical weather conditions. Next, the LEPC determined which people and services a release could affect and the specific hazards they might face. In addition to the chemicals classified as airborne toxics, Pasadena examined chemicals that present flammability or explosivity hazards. The LEPC then ranked the fifteen chemicals so that planners could identify the community's chemical-specific response needs.

The State of Idaho used Technical Guidance for Hazard Analysis as a starting point and developed a "blueprint" for LEPC hazards analysis efforts. The step-by-step guidance to hazards analysis explains how to incorporate the use of such programs as CAMEO and ALOHA, but focuses on planning and information management methods that do not require a computer.

USING THE RESULTS OF HAZARDS ANALYSIS

Once the LEPC has finished evaluating the hazards in the community, the hazards analysis information can be used to support other local chemical emergency preparedness and chemical accident prevention efforts. The realistic release scenarios for the priority hazards in the community, refined from initial worst-case assumptions, can be communicated to the community to help improve awareness of chemical hazards. The local emergency response plan can then be designed to address specific incidents described in these scenarios. In the event of an actual incident, current weather conditions (e.g., wind direction and speed, atmospheric stability) and accurate release data (e.g., quantity and rate of release) can be entered in the appropriate preexisting scenario to derive realistic estimates of possible off-site impacts of the release. In addition to planning and real-time response applications, scenarios can be used to develop realistic exercises to test local emergency response capabilities. LEPCs, SERCs, and facilities are also applying hazards analysis to help facilities prevent of chemical accidents.

Flammables and Explosives

Although none of the current EHSs was designated based upon its flammable and explosive properties, EPA recently published an Advanced Notice of Proposed Rulemaking to add commercial explosives and blasting agents, and is evaluating options for flammable substances. This addition, if enacted, would provide fire departments and LEPCs with information on explosive hazards that is not currently being provided under sections 311 and 312 because these substances are dangerous in quantities below the 10,000 pound reporting threshold. Local contingency planners could then formally address substances beyond those currently listed under section 302. For the present, however, communities that wish to evaluate flammable and explosive hazards should use existing permitting or licensing information or the authority of section 303(d)(3) of Title III.

Because the Technical Guidance for Hazards Analysis does not address flammable and explosive hazards, the evaluation of additional hazards that these substances pose can be formally conducted using the Handbook of Chemical Hazards Analysis Procedures and ARCHIE.

Reviewing these hazards can direct planning efforts to additional sites, or indicate that a specific site deserves priority because it poses multiple hazards to the community. ARCHIE has modelling programs for fires and explosions of flammable liquids and gases and detonations of solid and liquid explosives. In order to model these release scenarios, planners must identify certain physical and chemical properties of the substance, the quantity involved, the type of release, the existing temperature and pressure conditions prior to the release, and weather conditions. Some of these data may be available from sections 311-312 reports, fire department records, or from the facility, if reporting is not required.

Getting the Word Out

The LEPC has a responsibility under section 324 of Title III to inform the public about its right to know. Many LEPCs have gone beyond the modest mandate to publish the fact that the various facility reporting forms and LEPC plans are available for public inspection.

During EPCRA Awareness Week (January 1992), the District XI LEPC in Florida, serving Broward, Dade, and Monroe, counties, held public outreach workshops focusing on citizen information. The workshops included presentations explaining the hazards identification, vulnerability and risk analysis process, and graphically showed citizens sample facilities and their respective vulnerability zones. In addition, the Sun Sentinel published a feature story and a two-page article that named and located on a county map the over 80 facilities reporting under section 302 and listed the extremely hazardous substances at those facilities in Broward County (Ft. Lauderdale metro area). All of the LEPCs in Florida reported a measurable increase of public requests for EPCRA information as a result of the Awareness Week activities.

Planning Applications

Knowledge of the hazards present in the community will enable planners to identify what response personnel and equipment are needed for the community, as well as what training will be necessary. The identification of the health threats in the community will support the development of necessary emergency medical care procedures.

Public notification and alarm systems in the community should reflect the results of vulnerability analyses. Public education efforts may be needed to describe evacuation and in-place protection procedures. The Alaska SERC is providing technical and financial assistance to its LEPCs as part of a statewide hazards analysis project. The project generally will follow the airborne toxics approach outlined in the Technical Guidance for Hazards Analysis, but the analysis has been expanded to include facilities with flammables and explosives, as well as the potential for chemical and petroleum spills to impact the drinking water supply or sensitive ecosystems. Once the information has been compiled at the local level, it will be transferred into a statewide CAMEO system, and eventually incorporated into a Geographical Information Systems format, along with data from other state environmental programs.

"The hazards analysis data will also be used as the basis for evaluating emergency response capabilities as part of an effort to establish volunteer response teams and equipment depots across Alaska.

As part of the hazards analysis process, local fire departments and other planning officials may want to inspect facilities to collect specific information and develop a working knowledge of the facility in order to pre-plan for an emergency response situation. The emergency dispatcher can be made aware of locations with extra hazard potential in the event of an emergency (e.g., incompatible materials stored in close proximity or extremely flammable or explosive substances.) A special notation can be included to indicate that the local hazardous materials team should be dispatched immediately or placed on alert.

Under the Clean Air Act Amendments of 1990, many facilities in your community may be required to provide information on the ways they manage risks posed by certain substances listed by EPA and indicate, by submitting a risk management plan (RMP), what they are doing to minimize risk to the community. These provisions are likely to generate more detailed facility-specific information useful for LEPC planning purposes.

One component of the RMP will require facilities to prepare detailed off-site consequence analyses. The RMPs, with their analysis of off-site impacts, will help LEPCs update their community plans. LEPCs will also be better able to coordinate community plans with facility plans.

The Chandler Fire Department in Arizona requires facilities with certain categories of hazardous chemicals to file a hazardous materials management plan (HMMP) when applying for a hazardous materials permit. The HMMP includes a section requiring completion of a vulnerability analysis. Their guidance for preparation of a vulnerability analysis suggests using the Technical Guidance For Hazards Analysis for information regarding vulnerable areas. This HMMP is similar to the RMP that is required by the Clean Air Act Amendments.

Prevention Implications

Hazards analysis allows local emergency planners and industry to work together to reduce hazards in the community and prevent future accidents. As with the implications for planning efforts, the LEPC, or specific members such as the fire departments, can identify prevention strategies while gathering the information to conduct the hazards analysis. Some important questions to keep in mind when looking at a specific facility are:

- What possibilities exist for substituting less dangerous chemicals for any hazardous chemicals at the facility?
- What possibilities exist for reducing the quantity of the hazardous substances in use or stored at the facility? Can this be done without increasing transportation-related dangers?
- Have operation or storage procedures been modified to reduce the probability of a release and minimize potential effects?
- What is the overall layout and spacing of the storage area, process areas, and other positions with respect to the plant property line? What is the spacing between the individual equipment both in storage and process areas? Are incompatible chemicals separated sufficiently? What areas and pathways will be available for the movement of personnel and vehicles in the event of an emergency? Are placards describing the hazard of the chemical displayed prominently?
- How are the hazardous substances received/shipped? How often and in what quantities? Are there dedicated personnel trained in the handling of these materials?

The role of hazards analysis in a chemical accident prevention program can vary from influencing a single facility's inventory decisions to serving as the basis for a state-wide initiative. The Washington, D.C. LEPC and the State of California are examples at each end of the spectrum. After receiving a section 302 notification from a local water treatment plant, the Washington, D.C. LEPC encouraged the facility to reduce its storage of large quantities of chlorine. The company did not realize the potential hazards such storage posed to the surrounding community, and volunteered to reduce its on-site inventory.

On the other hand, the State of California has developed, as part of its implementation of state legislation, the Risk Management and Prevention Program (RMPP). The program is designed to reduce the number of releases and the potential for casualties and evacuations; to reduce facility expenses for equipment breakdown, materials loss, clean-up costs, and claims litigation; and to improve environmental protection. Facilities with the potential for a significant off-site impact from an EHS release are required to develop an RMPP. A comprehensive facility RMPP report includes a record of EHS accidents; a description of the equipment used in conjunction with EHSs; facility controls to minimize the risks of a release; monitoring, backup, mitigation, and transportation and storage procedures and systems; and the facility safety audit, inspection, and recordkeeping policy. The final step in the facility RMPP is performing a hazards assessment, which serves as the basis for developing a facility prevention program consisting of release reduction techniques, systems, and procedures, and a schedule for their implementation.

WHERE DO YOU GO FROM HERE?

Hazards analysis is an on-going process. Unfamiliar hazards and inaccurate records can seriously undercut the effectiveness of contingency planning and emergency response procedures. Records must be regularly updated to account for new chemicals and facilities in the community, changes in the quantity of chemicals at facilities, or even the movement of chemical storage and process locations within facilities. As a result of these changes in the hazards environment, local planners may need to revise individual scenarios for vulnerability and risk.

Thus, the additional information required for these stages in a hazards analysis (e.g., the identification of schools, hospitals, and other special populations; community emergency response capability; and facility release prevention and mitigation procedures) should also be updated regularly. Although hazards analysis can seem at first a highly resource intensive and complex task, it is the responsibility of the LEPC to put the process of hazards identification, vulnerability analysis, and risk analysis into practice in the community so that vulnerable populations can be protected. As described in this bulletin, each of these steps can be, and have been, conducted in a fashion that matches LEPC resources and concerns, and the process itself can be used to support a variety of other chemical emergency preparedness and prevention activities.

EPA 550-F-93-004, October, 1993

HAZARDS ANALYSIS ON THE MOVE

HOME

SARA Title Ill (EPCRA) and Conducting a Commodity Flow Study

Mode of Transportation	Number of Incidents	Associated Deaths	Associated Injuries
Highway	48,907	113	1,762
Rail	8,620	0	611
Air	1,177	0	127
Other (includes freight forwarders and water transportation)	1,108	1	91
TOTAL	59,812	114	2,611

Between 1987 and 1989, U.S. Department of Transportation (DOT) officials reported almost 60,000 transportation incidents that resulted in an unintentional release of hazardous materials. How can you assess the transportation risks facing your community? Is your community prepared to face these risks?

The purpose of this document is to help you as local planners (e.g., tribal and state LEPCs, and other planners) and responders, develop a method to determine what hazardous materials are being transported through your community and the priority areas of risk that warrant further analysis and study. By doing so, you can assess and improve existing strategies to minimize risk (both public and private) and the response capabilities within your jurisdiction.

In the Emergency Planning and Community Right-to-Know Act (EPCRA), Congress recognized the risk to communities posed by the transportation of hazardous materials and required that emergency response plans developed by LEPCs identify the "routes likely to be used for the transportation of substances on the list of extremely hazardous substances...." One way to approach this requirement and to address all of the hazardous materials being transported through your community, is to conduct a hazardous materials commodity flow study (CFS). A CFS is an assessment of the types and volumes of materials moving through your community. For some communities, especially those in rural areas, transportation may pose the only hazardous materials risk. In light of the number of accidents that occur (see chart at left), identifying and understanding transportation-related risks are critical components of emergency preparedness and prevention. The goal of the CFS is to use the information collected to increase your preparedness, prevention, and response capabilities.

What are the objectives.

A CFS is the hazards identification step of transportation hazards analysis, described in Technical Guidance for Hazards Analysis, an EPA, DOT, FEMA publication. A CFS is the collection of existing and new data on transportation patterns in your jurisdiction. Combined with accident histories, geography, and other local conditions, a CFS will help you characterize hazardous materials transport, identify locations of risk and other vulnerable areas, and formulate emergency planning, prevention, and response measures. Some specific objectives of performing the CFS are:

- Identify major hazardous materials traffic corridors;
- Characterize types of substances, shipment frequencies, container types, and container capacities;
- Specify the location, length, and nature of priority highways, rail tracks, and other routes (paying special attention to those that pass through or along densely populated or sensitive environmental areas);
- Characterize any local terminals or other gathering areas for hazardous materials transport vehicles such as truck stops and weigh stations; and
- Compile data on any travel and route restrictions in effect for the region.

Many communities have conducted CFSs that identify the types, amounts, and routes of hazardous materials being transported in and through their region. You can learn from their experiences, several of which are discussed throughout this document. You will see that conducting a CFS involves some methods different from those used for hazards identification at your fixed facilities. Instead of referring to information on conventional facility reports such as Material Safety Data Sheets or Tier II Reports, you will need to collect data that may or may not be readily available from public or private sources. You must account for different modes of transportation (e.g., railways, highways, pipelines, waterways), and develop an estimate of the types and amounts of hazardous materials being transported in and through your region. Our discussion begins by presenting tips for getting organized, looks at methods for gathering the necessary data, and then examines the ways in which you can apply the results of a CFS. Finally, we consider some technological and legislative changes that may be of help to your transportation planning efforts.

Getting Organized

Who needs to be involved?

As an LEPC, you may wish to form a separate transportation hazards advisory committee to lead the effort, or the LEPC as a whole may take the lead role. Whether or

not you are able to form a committee that meets regularly, the LEPC should identify state and local professionals to assist in identifying sources of information and to review drafts.

To cultivate broad-based support, an advisory committee should reflect local conditions and include representatives from the LEPC, local planning councils, the public works department the State Department of Transportation, the U.S. Coast Guard, airport and port authorities, industry, police and fire departments, and the SERC. Once the advisory committee has been formed, it must formulate a workplan for the study itself. In developing this workplan, the advisory committee should take the time to determine specific objectives, what data are available, and what data are needed in order to accomplish the goals of the CFS quickly and efficiently. This will give the CFS a clear focus and give the committee a better idea of what resources will be necessary to complete the study. Throughout this document different methods are suggested. You should evaluate your needs against available resources, and modify your approach accordingly.

LESSONS LEARNED

The National Institute for Chemical Studies (NICS) is in the process of conducting a CFS as part of a comprehensive hazards analysis in the Kanawha Valley region of West Virginia an area with a very high concentration of chemical facilities.

NICS is characterizing hazardous materials transportation and the potential risk it presents in order to improve emergency response plans in the vulnerable areas of the region. A specific goal of the NICS study is to develop lessons learned for other communities that might conduct a CFS. How can NICS' experience help your CFS? Although the study is not yet complete, several helpful suggestions can be made from the work completed to date. There are several points to keep in mind.

The effort put into a CFS should match the community's goals and its resources. In some cases, a great deal of detail or expense may not be needed for useful emergency planning. NICS' CFS indicates that there are many different types of hazardous materials being transported through the study area. In other communities, hazardous materials transportation may be dominated by a few specific classes of chemicals, such as flammables or corrosive liquids. In these cases, focused hazards analysis and emergency planning efforts may be possible by addressing each of these classes, rather than all of the individual chemicals in each class.

A CFS, however, could show that specific hazardous materials, such as spent nuclear rods or military munitions, are transported infrequently through the community, but pose enough hazard to warrant special attention from emergency planners. Other helpful hints from the NICS study include:

- Hazardous materials transportation can vary by the time of day and the day of the week. Be sure to account for this when planning field surveys.
- Questionnaires mailed to facilities will often require follow-up telephone calls for clarification and to improve the rate of response.
- A CFS that includes many field observation efforts, such as placard or waybill surveys; can generate large quantities of data - computerized data management may be needed or you may wish to scale back the focus of your study.
- Effective training and supervision of field survey personnel will improve the quality of the observations and data collected.
- Shipping papers are often in many different formats. Decide what data you will need and develop a standardized table for entering the information.
- Police and other emergency responders can identify highways and intersections where accidents have occurred in the past to guide data gathering and hazards analysis efforts.
- Incorporate the results of other data gathering efforts. For example, total traffic volume figures developed by transportation agencies can be used to estimate the percentage of vehicles carrying hazardous materials over a given route. These figures can help you address planning issues such as the potential exposure to drivers should a hazmat accident occur during peak travel times.
- Access existing databases and inventories, such as those developed by railroad companies and district offices of the Army Corps of Engineers.

A final guidance document based on the NICS study will he developed upon completion.

Don't re-invent the wheel!

Several agencies at the national and state level compile some of the data that you will need. The advisory committee should identify these agencies and determine what data already exist. This is why having a broad-based advisory committee is so important. Everyone, especially the state DOT representative, will have access to different and valuable information. Industry associations, such as the Chemical Manufacturers Association, the Association of American Railroads, the American Trucking Association, and others may have already collected and analyzed additional data.

Nearby municipalities may have already completed a CFS or may want to join forces and combine resources. For example, LEPC representatives from Alexandria, Virginia, serve on a multi-jurisdictional task force that is an important forum for addressing resource-sharing issues and is developing a transportation hazards-based emergency response plan. The task force is devising a set of response procedures, but is also working to reduce the amount of

hazardous materials transported through, and the number of accidents in, the region. You can also integrate your CFS data collection efforts with other on-going data collection or inspection programs. Once again, Alexandria, Virginia, provides an example of effective interagency coordination in its policy of using fire department Title III Facility Data Sheets to highlight likely transportation routes for carriers of extremely hazardous substances. The LEPC incorporates this information on transportation routes and chemicals transported into its emergency planning process to better respond to transportation incidents.

Recruiting outside help.

Using volunteer personnel, students, and local environmental groups can be a great cost and time saver for the LEPC. The Hancock County, Ohio, LEPC took advantage of an innovative program in environmental and hazardous materials management at a nearby university to obtain qualified volunteers for its study on hazardous materials transportation on the county's highways. Following initial training sessions, a total of 37 students from the University of Findlay's "Hazmat Club" were assigned survey times and locations to conduct placard surveys. Their assistance proved to be an important tune saver for the LEPC. A prison inmate volunteering for the Butler County, Kansas, health office, developed and implemented the county's emergency response plan, which included identification of the transportation-related hazards in the county. He spent over 800 hours working on the plan and aiding other counties in developing their plans. He recommends the use not only of inmates, but also senior citizens, who possess the necessary time and knowledge of the region to assist in CFS efforts. Industry is another (perhaps more traditional) potential resource - local industry might be persuaded to contribute personnel and equipment to the study.

A New Funding Opportunity: Utilizing HMTA

Section 17 of the Hazardous Materials Transportation Act (HMTA) provides funds to states to enhance the consideration of transportation-related risks in current chemical emergency planning efforts, and to support the implementation of EPCRA. (There is also an HMTA training grants program, available to both states and tribes.) Conducting a commodity flow study is one of the activities identified by Congress as eligible for funding under the HMTA planning grants program, and could lead to other HMTA activities such as assessing local response capabilities, improving the comprehensive emergency plans required under EPCRA, and assessing the need for regional hazmat teams.

LEPCs should contact the agency selected by their Governor as the "designated agency" for implementation of the HMTA program to learn more about developing a proposal for receiving grant funds under the new law. Call the U.S. DOT HMTA Grants Manager at (202) 366-0001 if you are unsure as to which state agency has been selected to head the effort. Because of HMTA, the, number of commodity flow studies conducted will increase. Keep an eye out for other communities in your area who receive these funds so that you can learn from their experiences as well.

Gathering the Data

What's the big picture?

Begin by identifying the major hazardous materials transportation patterns: determine the general types of hazardous materials moving throughout the community, how they are moved, and when they are moved. A CFS doesn't have to provide a lot of detail to be useful - given budget constraints, collecting exhaustive data on every chemical and every mode of transportation will be nearly impossible to accomplish. Complicated risk analyses using intricate mathematical formulas are probably not necessary. Rough estimates of hazardous materials traffic can provide valuable information in determining where risk lies.

Priority risk areas can be found at the points of origin or destination of hazardous materials, as well as at intermediate locations. For most areas, data for one month, or even one week, may prove sufficient to project the year-round flow of hazardous materials. You can focus on general classes of chemicals (e.g., flammables, corrosives), unless you know that large quantities of specific chemicals are manufactured or stored in the area. Some areas will experience seasonal changes (e.g., a rural community may experience an increased flow of fertilizers and pesticides during a portion of the year) that should be evaluated separately from typical flows. Seasonal patterns may be easy to determine for local industry, but keep in mind that such pat terns will be extremely difficult to track for interstate traffic. You should weigh the costs and benefits of studying seasonal transportation patterns in your area.

Your next step.

Reviewing all of your facilities' Tier II reports and the amount of hazardous chemicals they store, handle, or use annually will give you an idea of the quantity and type of materials transported through your jurisdiction. A fixed facility representative may be able to provide you with a rough estimate of the types and quantities of materials transported through these facilities, or you may decide to prepare a facility questionnaire. NICS prepared a comprehensive fixed facility survey as a starting point for its hazardous materials transportation survey. NICS asked fixed facilities about specific trends in the amount of hazardous chemicals shipped over the past few years, the exact mode of

transport and the usual hours and days of the week for shipping and receiving. Facilities were asked to list the major carriers for each chemical and the most frequent origins and destinations of loads. This information provided data on the actual amounts and types of hazardous materials shipped from or received by facilities in the region. It provided valuable information on the general routes utilized by these facilities and yielded transportation data which could be compared to data obtained by the field surveys. See page 6 for the specific steps taken by the Taylor County, Wisconsin LEPC. There are transportation depots that are not necessarily captured under the fixed facility definition in EPCRA, yet hazardous materials are channeled through them every day. Make sure that your CFS includes truck terminals, seaports, airports and rail yards. Such depots may also warrant study in the CFS because of the potentially diverse types and amounts of substances that are distributed from them. Many of these facilities voluntarily participate in the planning efforts of the communities in which they are located. If you feel more formal mechanisms are needed, however, there are provisions of EPCRA that can help.

Section 302(b)(2) of EPCRA authorizes the Governor and/or the SERC to designate "additional facilities which shall be subject to the requirements of [section 302]...." Rail yards, sea ports, and airports are examples of transportation depots that can be included under section 302. You should review your state and local ordinances for provisions (similar to EPCRA section 303(d)(3)) that provide access to the information you need to adequately address the transportation-related risks facing your community.

On A Shoe-String Budget – Collecting the Data

Taylor County, Wisconsin, is a primarily rural community, with a small city and several villages. There are three state highways, one railway, one small airport, and two pipelines within the county. The Taylor County, Wisconsin LEPC conducted a CFS and transportation hazards analysis using the steps outlined below. You might find them useful when setting out to collect data for your community. As Taylor County learned, conducting a CFS is a time-consuming process, but certainly manageable once priorities have been set. By working on the project as time allowed, Taylor County was able to keep the total costs down. Over the course of twelve months, two people worked a total of approximately 450-500 man hours.

1. Identify HAZMAT Routes

Taylor County started by pulling out local maps to determine which routes warranted study. You can use state highway maps, county aeronautical charts, and municipal street maps to name a few. Remember that pipelines might not appear on a map, but need to be included in your CFS. Taylor County contacted pipeline companies directly, after obtaining contact information from the County Emergency Government Office and the State Office for Emergency Preparedness.

2. Determine What HAZMATs Are Carried on Each of These Routes

Taylor County used the following methods to determine hazmat traffic volume and flow.

Route:	Method of Determining HAZMATs:
HIGHWAYS	• Sent questionnaires/surveys to trucking companies, weigh stations, and known hazmat suppliers/users; • Determined data collection points (priority/high-risk points); and • Performed traffic counts (placard survey).
RAILROADS	• Contacted the local representative from railway companies; • Researched waybills and manifests; and • Contacted the District Office of the Federal Railroad Administration in your area.
PIPELINES	• Contacted local pipeline companies; and • Contacted local utility commission for permitting records and "digsafe" programs.
AIRPORTS	• Contacted airport managers to determine which airlines carry hazmats; and • Contacted local representatives for each airline identified.

There are no navigable waters within Taylor County. The LEPC suggests, however, that you contact shipping companies and the district offices of the U.S. Coast Guard and the Army Corps of Engineers to obtain information on the hazardous materials transported through your jurisdiction via waterways. (Check your phone book for local listings.)

3. Compile Accident Records

Finally, Taylor County examined accident histories to identify any recurring problems or severe risks in the area. The following agencies can assist you in collecting information on your area's accident history

State Department of Transportation		Police Department	Public Health Department
State Emergency Management Agency	Local industry	News media	Local hospitals and physicians

HMIS reports can be obtained by contacting DOTs Research and Special Programs Administration (see page 11 for contact information).

Other facilities that can generate substantial highway hazardous materials traffic include oil-fired, coal, and nuclear power plants; large manufacturing facilities; agricultural warehouses; waste management companies: and public facilities. Keep in mind that the lack of standardized shipping manifests, not to mention receiving them in different languages will complicate your analysis.

Your area's accident history is another key starting point for information.

Federal and state agencies compile accident data that can be used to get a sense of what and where the priority points are and what kind of accidents your community typically faces.

You can use this information, along with your knowledge of local conditions, to help identify high-risk areas.

The U.S. Department of Transportation Hazardous Materials Information System (HMIS) contains a variety of data regarding the transportation of hazardous materials by air, highway, rail, and water.

HMIS also contains a data base on shipping routes for high level radioactive materials that may be of interest in assessing your transportation-related hazards.

The HMIS Incident Report Data Base is composed of carrier-reported accidental release data from 1971 to the present, as required by the Code of Federal Regulations (49 CFR Part 171).

The incident data include the date of incident, chemical(s) involved, quantity, location and land-use, cause of release, mode of transportation, and other information.

Addressing Your Additional Data Needs

Once you have tracked down existing information, how do you obtain the data that are missing? Again, assembling the proper team is crucial. A data collection team may be composed of members of the advisory committee; or, if resources allow, it might be wise to develop an "outside" team. Whether it is made up of private organizations, volunteers from environmental groups and local universities, or contractors, the data collection team should receive a clear mission, adequate training, a timetable, and responsibilities from the advisory committee.

Commodity flow studies commonly involve a road-side placard survey. These surveys identify what materials are being transported and also give you an idea of the quantity involved. Usually, these surveys last for a few days or weeks - observers note the number of trucks that pass by, their placards, the time, and the type of container used. Although a great deal of effort may be needed to make such a survey statistically accurate, even a modest program of field observation can form a solid foundation for conducting a transportation hazards analysis.

The table describes this and other collection methods that have been used in the past by communities identifying transportation-related risk. These methods can be adapted to local conditions and specific modes of transportation. The resources identified can help you determine which methods are appropriate for your study. Whatever method you choose, the advisory committee should organize the raw data that have been collected into a form that is conducive to continuing analysis.

Survey Methods

METHOD	ADVANTAGES	DISADVANTAGES
Review and analyze existing data	Inexpensive, shows major highway, rail, air, and water routes. Good starting point.	There is no single source for all existing data. Allow time for integrating various electronic formats.
Placard Survey	Provides approximate counts for trucks on major highways and rail lines at reasonable cost. Can be combined with existing data to estimate proportion of trucks with hazardous materials on major highways.	Limited number of roads/rail lines can be covered.
Photocopy survey (Photocopying shipping manifests of carriers passing through toll booths, etc.)	Can provide detailed data on volume and nature of hazardous materials shipped by truck.	Shipping papers are not standardized; requires a lengthy review process. Cost may be prohibitive.
Fixed facility survey	Good data on routing, volume, and nature of hazardous materials.	Only covers a portion of shipments on selected highways; must be supplemented to obtain local shipments.
Weigh Station survey	Good data on routing, volume, and nature of hazardous materials.	Only covers shipments originating or terminating locally. Allow for lengthy dam review sessions.

What to Do With the Results

Improving response; preventing accidents

Many communities have conducted hazards analyses to develop and revise emergency response plans based on the specific hazards found at fixed facilities within their jurisdiction. The hazards analysis process can also be applied to transportation-related risk. The Technical Guidance for Hazards Analysis ("Green Book") describes the hazards analysis process in detail. It can be summarized in three basic steps:

- Hazards identification pinpoints the location, quantity, storage conditions, and the specific hazards posed by the hazardous chemicals transported, manufactured, stored, processed, and used in the community.
- Vulnerability analysis locates geographical areas and the people, property, services, and natural areas that may be affected by a release.
- Risk analysis provides a basis for LEPCs to rank specific release scenarios or locations based on the likelihood and severity of the release. The hazards analysis method described in the Handbook of Chemical Hazard Analysis Procedures ("Brown Book") separates this step into two steps, consequence analysis and risk analysis. The additional step is simply an elaboration of the process explained in me Green Book.

A commodity flow study is, in effect, the hazards identification step of the hazards analysis process conducted for transportation-related hazards. Once the CFS has been completed, you will have a good sense of what major categories of hazardous materials are transported through your region and what the priority areas are - you will have identified the transportation hazards facing your community. Plotting the information on a map can provide a picture of where the hazardous materials are and which are the major routes of concern for planning purposes.

You can use the vulnerability and risk analysis steps described in the Green Book to translate the results of the CFS into recommendations for revising your emergency response plan and determining your community's specific preparedness, prevention, and response needs. This evaluation will help answer important planning questions such as:

- Just how vulnerable is your community to these risks?
- How can risks be reduced?
- How can accidents be prevented?
- What special populations (e.g.. schools, hospitals) are located near these priority routes?
- Are any of these routes marked by significant congestion at certain times of the day?
- What is the response time of the closest hazardous materials team?
- How accessible is the area to emergency vehicles?
- What is a realistic scenario, given the risks and probabilities?

Once the remaining steps in the hazards analysis process have been completed, you can then turn to assessing your level of preparedness and revising your emergency response plan to reflect the highest transportation-related risks. Depending on your circumstances, you may not be able to tailor your emergency response plan to focus on specific chemicals or routes.

Just as with fixed facility planning, budget constraints come into play as the number of chemicals and hazards increase. It is important, however, that your plan addresses the risks that you have identified to the best of your ability. For example, if you discovered that the local railroad terminal stores hazardous materials cars in special holding areas, obtain a map of the facility, mark the holding areas, and attach it to your emergency response plan: then work with the rail-yard to reduce the risks. Another example is segregating incompatible cargoes and establishing buffer zones between holding areas and nearby communities.

After developing a realistic picture of the hazards that your community faces, you can begin to re-evaluate your community's prevention strategies. Are current measures appropriate? Would traffic control on priority routes make a difference'? Do accident records suggest a need for driver safety training'? Would commodity flow restrictions during severe weather alerts make sense? Be sure to identify all of your community's prevention concerns so you can ask the "right" questions.

The CFS may also point to a need for additional resources to increase the community's level of preparedness (e.g., training, equipment, and on-going planning). Again, it is most important to have general response capabilities, rather than trying to address every specific chemical and/or transport route.

Looking Ahead

Transportation-related risks are continually changing, and to meet the challenges that these hazards present, it is important to look forward. With construction of new highways, changes in the composition of local industry, and the enactment of new federal, state, and local laws, there may be a change in the flow of hazardous shipments through your community. The commodity flow study should not "sit on a shelf:" it should be updated periodically and the community emergency response plan revised accordingly.

It is important to keep abreast of new tools (both technological and legislative) that are being developed and refined to address many of the problems you may be facing. Keeping these and other factors in mind will help you with long-term planning and future updates of the CFS and the overall emergency response plan. Let's look at a couple of

these innovations and see how they might be applied to your needs.

Metropolitan Planning Organizations (MPOs)

Section 134 of the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) calls for me designation of an MPO for each urbanized area of greater than 50,000 people. The primary responsibility of these MPOs is to conduct the transportation planning process for the area that it covers. This process will include developing transportation plans and programs to promote comprehensive solutions to regional problems.

MPOs represent a potentially invaluable resource for your LEPC when preparing a CFS. They will have data and expertise that will make your task easier, and they may even be able to provide access to equipment and techniques, such as transportation-specific Geographic Information Systems (GIS), that will simplify the work and enhance the form of your final product. Keep in mind that the MPOs will be working closely with state and local transportation authorities, so that they will likely have information for your area.

Intelligent Vehicle/Highway Systems (IVHS)

IVHS are a family of technologies that are presently being developed to improve transportation safety and efficiency. By bringing high-tech solutions in the form of advanced computers, sensors, and communication systems to some of the complex transportation problems that confront us, IVHS holds the promise of mitigating congestion, enhancing safety, promoting economic productivity, and minimizing environmental hazards.

"Great," you might say, "but how will this sci-fi stuff help me?" In the near future, trucks and trains traveling through your community could be carrying electronic equipment that identifies the cargo, keeps track of the vehicle's location, and even projects the intended route through your district. Shipments of hazardous materials could be tracked in "real-time" by a traffic control center, and sensors on the vehicle itself will be constantly monitoring the condition of the cargo.

Currently, there are over 20 operational programs in the U.S. testing various elements of IVHS, including those directly applicable to hazardous materials transport. Remember that transportation planning is an evolving discipline, and that new tools are constantly being developed to help you safeguard your community.

In Summary...

Even though the transportation of hazardous materials presents substantial risks, these risks may seem difficult to quantify. The commodity flow study process should be tailored to meet your needs and available resources as you identify and address the particular hazards facing your community.

In this document, we have:

- Outlined the steps necessary to conduct a comprehensive commodity flow study;
- Explained how each of these steps relate to the emergency planning process;
- Pointed out some resources you may want to tap once you have decided to go ahead with a CFS; and
- Examined the technologies and issues that will play a role in identifying transportation hazards in the future.

Use this information as a guideline, but remember that there is no one right way of doing this job. The particulars of your community will ultimately determine your best course of action.