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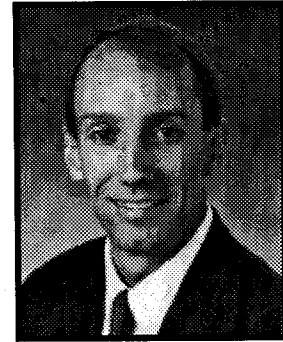
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THE CLEAN AIR ACT'S ACCIDENTAL RELEASE PROGRAM: AN OVERVIEW

by Robert J. Lambrechts



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I. INTRODUCTION

The Clean Air Act Amendments of 1990 ("1990 Amendments")¹ included Section 112(r) to minimize the threats posed by accidents wherever dangerous chemicals are manufactured, used, or stored. On June 20, 1996, the U.S. Environmental Protection Agency ("EPA") promulgated regulations under Section 112(r) to ensure that public, state and local governments receive facility-specific information on potential chemical hazards and the steps being taken to prevent accidents. The Section 112(r) implementing regulations are a profound change in the law. Congress granted the EPA broad new authority that will directly involve government in design, maintenance, and process aspects of many manufacturing plants and numerous other facilities to an unprecedented extent. This complex rule will impact an estimated 66,000 facilities nationwide,² and potentially more than 2,000 facilities in Missouri,³ by the year

1999. Advance planning on the part of businesses will pay dividends in communicating risk to the public, preventing chemical accidents, and responding to any accidents that do occur. These regulations will affect chemical production facilities, petrochemical and refining industries, a broad array of manufacturing operations and many other entities that are involved in what might be considered less obvious sectors such as propane retail, warehousing, and drinking and wastewater treatment.

This article provides an overview of this technically complex rule. Facilities subject to Section 112(r) will require considerable time to prepare for the submission of documentation and to communicate the risk posed by their operations to the surrounding community.

II. WHAT IS THE BASIS FOR CONCERN?

A. Historical Considerations

On December 5, 1984, a storage tank burst releasing 30

tons of highly toxic methyl isocyanate into the atmosphere, and the resulting cloud of gas killed more than 2,000 people and injured more than 200,000 others living in the shanty towns of Bhopal, India.⁴ Less than a year later, in August 1985, a 4000-pound accidental release of toxic chemicals (aldicarb oxime and methylene chloride) from a Union Carbide plant in

¹ 42 U.S.C. §§ 7401-7671q (1995).

² 61 Fed. Reg. 31,668, 31,715 (1996).

³ Phone conversation with Greg Voss, environmental engineer, of the Missouri Technical Assistance Program on June 26, 1997. Mr. Voss indicated Missouri is attempting to define the universe of sources subject to the Section 112(r) provisions through the Toxic Release Inventory ("TRI") database, Tier II reporting and other mechanisms. The current estimate is that somewhere between 1800 and 3000 sources will be impacted by the rule in Missouri alone.

⁴ Bradford C. Mank, *Preventing Bhopal: "Dead Zones" and Toxic Death Index Taxes*, 53 OHIO ST. L.J. 761, 761 (1992).

Institute, West Virginia, sent 409 residents and chemical workers to hospital emergency rooms.⁵ These two incidents alone demonstrate the imperative of accident safety planning.

Beyond the two releases described above, the EPA contractors identified "17 [U.S.] events for which the ratio of quantity released to toxicity is at least as large as that for the release at Bhopal."⁶ They surmised that the 17 events had not created a Bhopal-scale tragedy in this country only because of the differences in "attributes of the circumstances of the release, of the physical environment, or of the proximity to a population."⁷ Though only 17 events had been identified as potentially catastrophic, the EPA reports that between 1982 and 1986, 11,048 accidental releases of toxic chemicals occurred in the United States.⁸ These releases also caused the

evacuation of more than 464,000 people.⁹

According to the EPA, toxic chemicals as well as flammable substances require strong regulation even though, compared to other industries, the chemical industry is relatively safe. The total number of workers killed in chemical accidents in this country each year, approximately 265, is dwarfed by the 10,000 workers killed in occupational accidents.¹⁰ The basis for this regulation arises from the strong, widespread aversion to toxic chemical risk as well as the notion that victims of chemical accidents are unlikely to be adequately compensated for their financial losses.¹¹ Therefore, the government has taken on the yoke of developing a mechanism to avoid these catastrophic releases.

The EPA's Accident Release Information Program¹²

("ARIP") is a database of statistical information on many aspects of chemical accidents. Currently, the EPA sends ARIP questionnaires for releases meeting certain criteria, citing the information-gathering authorities of CERCLA, the Resource Conservation and Recovery Act, the Clean Water Act and the Clean Air Act. The EPA sends the questionnaire if the facility has a reportable release under CERCLA Section 103(a) and if they also meet one or more of four criteria.¹³ These criteria include the quantity of the release and whether the substance is an "extremely hazardous substance" listed under the Emergency Planning and Community Right-to-Know Act. The ARIP database reveals that the four most frequently released chemicals are chlorine, methyl chloride, ammonia and sulfuric acid.¹⁴ The industries most frequently involved in

⁵ *Steam in Chemical Storage Tank Named As Likely Cause of Union Carbide Accident*, 16 ENVTL. REP. 635 (Aug 16, 1985).

⁶ Jim Potter, *Chemical Accident Prevention Regulation in California and New Jersey*, 20 ECOLOGY L. Q. 755, 761 n.32 (1993) (citing James Cummings-Saxton et al., *Accidental Chemical Releases and Local Emergency Response: Analysis Using the Acute Hazardous Events Database*, 2 INDUS. CRISIS Q. 139, 161 (1988) (studying the period from 1980 to 1985)).

⁷ *Id.* at 761 n.33 (referencing that in one case, the toxic cloud was fortuitously consumed in flame before it could disperse).

⁸ S. REP. NO. 228, 101st Cong., 2d Sess. 134 (1989).

⁹ *Id.*

¹⁰ Jon Jefferson, *Dying for Work: A Weak OSHA and Declining Unions Mean Danger on the Job*, 79 A.B.A. J. 46, 47 (1993) (citing 1990 job injury statistics). See also 55 Fed. Reg. 29,150, 29,161 (1990) (proposed July 17, 1990), which indicates, "For the five-year period [1983-1987], an average of 265 fatalities ... per year are associated with major accidents involving hazardous materials." *Id.* Note, OSHA revised its estimate when it promulgated the final rule, at 57 Fed. Reg. 6,356, 6,402 (1992).

¹¹ Potter, *supra* note 6, at 761 n.41 (1993) (citing Nicholas A. Ashford & Robert F. Stone, *Liability, Innovation, and Safety in the Chemical Industry*, in THE LIABILITY MAZE: THE IMPACT OF LIABILITY LAW ON SAFETY AND INNOVATION 367, 388-91 (Peter W. Huber & Robert E. Litans eds., 1991)). The authors also cite studies showing that after fatal accidents, the victims' estates are compensated for less than 10% of their costs. *Id.*

¹² For those versed in browsing the internet, the address for this site is <http://www.epa.gov/swercepp/acc-his.html>.

¹³ *New EPA Responses to Accidental Releases: ARIP Reporting and Chemical Safety Audits*, 4 NAT. RESOURCES & THE ENV'T 36-37, 58-59 (1990).

¹⁴ S. REP. NO. 228, *supra* note 8, at 137 (1989).

accidental releases in the past have been chemical manufacturers and petroleum refiners.¹⁵ Most of the releases have been caused by operator errors and equipment failures such as ruptures in storage and process vessels.¹⁶ In Missouri alone, there were 85 reported releases between 1987 and 1992 of regulated substances such as ammonia and chlorine that caused injury or death, according to the ARIP database.¹⁷ These releases ranged in magnitude from a few pounds to more than 750,000 pounds per release.¹⁸

B. EPCRA

In October 1986, Congress took an important initial step toward establishing a national chemical accident safety net by adopting the Emergency Planning and Community Right-to-Know Act ("EPCRA").¹⁹ EPCRA includes provisions concerning community right to know, emergency response planning, accident reporting and enforcement. The information submitted by facilities under EPCRA's four reporting requirements²⁰ allows states and

local communities to develop a broad understanding of the chemical hazards facing individuals and the entire community. The law vests the EPA with general oversight, information clearinghouse, and enforcement responsibilities while depending primarily on state and municipal efforts to carry out the accident safety program.²¹ Local entities must form emergency planning committees, prepare and review emergency response plans and receive and synthesize community right to know and accident reporting information.²²

Although EPCRA represents an important advance, the law suffers from a number of flaws including inadequate funding for local planning efforts, poor state enforcement provisions and incomplete emergency response planning requirements. The most serious omission is the law's failure to require facilities to undertake responsible planning to prevent accidents, thus omitting a critical and the most novel element of safety planning: prevention. The philosophy of the law remains reactive, focusing on how to

contain a perceived inevitable. The law does nothing to refocus community and industry thinking to recognize that accidents are not inevitable and does not incorporate accident prevention considerations into facility planning and decision making.

The Section 112(r) accidental release prevention regulations have been structured to address the types of failures that frequently occurred in the past. Much of the emphasis in this new rule is on training and maintenance in the hope of avoiding equipment failures and operator errors.²³ Bringing employees and even contractors to a high level of understanding of the risks that regulated substances pose not only to the place of work but also to the surrounding community is one of the principle objectives of this comprehensive rule.²⁴

III. OVERVIEW OF THE PROGRAM REQUIREMENTS

The accidental release regulations promulgated under the 1990 Amendments require the

¹⁵ *Id.* at 138.

¹⁶ *Id.* at 140-141.

¹⁷ EPA Accidental Release Information Program (ARIP) Database.

¹⁸ *Id.*

¹⁹ 42 U.S.C. §§ 11001-11050.

²⁰ EPCRA has four major components: (1) emergency planning (Sections 301-303); (2) emergency release notification (Section 304); (3) community right-to-know reporting (Sections 311-312); and (4) toxic chemical release inventory reporting (Section 313).

²¹ 42 U.S.C. §§ 11001-11050.

²² 42 U.S.C. §§ 11001-11050.

²³ See 40 C.F.R. § 68.54 & 68.56 (1997).

²⁴ See 40 C.F.R. § 68.83 & 68.87.

owner or operator of stationary sources²⁵ at which a regulated substance²⁶ is present in more than a threshold quantity to prepare and implement a risk management program to detect and prevent or minimize accidental releases of regulated substances from the stationary source and to provide a prompt emergency response to any such releases in order to protect human health and the environment.²⁷

The accident prevention program includes three components.²⁸ The first is a "hazard assessment" to assess the potential effects of an accidental release of any regulated substance.²⁹ The second is a "prevention program" for preventing accidental releases of regulated substances including safety precautions and maintenance, monitoring and employee training measures to be used at the source.³⁰ The third component is an "emergency response program" providing for specific actions to be

taken in response to an accidental release of a regulated substance so as to protect human health and the environment.³¹ These regulations will be applicable to stationary sources on June 21, 1999, or three years after the date a new regulated substance is listed by the EPA, whichever is later.³²

IV. THE GENERAL DUTY CLAUSE

Section 112(r) includes a general duty clause that imposes on owners and operators of stationary sources handling substances listed pursuant to Section 112(r)(3) or "any other extremely hazardous substance",³³ a general duty to identify hazards which may result from such releases using appropriate hazard assessment techniques, to design and maintain a safe facility taking such steps as are necessary to prevent releases and to minimize the consequences of accidental

releases.³⁴

The general duty clause of section 112(r)(1) represents a fundamental change in public policy concerning accidental regulated substance releases. The policy shift reflects changed assumptions about the prevention and occurrence of accidental releases. The term "accidental" no longer implies unpreventable or uncontrolled events. The government no longer assumes that the standards and practices of private industry to protect the public against these releases are adequate.

The 1990 Amendments make it clear that facilities which handle regulated substances bear the responsibility for ensuring their safe use.³⁵ The general duty clause applies to any facility that handles any regulated substance regardless of the quantity on site and places a burden of prevention on

²⁵ "Stationary source" is defined as:

any buildings, structures, equipment, installations, or substance emitting stationary activities which belong to the same industrial group, which are located on one or more contiguous properties, which are under the control of the same person (or persons under common control), and from which an accidental release may occur. A stationary source includes transportation containers that are no longer under active shipping papers and transportation containers that are connected to equipment at the stationary source for the purposes of temporary storage, loading, or unloading. The term stationary source does not apply to transportation, including the storage of any regulated substance or any other extremely hazardous substances under the provisions of this part, provided that such transportation is regulated under 49 CFR parts 192, 193, or 195. Properties shall not be considered contiguous solely because of a railroad or gas pipeline right-of-way. 40 C.F.R. § 68.3.

²⁶ "Regulated substance" is defined at 40 CFR § 68.3 as "any substance listed pursuant to Section 112(r)(3) of the Clean Air Act as amended, in § 68.130."

²⁷ See 40 C.F.R. pt. 68 (1997).

²⁸ 40 C.F.R. pt. 68.

²⁹ 40 C.F.R. § 68.20-68.42.

³⁰ 40 C.F.R. § 68.48-68.87.

³¹ 40 C.F.R. § 68.90-68.95.

³² 40 CFR § 68.10(a)(1)-(3).

³³ Section 112(r)(3) provides that the Administrator shall use, but is not limited to, the list of extremely hazardous substances published under the Emergency Planning and Community Right to Know Act of 1986.

³⁴ Clean Air Act of 1955, Pub. L. No. 105-15, § 112(r)(1), 69 Stat. 322 (1990), 42 U.S.C. § 7412(r)(1).

³⁵ See 42 U.S.C. §§ 7401-7671q.

owners and operators regardless of whether the federal or state government has an applicable regulatory program.³⁶

V. WHAT SUBSTANCES ARE REGULATED?

A. Statutory Authority

Congress included a list of 16 chemicals in the statute and gave the EPA until November 15, 1992, to create an initial list of 100 substances.³⁷ The basis for the listing of a substance is the severity of acute health effects, the likelihood of accidental release and the potential magnitude of human exposure.³⁸ At the time a substance is listed, the EPA Administrator must establish a threshold quantity for the substance, "taking into account the toxicity, reactivity, volatility, dispersibility, combustibility, or flammability of the substance . . ."

...³⁹

B. Regulatory Authority

On January 31, 1994, the EPA promulgated a final rule under

provisions of the 1990 Amendments for prevention of accidental releases of regulated substances.⁴⁰ The rule established a list of chemicals and threshold quantities that serve to identify facilities subject to subsequent accidental prevention regulations.⁴¹ The list includes 77 toxic substances, 63 flammable substances and highly explosive substances.⁴² The final rule establishes threshold quantities for toxic substances ranging from 500 to 20,000 pounds.⁴³ For all listed flammable substances, the threshold quantity is 10,000 pounds, while all explosives have a threshold quantity of 5,000 pounds.⁴⁴ The rule provides that for purposes of determining whether a threshold quantity of a substance is present in a process at a stationary source, the total quantity of a regulated substance must be determined.⁴⁵ This determination of threshold quantity is made by examining toxic substances, flammable substances and explosives in their free form as well as in a mixture.⁴⁶

On April 15, 1996, the

EPA proposed several amendments to the final rule.⁴⁷ The proposal sought to remove explosives from the list, exempt certain flammable substances in gasoline from threshold quantity determination, modify the definition of stationary source and clarify the chemical accident provisions so that they do not apply to stationary sources on the Outer Continental Shelf.⁴⁸ As of mid-July 1997, these proposed amendments have not been finalized.

VI. WHAT SOURCES ARE COVERED BY THE RULE?

Any stationary source with more than a threshold quantity of a listed regulated substance in a single process must comply with the regulation.⁴⁹ The term "process" is an extremely critical term in the overall context of this program, and it is defined broadly as follows:

Any activity involving a regulated substance including any use, storage, manufacturing, handling, or on-site

³⁶ S. REP. NO. 228, *supra* note 8, at 207 (1989).

³⁷ Clean Air Act § 112(r)(3), 42 U.S.C. § 7412(r)(3).

³⁸ Clean Air Act § 112(r)(4), 42 U.S.C. § 7412(r)(4).

³⁹ Clean Air Act § 112(r)(5), 42 U.S.C. § 7412(r)(5).

⁴⁰ 59 Fed. Reg. 4,478 (1994).

⁴¹ 59 Fed. Reg. 4,478, 4480.

⁴² 59 Fed. Reg. 4,478, 4,495-99.

⁴³ 59 Fed. Reg. 4,478, 4,495-99. *See* 61 Fed. Reg. 16,598 (proposed Apr. 15, 1996) for revisions to the 1994 promulgation.

⁴⁴ 59 Fed. Reg. 4,478, 4,495-99.

⁴⁵ 40 C.F.R. § 68.115(a).

⁴⁶ 40 C.F.R. § 68.115(b).

⁴⁷ 61 Fed. Reg. 16,598 (proposed Apr. 15, 1996).

⁴⁸ 61 Fed. Reg. 16,598.

⁴⁹ 40 C.F.R. § 68.10.

movement of such substances, or combination of these activities. For the purposes of this definition, any group of vessels that are interconnected, or separate vessels that are located such that a regulated substance could be involved in a potential release, shall be considered a single process.⁵⁰

This definition of process leaves open the possibility of avoiding applicability of the rule by separating vessels of the regulated substance on-site so that a threshold quantity of a substance is not interconnected and the vessels are separated with sufficient distance so that an accidental release from one vessel will not facilitate release from another vessel.

The preamble to the final rule cites a wide variety of source categories that could conceivably be subject to the accidental release prevention requirements, including electric and gas utilities, manufacturers of pharmaceuticals, adhesives, sealants, and fibers.⁵¹ Several of the more widely impacted source

categories which might be classified as smaller sources are 28,000 propane handlers⁵² and approximately 2,800⁵³ publicly-owned treatment works (POTWs). The only overall exemption from the chemical accident prevention provisions is ammonia used by farmers as an agricultural nutrient.⁵⁴

VII. WHAT DOES THE RULE REQUIRE?

A. Three Program Levels and Three Program Elements

The final rule defines the basics of a risk-management program as consisting of three program elements: the hazard assessment program, a prevention program and an emergency response program.⁵⁵ Each of these elements will be discussed in more detail below. It is critical to the proper implementation of the rule to develop an understanding of these elements and the corresponding program levels (i.e., Program 1, 2 and 3 as discussed below).

The EPA developed a tiered approach to regulating operations that are subject to the risk management program rule. A facility's tier is based on its

accidental release history, its potential off-site impact due to a release and the types of processes at the facility.⁵⁶ The EPA adopted the term "Program" for each of the three tiers in order to prevent confusion with Tier I and Tier II reporting forms defined under the Emergency Planning and Community Right-to-Know Act of 1986.⁵⁷ Section 112(r) requires sources to develop not only a risk management program but also a risk management plan ("RMP").⁵⁸ The RMP will ultimately be submitted to the EPA for the purpose of ensuring public access to the contents of the plan.⁵⁹ The risk management program is the system that backs up the RMP and ensures that the facility is being operated safely. In addition to improving safety, a good program should not only improve safety but should also pay dividends in efficiency, productivity and profitability. The RMP is the information and the document that the owner or operator of the facility keeps in a file or bookcase.

The risk management program is designed to apply to all stationary sources that have at least one process containing a regulated substance in excess of the threshold quantity.⁶⁰ The EPA recognized

⁵⁰ 40 C.F.R. § 68.3.

⁵¹ 61 Fed. Reg. 31,668.

⁵² *Risk Management Plans Geared Toward Chemical Accident Prevention, EPA Says*, 1996 DAILY ENV'TL NEWS 120 d4, at 1.

⁵³ 61 Fed. Reg. 31,668, 31,716.

⁵⁴ 40 C.F.R. § 68.125.

⁵⁵ 40 C.F.R. pt. 68.

⁵⁶ See 40 C.F.R. pt. 68.

⁵⁷ See 42 U.S.C. §§ 11001-11050.

⁵⁸ 40 C.F.R. § 68.150.

⁵⁹ 40 C.F.R. § 68.210.

that not all processes utilizing regulated substances present the same level of risk and, therefore, distinct programs reflecting these differences should be implemented. The purpose of having three distinct categories is to scale the regulatory burden to fit the risk posed by each type of facility. In other words, any facility that has more than a threshold quantity of a regulated substance in a process must develop and implement a risk management program.⁶¹ In order to determine which program level applies (i.e., 1, 2 or 3), a process-by-process evaluation must be done. In most cases one stationary source will have several regulated processes. For each of these regulated processes the facility has to comply with the appropriate program level requirements for that process. Consequently, a facility may have regulated processes that fall into each of the three program

levels.

i.) Program Level 1

Program 1 is available to any process that has not had an accidental release with off-site consequences in the five years prior to the submission date of the RMP and has no public receptors⁶² within the worst-case release distance. An accidental release with off-site consequences is defined by the EPA as an accident involving regulated processes resulting in deaths, injuries, emergency response, evacuations property damage or environmental damage.⁶³ The EPA defines the worst-case release scenario as where the largest quantity of a regulated substance is released with off-site consequences to public receptors, including entities such as hospitals, schools, commercial, office and industrial buildings.⁶⁴

To evaluate the worst-case release scenario, a source must use

generally recognized, commercially or publicly available air dispersion modeling tools⁶⁵ or look-up tables provided by the EPA, with specified meteorological conditions to determine the populations that potentially would be affected by the release of the regulated substance.⁶⁶ "Affected population" includes those individuals within a circle that has as its center the point of release and its radius the distance to the toxic or flammable end-point.⁶⁷ The toxic end-point concentrations are established in Appendix A,⁶⁸ and for flammables, the technical end-point parameters are specified in 40 C.F.R. § 68.22(a)(2). The off-site consequence analysis is to be reviewed and updated at least once every five years or more often if quantities stored or other specified source characteristics change.⁶⁹

ii.) Program Level 2

An important concept to keep in mind is that a process is eligible for Program 2 if it does

⁶⁰ 40 C.F.R. 68.150-190.

⁶¹ 40 C.F.R. 68.150-190.

⁶² "Public receptor" is defined at 40 C.F.R. § 68.3 as "offsite residences, institutions (e.g., schools, hospitals), industrial, commercial, and office buildings, parks, or recreational areas inhabited or occupied by the public at any time without restriction by the stationary source where members of the public could be exposed to toxic concentrations, radiant heat, or overpressure, as a result of an accidental release."

⁶³ 40 C.F.R. § 68.3.

⁶⁴ See 61 Fed. Reg. 31,668, 31,671 (1996), which indicates, "For most gases, the worst-case release scenario assumes that the quantity is released in 10 minutes. For liquids, the scenario assumes an instantaneous spill; the release rate to the air is the volatilization rate from a pool 1 cm deep unless passive mitigation systems contain the substance in a smaller area. For flammables, the worst case assumes an instantaneous release and a vapor cloud explosion."

⁶⁵ Most facilities will do screen modeling using an EPA modeling package known as "TSCREEN." TSCREEN automatically selects the worst case weather conditions and one of four models incorporated into TSCREEN. The four models incorporated into TSCREEN are SCREEN2, RVD, PUFF, and Britter-McQuaid. Refined models are used with an actual weather database and with more sophisticated air dispersion patterns than screen models. Generally, refined models will predict lower concentrations at given receptors than screening models. Some of the more commonly used, privately available refined models are the following: ADAM, ALOHA, DEGADIS, HGSYSTEMS and SLAB.

⁶⁶ 61 Fed. Reg. 31,668, 31,672.

⁶⁷ 61 Fed. Reg. 31,668, 31,672.

⁶⁸ 40 C.F.R. § 68 Appendix A.

not meet the eligibility requirements of Program 1 or Program 3.⁷⁰ This eligibility analysis is critical in making program level determinations. Facilities with processes subject to Program 2 requirements must develop and implement a management system, conduct a hazard assessment, document a management system, develop and implement an emergency response program and submit as part of the RMP the data on prevention program elements for Program 2 processes.⁷¹ The EPA has determined that all retailers are in Program 2 unless they can meet Program 1 criteria.⁷² Propane retailers, for example, generally will not have any Program 3 processes because Program 3 requirements are only applicable to processes in certain specified standard industrial classification ("SIC") codes.⁷³ The EPA

estimates that 40,200 sources with a combined 47,700 processes will be eligible for Program 2 including retailers, propane users, public drinking water and waste water systems and public electric utilities.⁷⁴

iii.) Program Level 3

Program 3 requirements are only applicable to processes in nine specified SIC codes or those processes already covered by OSHA's Process Safety Management Standard ("PSM").⁷⁵ The owner or operator must determine the individual SIC code for each covered process to determine whether Program 3 applies.⁷⁶ The assigned SIC code should reflect the activity of the process and will not necessarily be the same as the source's overall primary SIC code. Program 3 requires sources to develop systems and programs similar to Program 2;

however, Program 3, which is expected to impact 25,500 sources and 43,800 processes, is more comprehensive in scope.⁷⁷ All but about 370 of these processes will be covered by the OSHA PSM.⁷⁸

B. The Development of a Hazard Assessment Program

The hazard assessment under the final rule requires a worst-case release scenario analysis and a five-year accident history. For Program 1 processes, one worst-case release scenario analysis is required to be reported in the RMP for each Program 1 process.⁷⁹ These scenario analyses must demonstrate that a worst-case release from any process would not affect any public receptor. For Program 2 and 3 processes, a single worst-case release scenario analysis may be

⁶⁹ 40 C.F.R. § 68.36.

⁷⁰ 40 C.F.R. § 68.10(c).

⁷¹ 40 C.F.R. § 68.12(c).

⁷² 61 Fed. Reg. 31,668, 31,676.

⁷³ See 40 C.F.R. § 68.10(d)(1) for the list of SIC codes. The SIC code is the statistical classification standard underlying all establishment-based federal economic statistics classified by industry. The SIC code is used to promote the comparability of establishment data describing various facets of the U.S. economy. The classification covers the entire field of economic activities and defines industries in accordance with the composition and structure of the economy. It is revised periodically to reflect the economy's changing industrial organization. The Office of Management and Budget controls the assignment of SIC codes.

⁷⁴ 61 Fed. Reg. 31,668, 31,715.

⁷⁵ 40 C.F.R. § 68.10(d)(1)-(2). The OSHA PSM is found at 29 C.F.R. 1910.119 and contains requirements for preventing or minimizing the consequences of catastrophic releases of toxic, reactive, flammable, or explosive chemicals.

⁷⁶ Document from the EPA's Chemical Emergency Preparedness and Prevention Office (CEPPO), titled *CAA Section 112(r) Frequently Asked Questions*, No. III.3.

⁷⁷ 61 Fed. Reg. 31,668, 31,715.

⁷⁸ 61 Fed. Reg. 31,668, 31,715. The RMP list of regulated substances is similar, yet not identical, to the list of covered chemicals found in OSHA's Process Safety Management ("PSM") standard. For chemicals that exist in both lists, the RMP threshold quantity is greater than, or equal to, the PSM standard threshold quantity. A major difference between the two lists is the way that flammable liquids and gases are handled. OSHA chose not to list individual flammable substances. Rather, the PSM standards apply to processes that contain more than 10,000 pounds of any flammable liquid or gas. However, for the RMP rule to apply to flammable substances, the individual flammable substance (e.g., propane) must be specifically listed and its threshold quantity satisfied. Also, where the PSM threshold quantities apply only to pure (i.e., "commercial grade") chemicals unless otherwise specified (e.g., hydrogen peroxide, 52% wt.% or greater), EPA has developed the following

reported to represent all regulated toxic⁸⁰ substances, and should be acceptable to represent all regulated flammable⁸¹ substances. For purposes of the five-year accident history, the owner or operator is to include in the RMP all accidental releases from covered processes that resulted in deaths, injuries, evacuations, sheltering in place, property damage or environmental damage.⁸² The rule requires a comprehensive collection of information on each accidental release as part of the RMP.⁸³

C. The Development of a Prevention Program

i.) Prevention Program - Levels 1 and 2

Sources with processes subject to Program 1 requirements must certify in their RMP only that no additional

measures are necessary to prevent off-site impacts from accidental releases.⁸⁴ For facilities with processes subject to Program 2, the EPA has established seven specific elements that must be addressed. The owner or operator must: (1) compile and maintain safety information;⁸⁵ (2) conduct a review of the hazards associated with the regulated substances, processes and procedures;⁸⁶ (3) prepare operating procedures that provide clear instructions for conducting activities associated with each covered process safely;⁸⁷ (4) ensure that each employee presently operating a process and each employee newly assigned to a covered process has been trained or tested competent in specified operating procedures that pertain to his or her duties;⁸⁸ (5) prepare and implement procedures to

maintain the ongoing mechanical integrity of the process equipment;⁸⁹ (6) certify that he has evaluated compliance with the provisions of the rule at least once every three years to verify that the procedures and practices are adequate and being followed;⁹⁰ and (7) investigate each incident that results in or could conceivably result in a catastrophic release.⁹¹

ii.) Prevention Program - Level 3

Program 3 sources must complete a compilation of written safety information before conducting the process hazard analysis required by the rule.⁹² The objective of this requirement is to allow the owner or operator to identify and understand the hazards posed by those processes utilizing regulated substances.⁹³ As previously mentioned, an element

criteria to determine both lists, the RMP threshold quantity is greater than, or equal to, the PSM standard threshold quantity. A major difference between the two lists is the way that flammable liquids and gases are handled. OSHA chose not to list individual flammable substances. Rather, the PSM standards apply to processes that contain more than 10,000 pounds of any flammable liquid or gas. However, for the RMP rule to apply to flammable substances, the individual flammable substance (e.g., propane) must be specifically listed and its threshold quantity satisfied. Also, where the PSM threshold quantities apply only to pure (i.e., "commercial grade") chemicals unless otherwise specified (e.g., hydrogen peroxide, 52% wt.% or greater), EPA has developed the following criteria to determine applicability: For toxic substances where no cutoff concentration is specified (e.g., hydrochloric acid, concentration 30%), the quantity of a listed chemical in a mixture must be considered if it exceeds 1% by weight and the partial pressure of the chemical is equal to or greater than 10 mm Hg. See 40 C.F.R. § 68.115 for additional details on flammable substances.

⁷⁹ 40 C.F.R. § 68.25(a)(1).

⁸⁰ 40 C.F.R. § 68.130 Table 1 and 40 C.F.R. § 68.25(a)(2)(i).

⁸¹ 40 C.F.R. § 68.130 Table 3 and 40 C.F.R. § 68.25(a)(2)(ii).

⁸² 40 C.F.R. § 68.42(a).

⁸³ 40 C.F.R. § 68.42(b).

⁸⁴ 40 C.F.R. § 68.12(b).

⁸⁵ 40 C.F.R. § 68.48.

⁸⁶ 40 C.F.R. § 68.50.

⁸⁷ 40 C.F.R. § 68.52.

⁸⁸ 40 C.F.R. § 68.54.

⁸⁹ 40 C.F.R. § 68.56.

⁹⁰ 40 C.F.R. § 68.58.

⁹¹ 40 C.F.R. § 68.60.

of Program 2 is a “hazard review,” which requires the owner or operator to conduct a review of the hazards associated with the regulated substances, processes and procedures.⁹⁴ Program 3 takes the requirement of a hazard review further by requiring a “process hazard analysis” which seeks to identify and evaluate the hazards involved in the process. A process hazard analysis involves a step-by-step examination of processes, process equipment and controls and procedures to identify each point at which a mishap may occur (e.g., a valve failing, a gauge malfunctioning, human error) and examines the possible consequences of the mishap.⁹⁵ As previously mentioned, the elements of Program 3 parallel the requirements of the OSHA Process Safety Management (“PSM”) standard.⁹⁶

In order for Program 3 sources to satisfy the mandates of the prevention program, they must ensure the mechanical integrity of their systems, specifically pressure vessels, piping systems, relief and vent systems, emergency shutdown systems, monitoring devices and

pumps.⁹⁷ They must prepare written procedures to ensure the ongoing integrity of the mechanical systems and employees must receive training for process maintenance activities.⁹⁸ Also, Program 3 sources must inspect and test the mechanical systems and document these inspections to identify the date of the inspection or the test, the inspector, and the inspected equipment and to describe the inspection or test performed.⁹⁹ The rule requires that equipment deficiencies will be corrected or made safe before further use.¹⁰⁰

Owners and operators of sources subject to the Program 3 requirements must also establish and implement written procedures to manage changes to technology, equipment, chemicals and procedures that affect a covered process.¹⁰¹ The rule specifically requires consideration and documentation of the following activities before any changes are made: (1) the technical basis for the change; (2) the impact on safety and health; (3) modifications to

operating procedures; (4) the time necessary to perform the change; and (5) authorization requirements for the proposed change.¹⁰² Employees involved in the operation of a process whose job functions will be altered by a change in the process must be informed and trained before start-up of the modified process.¹⁰³ As part of the Program 3 requirements, owners and operators must also develop a written action plan regarding the implementation of the employee participation required by this section and they must provide to employees and their representatives access to process hazard analyses and all other required information.¹⁰⁴

To comply with Program 3 requirements, owners and operators must perform a pre-startup safety review for new and modified sources when the modification is significant enough to require a change in the process safety information.¹⁰⁵ Typically, any modification that is other than a “replacement in kind” made to the process during shutdown must undergo a pre-startup safety review.¹⁰⁶ The

⁹² 40 C.F.R. § 68.65(a).

⁹³ 40 C.F.R. § 68.65(a).

⁹⁴ 40 C.F.R. § 68.50.

⁹⁵ 58 Fed. Reg. 54,190, 54,196 (proposed Oct. 20, 1993).

⁹⁶ 40 C.F.R. § 68.67(a).

⁹⁷ 40 C.F.R. § 68.73(a).

⁹⁸ 40 C.F.R. § 68.73(b)-(c).

⁹⁹ 40 C.F.R. § 68.73(d).

¹⁰⁰ 40 C.F.R. § 68.73(e).

¹⁰¹ 40 C.F.R. § 68.75(a).

¹⁰² 40 C.F.R. § 68.75(b)(1)-(5).

¹⁰³ 40 C.F.R. § 68.75(c).

¹⁰⁴ 40 C.F.R. § 68.83(a) & (c).

purpose of the pre-startup review is to confirm that, prior to the introduction of regulated substances into a process, the construction is in accordance with design specifications and that safety and emergency procedures are in place and sufficient.¹⁰⁷ Furthermore, the pre-startup review is used to determine if the owners have had a process hazard analysis performed and have trained the employees in operating the process.¹⁰⁸

Not only are owners, operators and employees drawn into the requirements of the prevention program provisions but contractors who are involved in repair and major renovation of a covered process or working adjacent to a covered process also share responsibility for compliance.¹⁰⁹ The owner or operator has responsibility for explaining to the contractor the known potential fire, explosion

or toxic release hazards related to the contractor's work and the process. In addition, the owner or operator must explain to the contractor the applicable provisions of the emergency response provisions of the rule and must periodically evaluate the performance of the contractor.¹¹⁰ The contractor in turn must thoroughly document that each contract employee received and understands the training required by the prevention program and that each contractor employee follows the safety rules.¹¹¹ In summary, there must be open and ongoing communication between the contractor and the owner or operator regarding the scope of work taking place with an ever vigilant attitude toward the potential impact of that work on covered processes at the facility.

C. The Development of an Emergency Response Program

The final element of the risk management program is the development of an emergency response component. In promulgating the accidental release prevention rule, the EPA decided to adopt the emergency response provisions that were specifically delineated in the statute without additional requirements. This approach allowed the EPA to harmonize the requirements of this rule with the existing EPA planning requirements¹¹² and the OSHA Hazardous Waste and Emergency Operations ("HAZWOPER") rule.¹¹³

Owners or operators of sources that must comply with Program 1 requirements are not required to develop an emergency response program.¹¹⁴ However, sources subject to the provisions of Program 2 and 3 must develop and implement an emergency response program to protect the public health

¹⁰⁵ 40 C.F.R. § 68.77(a).

¹⁰⁶ 29 C.F.R. 1910.119 Appendix C, Paragraph 8.

¹⁰⁷ 40 C.F.R. § 68.77(b)(1)-(2).

¹⁰⁸ 40 C.F.R. § 68.77(b)(3)-(4).

¹⁰⁹ 40 C.F.R. § 68.87(a).

¹¹⁰ 40 C.F.R. § 68.87(b)(3) & (5).

¹¹¹ 40 C.F.R. § 68.87(c)(3).

¹¹² One part of the Superfund Amendments and Reauthorization Act of 1986 is Title III, otherwise known as the Emergency Planning and Community Right to Know Act of 1986 ("EPCRA"). EPCRA requires states to establish a process for developing local chemical emergency preparedness programs and to receive and disseminate information on hazardous chemicals present at facilities within local communities. A local emergency planning committee ("LEPC") is responsible for reviewing the information submitted by facilities covered by the emergency planning requirements and developing a plan to respond to local hazardous chemical emergency releases.

¹¹³ 61 Fed Reg. 31,668, 31,6980. The OSHA HAZWOPER rule can be found at 29 C.F.R. § 1910.120 and covers clean-up operations required by a governmental body, and initial investigations of government identified sites which are conducted before the presence of hazardous substances has been ascertained; corrective actions involving clean-up operations at sites covered by RCRA; voluntary clean-up operations at sites recognized by federal, state, and local governmental bodies; operations involving hazardous wastes that are conducted at treatment, storage, and disposal (TSD) facilities; and emergency response operations for releases of, or substantial threats of releases of, hazardous substances without regard to the location of the hazard.

and the environment.¹¹⁵ The emergency response program consists of;¹¹⁶ (1) procedures for informing the public and local emergency response agencies about accidental releases;¹¹⁷ (2) documentation of proper first aid to treat accidental human exposures;¹¹⁸ and (3) procedures and measures for emergency response after an accidental release of a regulated substance.¹¹⁹ The plan must also contain procedures for the use of emergency response equipment, employee training and procedures to review and update the emergency response plan to reflect changes at the stationary source.¹²⁰

VIII. FORMAT AND SUBMISSION OF THE RMP

As of July 1997, the EPA is still working toward developing a process for 'non-

paper' submission and receipt of the RMPs. The information eventually will be compiled in an electronic database by the EPA, although regulated industry will be allowed to submit plans either electronically or in paper form.¹²¹ Compilation into an electronic database will allow states and local entities, such as local emergency planning committees, to access the RMPs electronically. The 1990 Amendments require that the RMP indicate compliance with the regulations and include the hazard assessment, the prevention program and emergency response program.¹²² The preamble to the final accidental release prevention rule sets forth that the RMP will be comprised of three main sections: (1) an executive summary; (2) the registration;¹²³ and (3) data elements that provide information on the off-site consequence analyses, the five-year accident history, the prevention

program and the emergency response program.¹²⁴ The purpose of the executive summary is to provide easy reading for potentially impacted communities to review. The data elements will provide the State implementing agency¹²⁵ with the basic data it needs to assess compliance.¹²⁶ The EPA is presently considering an electronic bulletin board operated by the Office of Air Quality Planning and Standards in North Carolina as a repository for the RMPs required under Section 112(r).¹²⁷ The bulletin board repository would allow local emergency planning commissions and the public access to summaries of the industry plans. It would also allow trade associations and sources themselves to understand practices within their own industry that could be used to reduce risks. A copy of the risk management program documentation is to remain at the

¹¹⁴ 40 C.F.R. § 68.12(b).

¹¹⁵ 40 C.F.R. § 68.95.

¹¹⁶ 40 C.F.R. § 68.95(a)(1).

¹¹⁷ 40 C.F.R. § 68.95(a)(1)(i).

¹¹⁸ 40 C.F.R. § 68.95(a)(1)(ii).

¹¹⁹ 40 C.F.R. § 68.95(a)(1)(iii).

¹²⁰ 40 C.F.R. § 68.95(a)(1)(iii)(2)-(4).

¹²¹ *Workgroup Questions Ability of Companies, LEPCs to Manage RMP Data Electronically*, 198 DAILY ENVIRONMENTAL NEWS AA-1, 1996.

¹²² Clean Air Act § 112(r)(7), 42 U.S.C. § 7412(r)(7).

¹²³ The registration includes data such as stationary source name, street, city, county, state, zip code, latitude and longitude; the corporate Dun and Bradstreet numbers along with other information required under 40 C.F.R. § 68.160.

¹²⁴ 61 Fed. Reg. 31,668, 31,673.

¹²⁵ 40 C.F.R. § 68.3 defines "Implementing Agency" as "the state or local agency that obtains delegation for an accidental release prevention program under subpart E, 40 C.F.R. part 63."

¹²⁶ 61 Fed. Reg. 31,668, 31,673.

¹²⁷ *Bulletin Board Eyed as Solution to Handle Risk Management Planning Data*, 1995 DAILY ENVIRONMENTAL NEWS 149 d16, at 1. A phone conversation with Mark Smith, an environmental engineer with Region VII EPA on June 30, 1997, confirmed that the electronic submission workgroup had submitted their recommendations to the EPA management. According to Mr. Smith, a final determination on submission format and what aspects of the RMP will be made public, is not expected until January of 1999.

source and be available for review by the EPA and the state implementing agency.

IX. ENFORCEMENT

The EPA possesses a wide array of enforcement mechanisms for violations of Section 112(r) including administrative, civil and criminal actions under Section 113 of the 1990 Amendments.¹²⁸ This statutory authority allows the EPA to levy penalties of up to \$25,000 per day for each violation, to obtain a permanent or temporary injunction, and, upon conviction of a criminal violation, imprisonment for up to five years.¹²⁹ If Missouri accepts delegation of the accidental release prevention program, the Missouri Department of Natural Resources has civil enforcement authority to seek penalties of up to \$10,000 per day, per violation.¹³⁰

X. CONCLUSION

When facility specific data from RMPs are made available through whatever electronic means the EPA finally decides upon, it will give ready access to information that has the potential for creating great controversy at the local level. Will the availability of this data impact property values of residences that

are within the reach of the blast wave of a regulated facility? Will the insurance industry seek to raise premiums upon homes that are within the radius of the zone of danger? These and many similar questions remain unresolved until the risk data is available to a wide range of interested parties. Industry must soon begin the process of communicating to the public and the local emergency responders the risk associated with their operations and the safety measures in place to minimize the risk. Waiting until the RMP is due to the EPA in 1999 before beginning in earnest the process of communicating facility risk to the outside world is an invitation to disaster.

¹²⁸ See Clean Air Act § 113, 42 U.S.C. § 7413.

¹²⁹ Clean Air Act § 113(c)(1), 42 U.S.C. § 7413(c)(1).

¹³⁰ MO. REV. STAT. § 643.151.3 (1992).