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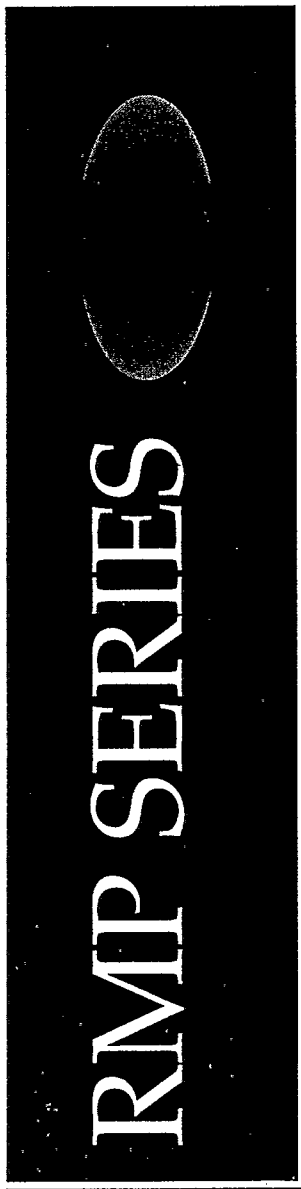
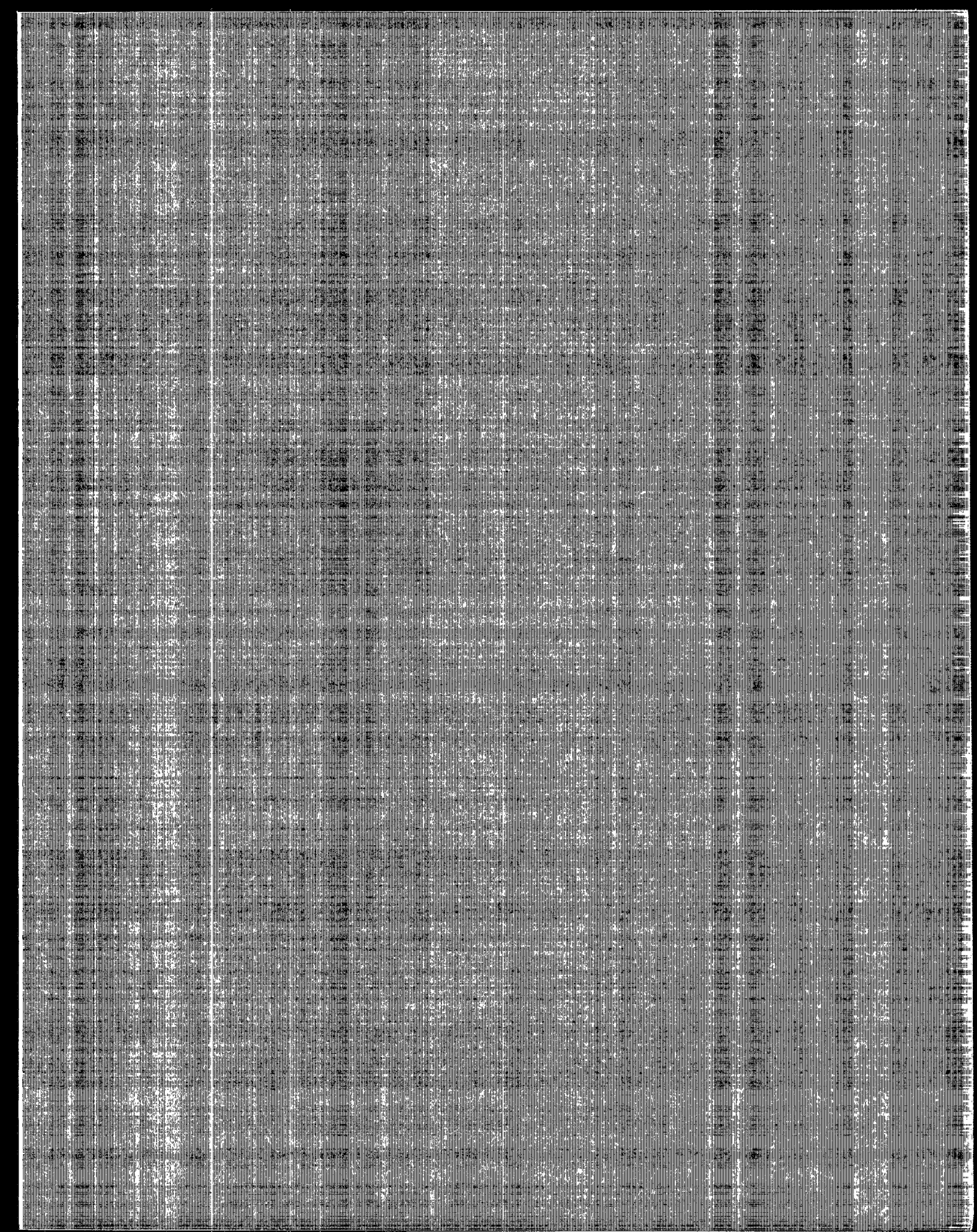
EPA
CEPPO

RMPs Are on the Way!

How LEPCs and Other Local Agencies Can Include Information from Risk Management Plans in Their Ongoing Work





June 1999

ALERT: IMPORTANT INFORMATION ABOUT LISTED FLAMMABLE CHEMICALS

At the end of this document you can find a list of chemicals covered by the RMP regulation. Some recent events have affected the list of flammable substances. On May 21, 1999, Administrator Browner signed an administrative stay of the effective date of the RMP rule as it applies to flammable hydrocarbon fuels (including propane, butane, ethane, methane and others) stored in quantities no greater than 67,000 pounds in a process. Industries now covered by EPA's stay include distributors and users of natural gas/liquified natural gas, utilities, and exotic fuel users. The Administrator also signed a proposed rule to establish this exemption. Depending upon comments received, a final rule is expected in the Fall.

On April 27, 1999 the U.S. Court of Appeals issued a stay that applies to LP Gas/propane only – at thresholds of 10,000 pounds and above. EPA's administrative stay is different from the court stay, since it extends to industries that use any RMP listed flammable hydrocarbon as fuel, not just propane. Also, EPA's stay has an eligibility cap of 67,000 pounds, while the court stay has no cap.

The court-ordered stay will be in effect until further review by the court and its scheduling of oral arguments for the early Fall 1999 term. If the judicial stay is lifted, facilities using LP Gas/propane will then be subject to EPA's administrative stay and the final rule establishing the flammable hydrocarbon exemption.

In addition to the judicial and administrative stays, there have been two other Congressional initiatives. On April 26, Senator Inhofe introduced a bill to exempt flammable fuels from RMP. On March 25, Congressman Blunt and eight other Representatives introduced a bill to prohibit RMP listing of liquified petroleum gas (mostly propane).

For up-to-date information about the coverage of flammable hydrocarbons, see the CEPPO homepage at http://www.epa.gov/ceppo.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

JUN 30 1999

OFFICE OF
SOLID WASTE AND EMERGENCY
RESPONSE

Dear LEPC and SERC Members,

EPA has published new guidance on the Clean Air Act's Risk Management Program (RMP) for LEPCs and other local agencies. I have enclosed a copy of *RMPs Are On The Way* that has been carefully tailored to present the risk management program as it pertains to local agencies. This comprehensive guide describes the elements of RMP and integrates accident prevention with emergency preparedness at the local level.

The risk management information that becomes available in June 1999 will give you new opportunities to protect your communities from the hazards of chemical releases. By facilitating the communication of RMP information to the public, and by fostering public dialogue with industry concerning chemical hazards in your community, you can bolster and enhance your achievements in emergency planning. I hope that the suggestions on risk communication in this guidance prove useful to you in this process.

Many of you will remember our booklet, *It's Not Over in October*, which we published two years after the Emergency Planning and Community Right-To-Know Act was passed. EPCRA required LEPCs to develop comprehensive emergency plans by October 1988. At that time we encouraged LEPCs to continue their preparedness and information management work once their contingency plan was complete. Many of you took that advice and EPA recognizes the important role you play in chemical safety. Now 10 years later, the Clean Air Act provides another opportunity for you to continue and expand your fine work by addressing chemical accident prevention.

I encourage you to complete and submit to us the evaluation form that can be found at the back of the guidance. We want to ensure that we are providing you with the best tools and information to meet your needs.

I also would like to draw your attention to information that may assist you to develop contingency plans to meet the Year 2000 (Y2K) challenge. The Federal Emergency Management Agency (FEMA) has produced a guide, *Contingency and Consequence Management Planning for Year 2000 Conversion- A Guide for State and Local Emergency Managers*, which is available on the Internet at http://www.fema.gov/y2k/ccmp.htm. Communicating with industry about their Y2K preparedness and coordinating your emergency response plans will ensure that you are ready to address possible Y2K consequences. To increase awareness about the potential for chemical safety problems due to the Y2K problem, CEPPO has developed a Y2K Alert: *Prevent Year 2000 Chemical Emergencies*. This alert, which targets facilities in the chemical process industry, emphasizes contingency planning and provides a list of Y2K information resources. We have included the alert at the end of this document. It is also posted on the CEPPO Website at http://www.epa.gov/ceppo.

Congratulations on your fine work! Let's continue to work together to ensure chemical safety in our communities.

This has been a wonderful partnership in the interest of the environment and the american Public
Thanks Jim

Sincerely,

Jim Makris, Director
Chemical Emergency Preparedness and Prevention Office

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ABOUT THIS BOOKLET...

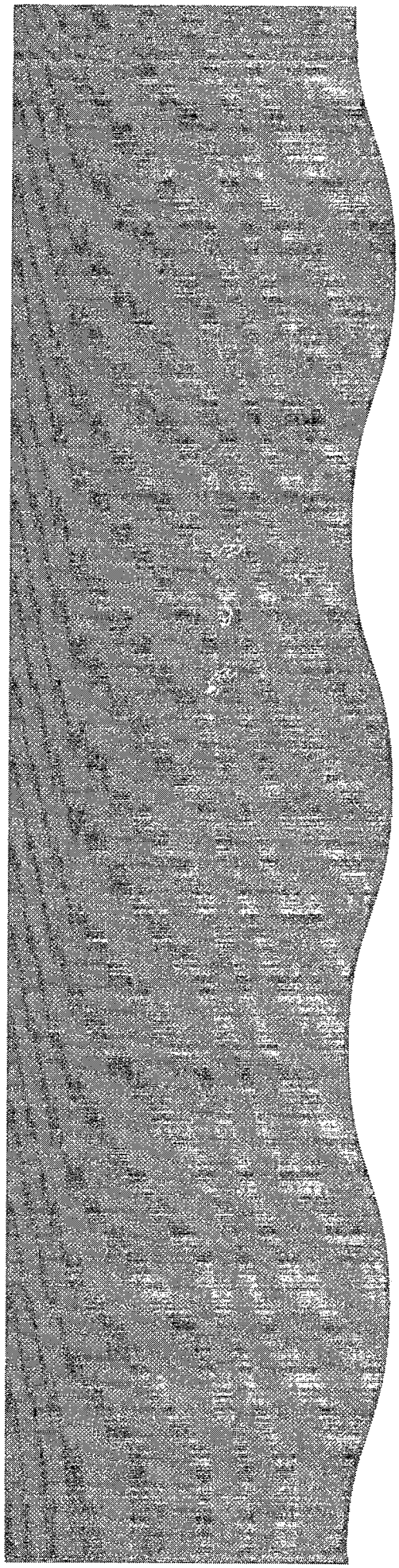
The Emergency Planning and Community Right-to-Know Act of 1986 (EPCRA) calls for the establishment of local emergency planning committees (LEPCs). LEPCs are to have broad-based membership whose primary work is to receive information from local facilities about chemicals in the community, use that information 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 new deadline: June 21, 1999. This time, however, the deadline is for industry. By that date, covered facilities must have in place a risk management program and submit an RMP to EPA. This deadline for industry is an opportunity for LEPCs. June 1999 can be a beginning for LEPCs, a time to update your 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.



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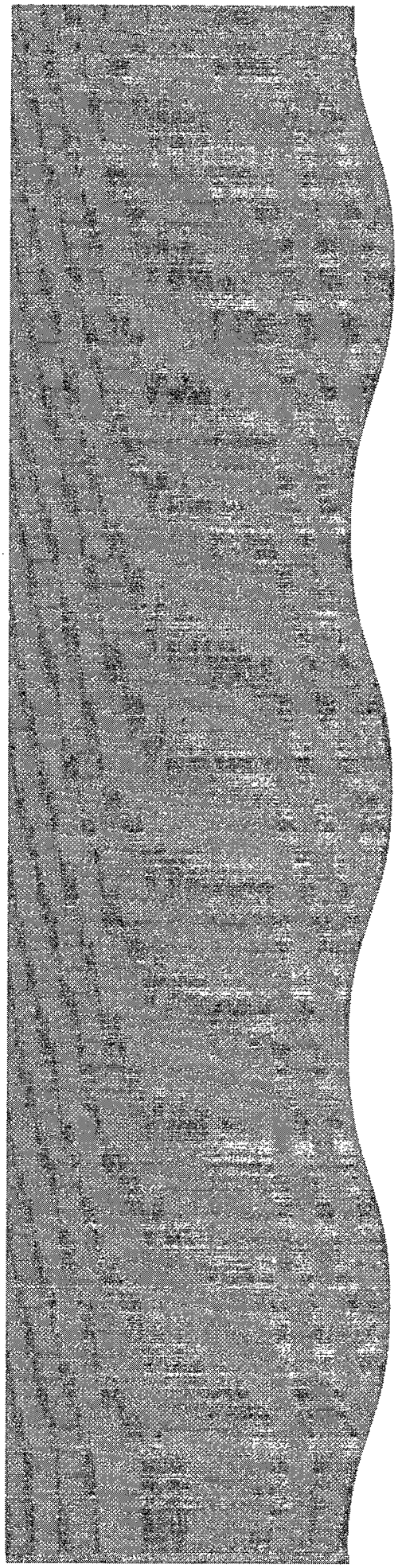

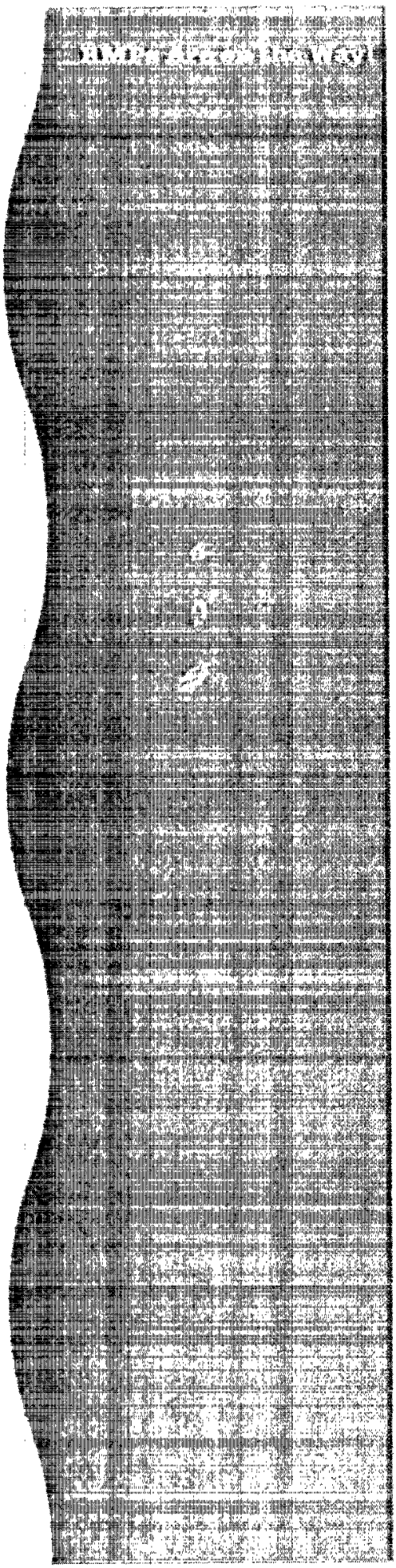

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NEW INFORMATION IS BECOMING AVAILABLE ABOUT CHEMICALS IN YOUR COMMUNITY

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 are required to submit their RMPs to EPA by June 21, 1999, and EPA will make the RMPs available to the public soon after that. A host of new information will be 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.

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)

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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.

- 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 will soon be available to you – in the RMPs that facilities will submit 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
TDD: (800) 553-7672
DC Area: (703) 412-9810
Fax: (202) 651-2061
Monday-Friday, 9:00 a.m. - 6:00 p.m. EST

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 reg-

1...2...3... 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.

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.

ulation; 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 in Risk Management Plans.

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.

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 .

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.

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.

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 reg-

Take Note

terms\'terms\n.

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.

ulated 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.

What Facilities Are Covered?

EPA has estimated that about 69,000 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).

2... 1...3.. 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.

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

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.

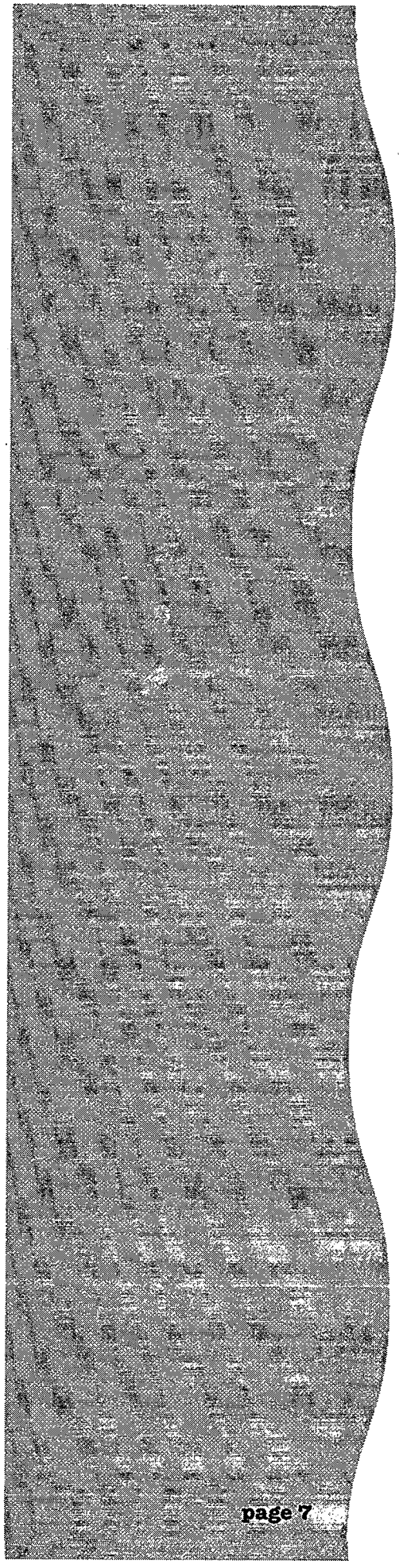
(b) Descriptions of one or more potential accidental release scenarios involving the regulated substances. Every facility must analyze the potential offsite consequences of a worst-case (catastrophic) release.

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.

Management System

Every facility that has a worst-case analysis showing potential offsite impacts is required to develop a management system to over-



2... Tips & 1...3.. 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

see 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.

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) as described on page 19. The facility must coordinate its plan with its LEPC plan.

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

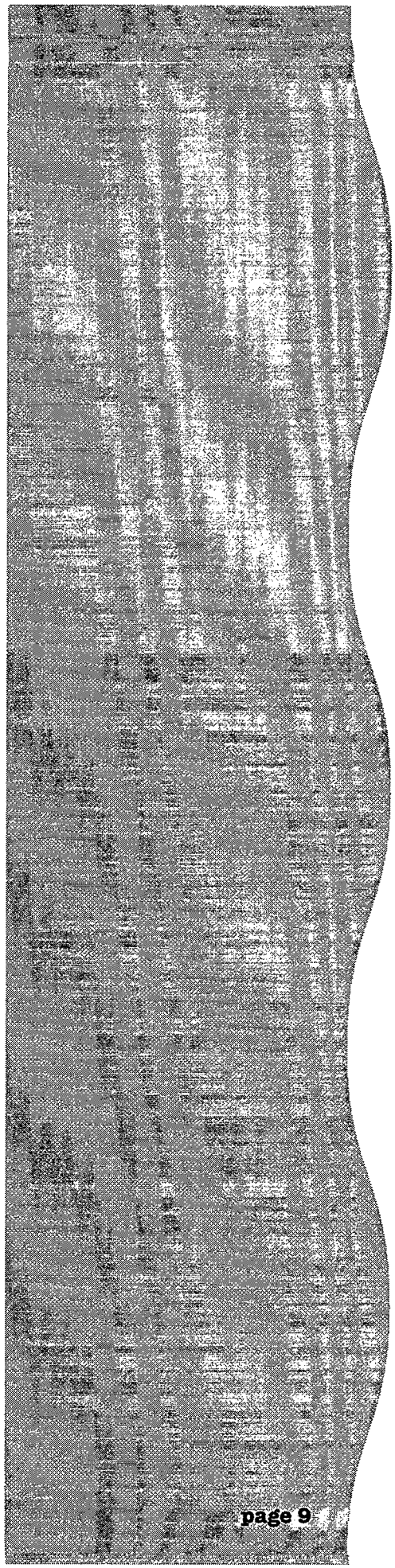
Subject to OSHA process safety management standard or in NAICS code 32211, 32411, 32511, 325181, 325188, 325192, 325199, 325211, 325311, or 32532

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 Risk Management Plan describes the activities that each facility is conducting to comply with the regulation, its "risk management program." Initial RMPs will be 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.



2... Tips & 1...3... 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) that 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, on-site 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.

1...2...3... 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" on page 13.)
- 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 will place RMPs, except for the offsite consequence analysis information, on the Internet in a format that will allow the public to search them and download any that are of interest. This database, called RMP*Info, will be located with other EPA data in Envirofacts on the Internet at http://www.epa.gov/enviro beginning in the Summer of 1999.

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, in the Fall of 1999, EPA will finalize RMP*Review, software 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).

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

terms\'terms\n.

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)

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 rep-

resents 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.

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

terms\'terms\n.

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*.

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.

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.

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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.

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.

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 on page 8) 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

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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.

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. Once the RMPs are available in the summer of 1999, you will be in 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;

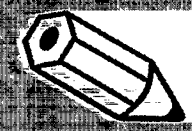
(4) Negotiate procedures for mutual assistance for emergencies that cross boundary lines;

(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 noteworthy 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!).

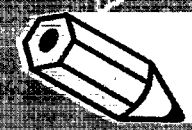


Take Note

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.



Take Note

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 communi-

ty 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

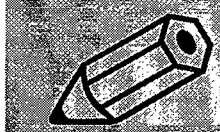
(3) Listen to the public's specific concerns

(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



Take Note

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.

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

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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

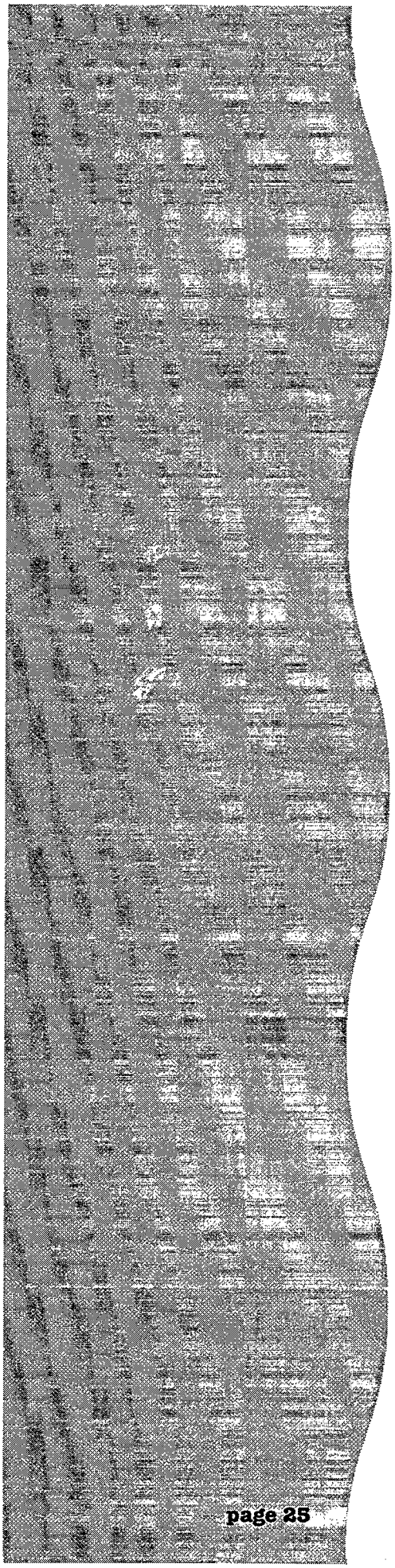
provisions for determining whether evacuation and/or sheltering in-place might be necessary? Has one person (or office) been assigned to provide information to the public? Have you prepared sample press releases so that you can quickly provide helpful information to the public? Do you have procedures 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 pubic 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. After June 1999, 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

2... Tips & 1...3... 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 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.

agencies, and the public in a discussion of these plans and the risks they disclose will do a great service to the community.

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, overpressurization, 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

1...2...3... 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.

2... Tips & 1...3... Hints

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

in other parts of the country. RMP*Info will let you search on a 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.

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.

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.

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.

1...2...3... 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.*

Risk Management Program Resources	
Source of Information	***Location and Telephone Number***
My SERC	
RMP Implementing Agency for my state	
EPA Regional Contact for EPCRA and RMP	
EPA's Chemical Emergency Preparedness and Prevention Office website	http://www.epa.gov/ceppo
The RCRA, Superfund and EPCRA Hotline	Toll free: (800) 424-9346 TDD: (800) 553-7672 Washington, DC area: 703-412-9810 Fax: 202-651-2061
Other hotlines	

Handy Reference

Using the table above, fill out the information that applies in your case, clip, and save for your use. For information about the EPA Regional Contact, see Appendix B.

Contents of this Section:

Appendices:

A: Checklist–Ideas for Action

B: EPA Regional Office Contacts for EPCRA and RMP Programs

C: Some Background Information–Comparison of Green Book and RMP Offsite Consequence Analysis (OCA) Guidance Methodology

D: Regulated Substances–Chemicals Covered by the RMP Regulation and Their Threshold Quantities

Attachments:

- Y2K Alert
- Customer Satisfaction Survey

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 B:
EPA REGIONAL OFFICE CONTACTS FOR EPCRA AND RMP PROGRAMS

You can also consult EPA's CEPPO website (http://www.epa.gov/ceppo) for information about Regional and state contacts.

EPA Region	Point of Contact and Telephone Number
1 Maine, Vermont, New Hampshire, Massachusetts, Connecticut, Rhode Island	Ray DiNardo US EPA Region 1 New England (Mail Code: SPP) JFK Federal Building One Congress Street Boston, MA 02114-2023 (617) 918-1804
2 New York, New Jersey, Puerto Rico, Virgin Islands	John Higgins US EPA Region 2 (Mail Code: 211) 2890 Woodbridge Avenue Edison, NJ 08837-3679 (732) 906-6194
3 Delaware, Virginia, Pennsylvania, District of Columbia, West Virginia, Maryland	David Wright US EPA Region 3 (Mail Code: 3HW33) 1650 Arch Street Philadelphia, PA 19103-2029 (215) 814-3293
4 North Carolina, South Carolina, Kentucky, Tennessee, Georgia, Florida, Alabama, Mississippi	Bill Taylor US EPA Region 4 Atlanta Federal Center 61 Forsyth Street, SW Atlanta, GA 30303 (404) 562-9167
5 Ohio, Indiana, Illinois, Michigan, Minnesota, Wisconsin	Mark Horwitz US EPA Region 5 (Mail Code: SC-9J) 77 West Jackson Blvd. Chicago, IL 60604 (312) 353-9045

Continued on next page

EPA Region	Point of Contact and Telephone Number
6 Texas, Louisiana, Arkansas, Oklahoma, New Mexico	Steve Mason US EPA Region 6 (Mail Code: 6E-E) Allied Bank Tower 1445 Ross Avenue Dallas, TX 75202-2733 (214) 665-2292
7 Iowa, Kansas, Missouri, Nebraska	Mark Smith US EPA Region 7 (ARTD/TSPP) 726 Minnesota Ave. Kansas City, KS 66101 (913) 551-7876
8 Colorado, Utah, North Dakota, South Dakota, Montana, Wyoming	Eric Steinhaus US EPA Region 8 (Mail Code: EPR-ER) One Denver Place 999 18th Street, Suite 500 Denver, CO 80202-2405 (303) 312-6837
9 Arizona, Nevada, California, Hawaii, Guam, America Samoa	Nate Lau US EPA Region 9 (Mail Code: SFD-5) 75 Hawthorne Street San Francisco, CA 94105 (415) 744-2344
10 Oregon, Washington, Idaho, Alaska	Lisa McArthur US EPA Region 10 (Mail Code: HW-093) 1200 Sixth Avenue Seattle, WA 98101 (206) 553-0285

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.

continued on next page

Initial Screening (Green Book)/Worst-Case Releases (OCA Guidance)

Green Book	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.	***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: No provision for gases liquefied by refrigeration under ambient pressure.	***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: No method provided.	***Mitigation:*** Method provided for reducing the release rate for gases released in enclosures.
For Toxic Liquids	
Liquid release: Assumed to be instantaneous.	***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.	***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: All liquids assumed to have the same density as water for estimation of pool size.	***Liquid density:*** Chemical-specific density factors provided for estimation of pool size.
Solutions: No method provided for solutions.	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. No method provided for mitigation of release rate for liquids released in buildings.	***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 25°C and the boiling point.	***Temperature:*** Factors provided for estimation of release rate at 25°C 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 50°C.

Green Book	OCA Guidance
Initial Screening (Green Book)/Worst-Case Releases (OCA Guidance)–continued	
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.*	***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: *No dense gas modeling.* (Note: The RMP Rule requires consideration of gas density for offsite consequence analysis)	***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)

Green Book	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.	***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: - from vapor space, - from liquid space. ***Liquefied refrigerated gases:*** Gases handled as refrigerated liquids at ambient pressure are treated as liquids.
Mitigation: No method provided.	***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 release:*** Estimation methods for: • Release from tank under atmospheric pressure. • Release from pressurized tank. • Release from pipe.
Liquid density: Not considered.	***Liquid density:*** Considered as for worst case.
Solutions: No method provided for solutions.	***Solutions:*** Considered as for worst case.
Release to air: Pool evaporation, as for screening.	***Release to air:*** Pool evaporation, as for worst case
Mitigation: Same as for screening.	***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 screening.	***Temperature:*** Same as for worst case.
For Toxic Solids	
Estimate release rate based on site-specific information.	None regulated.

Reevaluation (Green Book)/Alternative Scenario Analysis (OCA Guidance)–cont.

Green Book	OCA Guidance
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

APPENDIX D:
REGULATED SUBSTANCES–CHEMICALS COVERED BY THE RMP REGULATION AND THEIR THRESHOLD QUANTITIES

This list is current at the time of publication of this booklet. For an up-to-date list at any time, consult EPA's CEPPO website at www.epa.gov/ceppo.

Toxics

Regulated Substance	CAS #	TQ
Acrolein	107-02-8	5,000
Acrylonitrile	107-13-1	20,000
Acrylyl chloride	814-68-6	5,000
Allyl alcohol	107-18-6	15,000
Allylamine	107-11-9	10,000
Ammonia (anhydrous)	7664-41-7	10,000
Ammonia (conc. 20% or greater)	7664-41-7	20,000
Arsenous trichloride	7784-34-1	15,000
Arsine	7784-42-1	1,000
Boron trichloride	10294-34-5	5,000
Boron trifluoride	7637-07-2	5,000
Boron trifluoride compound with methyl ether (1:1)	353-42-4	15,000
Bromine	7726-95-6	10,000
Carbon disulfide	75-15-0	20,000
Chlorine	7782-50-5	2,500
Chlorine dioxide	10049-04-4	1,000
Chloroform	67-66-3	20,000
Chloromethyl ether	542-88-1	1,000
Chloromethyl methyl ether	107-30-2	5,000
Crotonaldehyde	4170-30-3	20,000
Crotonaldehyde, (E)-	123-73-9	20,000
Cyanogen chloride ((CN)Cl)	506-77-4	10,000
Cyclohexylamine	108-91-8	15,000
Diborane	19287-45-7	2,500
Dimethyldichlorosilane	75-78-5	5,000
1,1-Dimethylhydrazine	57-14-7	15,000
Epichlorohydrin	106-89-8	20,000
Ethylenediamine	107-15-3	20,000
Ethyleneimine	151-56-4	10,000
Ethylene oxide	75-21-8	10,000
Fluorine	7782-41-4	1,000
Formaldehyde (solution)	50-00-0	15,000
Furan	110-00-9	5,000
Hydrazine	302-01-2	15,000
Hydrochloric acid (conc. 30% or greater)	7647-01-0	15,000
Hydrocyanic acid	74-90-8	2,500
Hydrogen chloride (anhydrous)	7647-01-0	5,000
Hydrogen fluoride/Hydrofluoric acid (conc. 50% or greater)	7664-39-3	1,000
Hydrogen selenide	7783-07-5	500
Hydrogen sulfide	7783-06-4	10,000
Iron, pentacarbonyl-	13463-40-6	2,500
Isobutyronitrile	78-82-0	20,000
Isopropyl chloroformate	108-23-6	15,000
Methacrylonitrile	126-98-7	10,000
Methyl chloride	74-87-3	10,000
Methyl chloroformate	79-22-1	5,000
Methyl hydrazine	60-34-4	15,000
Methyl isocyanate	624-83-9	10,000
Methyl mercaptan	74-93-1	10,000
Methyl thiocyanate	556-64-9	20,000
Methyltrichlorosilane	75-79-6	5,000
Nickel carbonyl	13463-39-3	1,000
Nitric acid (conc. 80% or greater)	7697-37-2	15,000
Nitric oxide	10102-43-9	10,000
Oleum (fuming sulfuric acid)	8014-95-7	10,000
Peracetic acid	79-21-0	10,000
Perchloromethyl mercaptan	594-42-3	10,000
Phosgene	75-44-5	500
Phosphine	7803-51-2	5,000
Phosphorus oxychloride	10025-87-3	5,000
Phosphorus trichloride	7719-12-2	15,000
Piperidine	110-89-4	15,000
Propionitrile	107-12-0	10,000
Propyl chloroformate	109-61-5	15,000
Propyleneimine	75-55-8	10,000
Propylene oxide	75-56-9	10,000
Sulfur dioxide (anhydrous)	7446-09-5	5,000
Sulfur tetrafluoride	7783-60-0	2,500
Sulfur trioxide	7446-11-9	10,000
Tetramethyllead	75-74-1	10,000
Tetranitromethane	509-14-8	10,000
Titanium tetrachloride	7550-45-0	2,500
Toluene 2,4-diisocyanate	584-84-9	10,000
Toluene 2,6-diisocyanate	91-08-7	10,000
Toluene diisocyanate (unspecified isomer)	26471-62-5	10,000
Trimethylchlorosilane	75-77-4	10,000
Vinyl acetate monomer	108-05-4	15,000

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Flammables					
Regulated Substance	**CAS #**	**TQ**	**Regulated Substance**	**CAS #**	**TQ**
Acetaldehyde	75-07-0	10,000	Propyne	74-99-7	10,000
Acetylene	74-86-2	10,000	Silane	7803-62-5	10,000
Bromotrifluoroethylene	598-73-2	10,000	Tetrafluoroethylene	116-14-3	10,000
1,3-Butadiene	106-99-0	10,000	Tetramethylsilane	75-76-3	10,000
Butane	106-97-8	10,000	Trichlorosilane	10025-78-2	10,000
1-Butene	106-98-9	10,000	Trifluorochloroethylene	79-38-9	10,000
2-Butene	107-01-7	10,000	Trimethylamine	75-50-3	10,000
Butene	25167-67-3	10,000	Vinyl acetylene	689-97-4	10,000
2-Butene-cis	590-18-1	10,000	Vinyl chloride	75-01-4	10,000
2-Butene-trans	624-64-6	10,000	Vinyl ethyl ether	109-92-2	10,000
Carbon oxysulfide	463-58-1	10,000	Vinyl fluoride	75-02-5	10,000
Chlorine monoxide	7791-21-1	10,000	Vinylidene chloride	75-35-4	10,000
2-Chloropropylene	557-98-2	10,000	Vinylidene fluoride	75-38-7	10,000
1-Chloropropylene	590-21-6	10,000	Vinyl methyl ether	107-25-5	10,000
Cyanogen	460-19-5	10,000			
Cyclopropane	75-19-4	10,000			
Dichlorosilane	4109-96-0	10,000			
Difluoroethane	75-37-6	10,000			
Dimethylamine	124-40-3	10,000			
2,2-Dimethylpropane	463-82-1	10,000			
Ethane	74-84-0	10,000			
Ethyl acetylene	107-00-6	10,000			
Ethylamine	75-04-7	10,000			
Ethyl chloride	75-00-3	10,000			
Ethylene	74-85-1	10,000			
Ethyl ether	60-29-7	10,000			
Ethyl mercaptan	75-08-1	10,000			
Ethyl nitrite	109-95-5	10,000			
Hydrogen	1333-74-0	10,000			
Isobutane	75-28-5	10,000			
Isopentane	78-78-4	10,000			
Isoprene	78-79-5	10,000			
Isopropylamine	75-31-0	10,000			
Isopropyl chloride	75-29-6	10,000			
Methane	74-82-8	10,000			
Methylamine	74-89-5	10,000			
3-Methyl-1-butene	563-45-1	10,000			
2-Methyl-1-butene	563-46-2	10,000			
Methyl ether	115-10-6	10,000			
Methyl formate	107-31-3	10,000			
2-Methylpropene	115-11-7	10,000			
1,3-Pentadiene	504-60-9	10,000			
Pentane	109-66-0	10,000			
1-Pentene	109-67-1	10,000			
2-Pentene, (E)-	646-04-8	10,000			
2-Pentene, (Z)-	627-20-3	10,000			
Propadiene	63-49-0	10,000			
Propane	74-98-6	10,000			
Propylene	115-07-1	10,000			