

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY



***ACCIDENTAL RELEASE PREVENTION
PROGRAM: SECTION 112(r)***

**PROGRAM DEVELOPMENT GUIDE FOR ILLINOIS
CAAPP (TITLE V) EFFECTED SOURCES**

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Foreword

This guide is intended to outline the implementation requirements of the Accidental Release Prevention Program under section 112(r) for Illinois effected sources that are Major by definition and require Clean Air Act Permit Program (CAAPP), or Title V permits under 40 CFR Part 70.

Approximately 15-20% of section 112(r) sources in Illinois are also subject to CAAPP permitting requirements. CAAPP requires facilities which routinely emit or have the potential to emit major amounts of criteria pollutants, such as sulfur dioxide, nitrogen dioxide and/or hazardous air pollutants, such as perchloroethylene, to obtain an operating permit for all emissions units on-site.

The Accidental Release Prevention Program under section 112(r) is, therefore, an applicable requirement for CAAPP sources if they use, store, handle, or manufacture any one of the regulated substances above its threshold quantity. **A source must indicate whether or not it is subject to the section 112(r) rule in its CAAPP permit application.** Illinois EPA has specific responsibilities with respect to section 112(r), including identifying those CAAPP sources which are subject to its requirements and ensuring compliance with the rule. Illinois EPA may use various mechanisms to accomplish this, such as completeness checks of risk management plan (RMP) summary, source audits, record reviews, and facility inspections

It should be noted, however, that as new emission standards are promulgated by USEPA, sources not previously regulated under 40 CFR Part 70 may become CAAPP sources. For example, when the Publicly-Owned Treatment Works emission standard is finalized in 1998, some wastewater treatment plants will be required to obtain CAAPP permits.

1.0 Introduction

This guide is not intended to provide a complete description of program components, but does include a brief review of section 112(r) requirements under the Clean Air Act Amendments (CAAA) of 1990 and the resulting rule language in 40 CFR Part 68. For more in depth coverage of the rule requirements, the reader is referred to current documents on the Internet site (<http://www.epa.gov/swercepp>), the Technology Transfer Network (TTN) [(919) 541-5742, under the CAAA, Title III, Policy/Guidance sub-menu], or the Chemical Emergency Planning and Preparedness Office (CEPPO) hotline at 1-800-424-9346.

2.0 Program Review

2.1 Section 112(r)

Section 112(r) was added to the amended Clean Air Act following several catastrophic explosions and other releases of toxic chemicals which resulted in loss of life and property due to the lack of proper safety precautions. Its objective is to prevent accidental releases of regulated substances and other extremely hazardous substances to the air and to minimize the consequences of such releases if they do occur by **emphasizing preventative measures for those chemicals which are believed to pose the greatest risk.**

The Accidental Release Prevention Program rule focuses on accident prevention efforts primarily at the local level, where the risk is found, with the goal of government and the public working with industry to reduce risk. USEPA coordinated with the Occupational Safety and Health Administration (OSHA) and the U.S. Department of Transportation to minimize programmatic inconsistencies and overlap and has developed a coordination letter, similar to a Memorandum of Understanding, to facilitate regional inspections by a joint task force of USEPA and OSHA personnel. To a large extent, the rule builds upon existing programs and standards. In the final analysis, the rule closes the "loop" of existing programs which were intended to **respond** to emergency releases only. In contrast, the rule is intended to **prevent** emergency releases from occurring.

Among the provisions of section 112(r) are the identification of hazards within a facility which could result in a release, the design and maintenance of a safe facility, and the development of response actions to be taken in the event of a release. The section 112(r) also requires USEPA to promulgate a list of substances which were known to cause, or were reasonably anticipated to cause, death, injury, or serious adverse effects to human health or the environment upon release. USEPA set thresholds for each listed (63) flammable and (77) toxic substances on January 31, 1994 (59 FR 4478).

The Clean Air Act (CAA) also established a Chemical Safety and Hazard Investigation Board (CSHIB) to investigate or prompt the investigation of the causes of chemical accidents and to report its findings to Congress and other authorities. Additionally, USEPA was directed to complete studies on accidental releases, such as the effects of a hydrogen fluoride release, air dispersion modeling, and hazard assessments.

Section 304 of the CAA also requires OSHA to promulgate a chemical process safety standard in order to protect employees from hazards associated with accidental releases of highly hazardous chemicals in the workplace. This Process Safety Management (PSM) standard was promulgated on February 24, 1992 (57 FR 6356).

While the section 112(r) rule and the OSHA PSM standard do have some similar provisions (e.g., process hazard analysis, training, safety audits, and emergency response), there are several important differences. The OSHA PSM standard is intended to protect workers from chemical accidents at facilities using highly toxic, reactive, flammable, or explosive substances. USEPA's much broader mandate is to protect public health and the environment. Also, sources subject to section 112(r) requirements **must submit a risk management plan (RMP) which includes an offsite consequence analysis, a five-year accident history and a compliance certification.** Approximately 87,600 sources in the United States are subject to OSHA's PSM standard, while USEPA estimates that approximately 66,000 sources are subject to the section 112(r) rule.

2.2 40 CFR Part 68

On June 20, 1996, USEPA promulgated a risk management program for the prevention of accidental chemical releases as required by section 112(r)(7) of the CAA (61 FR 31668). Under 40 CFR Part 68, sources are required to register with the implementing agency, conduct a hazard assessment of the premises, develop emergency response and prevention programs, and submit a summary of the risk management program to a centralized location for review by the implementing agency, USEPA, other state and local agencies, and the general public.

The owner or operator of a stationary source that exceeds the threshold quantity of a regulated substance in a process must comply with the requirements of 40 CFR Part 68 by no later than the latest of the following dates: June 21, 1999; three years after the date a regulated substance first appears in 40 CFR 68. 130; or the date on which a regulated substance is first present above the threshold quantity in a process.

In the CAA, Congress has mandated that USEPA develop electronic submission of section 112(r)-related information and USEPA has formed a workgroup to develop the basic mechanisms. Illinois EPA supports USEPA's efforts in establishing an electronic submittal process. However, Illinois EPA will be prepared to accept the hard copy registration and RMP executive summaries if such a process is not functional by the June 21, 1999 deadline.

2.3 Applicability

Sources which use, store, handle, or manufacture any of the section 112(r) substances at or above its listed threshold **at any one time and in any one process** must implement a risk management program and comply with the requirements of 40 CFR Part 68.

The types of sources which are covered by the rule include chemical manufacturers, petrochemical industries, electronics, paper, and machinery firms, agricultural manufacturers, drinking water and wastewater treatment facilities, utilities, refrigeration plants, propane retailers, federal sources, and others. Types of federal sources potentially subject to the section 112(r) rule include defense facilities, correctional institutions, and research facilities. Information on such sources is usually restricted for security reasons. Prior to 1995, federal sources were not required to report toxics release or chemical inventory information on hazardous substances at their installations. Information on defense facilities which may be subject to section 112(r) can be obtained by contacting the General Information Office of the U.S. Department of Defense at (703) 545-6700.

Based upon their processes, sources which are subject to section 112(r) are assigned to one of three levels of compliance, known as programs. Eligibility for any given program is based upon the following process criteria: the potential for offsite consequences, accident history, and compliance with the prevention program requirements of OSHA's PSM standard. A single source may have processes which fall into Programs 1, 2, and/or 3. Generally speaking, the processes in Program 1 are simple and associated with minimal effects to the surrounding community and/or the environment following an off-site impact from an accidental release.

In order for a process to be eligible for Program 1, the accident release history must meet the specified criteria for the last five years, the distance to the toxic or flammable endpoint for the worst-case release assessment must be less than the distance to the nearest public receptor, and the emergency response procedures must be coordinated between the facility and the local emergency planning response organizations. If a regulated substance was accidentally released within the last five years, exposure to either the substance, its reaction products, the explosion over-pressure, or radiant heat effects must not have resulted in death, injury, or response or restoration activities for any environmental receptors

Any process which is deemed ineligible for Program 1 and has not specifically been assigned to Program 3 is subject to the default program - Program 2.

A process is assigned by rule to Program 3 if it does not meet the eligibility requirements of Program 1, and if either of the following conditions is met:

- the process is in SIC code:
 - 2611 (pulp mills),
 - 2812 (chlor-alkali plants),
 - 2819 (industrial inorganic manufacturers),
 - 2821 (plastic and resins manufacturers),
 - 2865 (cyclic crudes),
 - 2869 (industrial organic manufacturers),
 - 2873 (nitrogen fertilizer manufacturers),
 - 2879 (agricultural chemical manufacturers), or
 - 2911 (petroleum refineries); or
- the process is subject to OSHA PSM standard, 29 CFR 1910.119.

If at any time a covered process no longer meets the eligibility criteria of its program level, the owner or operator must comply with the applicable new program requirements and update the risk management plan accordingly.

Under the OSHA PSM standard, owners or operators of sources in which processes involving threshold amounts of highly hazardous chemicals or more than 10,000 pounds of a flammable liquid or gas must evaluate their workplace procedures and equipment against the OSHA standard. In several cases, the threshold quantities of PSM substances are different from those under the section 112(r) program. Included in the evaluation of workplace procedures and equipment is an examination of process safety information, process technology and equipment, hazard analysis, development and implementation of standard operating procedures, documented employee training, pre-startup safety reviews, and management methods for process changes. The PSM standard primarily regulates sources in the following SIC codes:

- 2819 (industrial inorganic chemicals);
- 2821 (plastics, resins, and elastomers);
- 2865 (crudes, dyes, and pigments); and
- 2869 (industrial organic chemicals);
- 2873 (nitrogenous fertilizers);
- 2892 (explosives).
- 2911 (petroleum refineries);

A list of sources subject to the PSM standard can be obtained from the Illinois State Department of Labor. The request should specify the area requested for those sources (Illinois and Chicago) and the nearest regional OSHA office. The list identifies the name of the source, its physical location, telephone number, SIC code(s), number of employees, and the owner's mailing address.

Prevention measures taken by sources which meet the PSM standard requirements are considered to be sufficient for section 112(r)'s prevention program requirements.

A source may have to comply with some 112(r) requirements even if they do not have any processes that use any of the listed substances above the thresholds. If a source uses any extremely hazardous substance regardless of the volume, the source must still comply with section 112(r)'s 'general duty clause'. A source complying with the 'general duty clause' is not required to complete an RMP, but must

- identify hazards;
- design, maintain and operate a safe source; and
- minimize the consequences of an accidental release

The Decision Tree in Figure 1 will assist in section 112(r) applicability and program determination. Table 1 provides the specific requirements for each program.

Figure 1: Section 112(r) Applicability Decision Tree

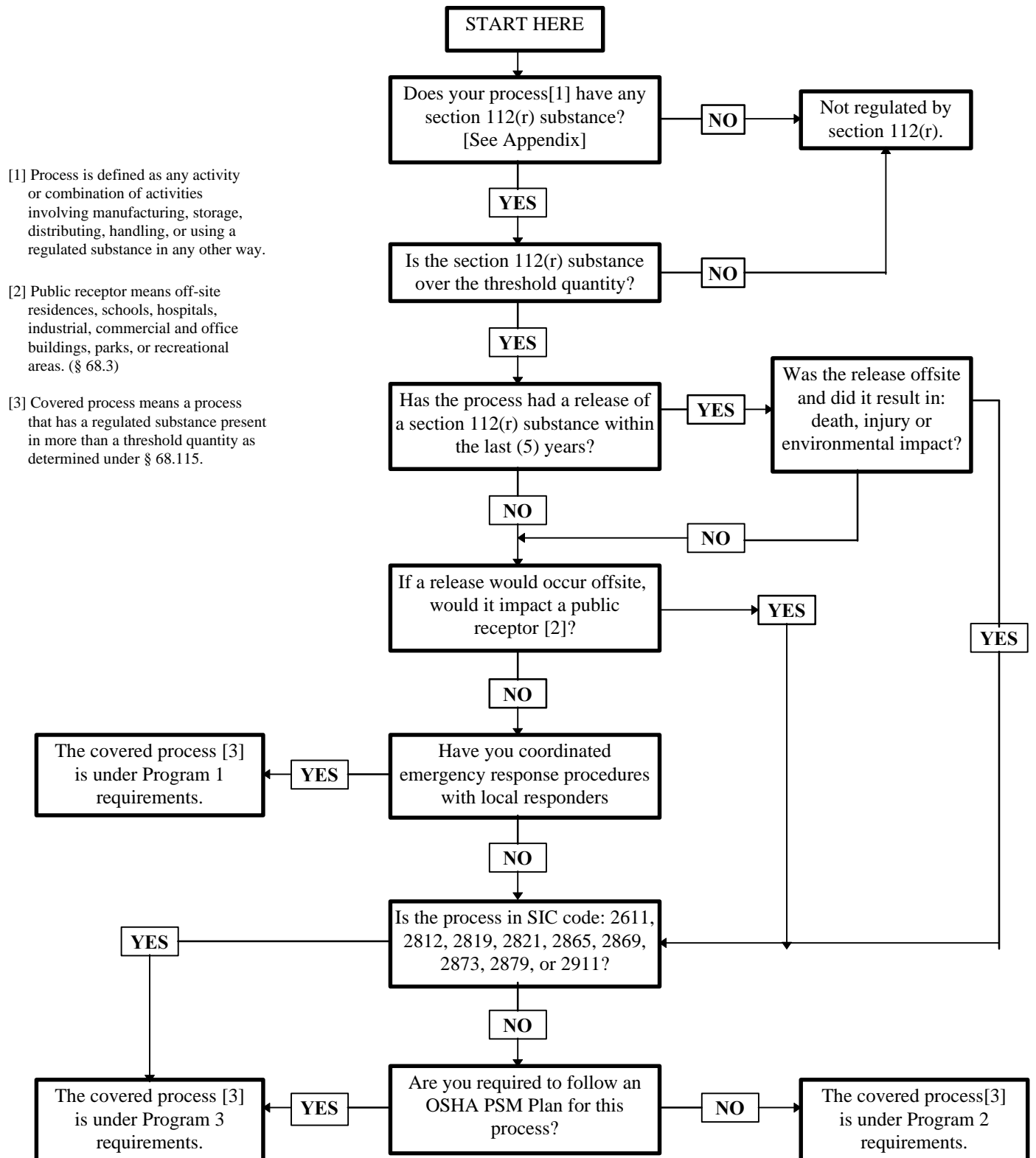


Table 1: Section 112(r) Program Eligibility Requirements

	Program 1	Program 2	Program 3
Eligibility Requirements	<ul style="list-style-type: none"> . No off-site accident history in the last 5 years . No public or environmental receptors impacted if a release does occur . Emergency response coordinated with local emergency response officials <p>(§ 68.10 (b))</p>	<ul style="list-style-type: none"> . The process is not eligible for Program 1 or Program 3 <p>(§ 68.10 (c))</p>	<ul style="list-style-type: none"> . Process has the SIC code: 2611, 2812, 2819, 2821, 2865, 2869, 2873, 2879, or 2911 <p style="text-align: center;">or</p> <ul style="list-style-type: none"> . Process is subject to OSHA's PSM <p>(§ 68.10 (d))</p>
RMP Requirements	<ul style="list-style-type: none"> . Registration . Executive summary . Worst-case release analysis . Five-year accident history . Coordinate response actions with LEPC . Certification . Updates <p>(§ 68.12 (b))</p>	<ul style="list-style-type: none"> . Registration . Executive summary . Worst-case <i>release</i> analysis . Five-year accident history . Coordinate response actions with LEPC . Program Management . Alternative (<i>more-likely</i>) release analysis . Prevention Program: <ul style="list-style-type: none"> • Safety information • Hazard review • Operating procedures • Training • Maintenance • Compliance audits • Incident investigation . <i>or Program 3 Prevention steps</i> . Emergency Response Program . Certification . Updates <p>(§ 68.12 (c))</p>	<ul style="list-style-type: none"> . Registration . Executive summary . Worst-case <i>release</i> analysis . Five-year accident history . Coordinate response actions with LEPC . Program Management . Alternative (<i>more-likely</i>) release analysis . Prevention Program: <ul style="list-style-type: none"> • Process safety information • Process hazard analysis • Operating procedures • Training • Mechanical integrity • Management of change • Pre-startup review • Compliance audits • Incident investigation • Employee participation • Hot work permit • Contractors . Emergency Response Program . Certification . Updates <p>(§ 68.12 (d))</p>

3.0 Community Relations

Information about your risk management plan (RMP) will no doubt receive media coverage. Organizations will want to make sure that they have briefed local officials and other key stakeholders, such as neighbors, before this information appears in the news, or before the stakeholders are contacted by media people seeking their reactions to the RMP. Organization managers can better ensure that they are providing complete information to community leaders by briefing these people themselves. It is important to remember that many other members of the community are likely to call community leaders for help in understanding the RMP. Organizations should give community leaders the information necessary to answer general questions and to encourage residents to call RMP reporting organizations directly for more details.

3.1 Public Notification

How can I prevent a panic in my community when the RMP is released?

Beginning a dialogue with your community will be most effective if you begin before the RMP is released to the public. Risk communication and public involvement activities should be done by trained professionals. The activities you conduct will depend upon the level of community interest, the visibility of your operations, and other factors such as your safety record, community perceptions about the type of chemicals you handle, and the number of people potentially affected in a worst-case scenario.

Many organizations want to know what type of activities should be considered to begin and maintain an effective dialogue with their community. Although each situation is different, the following activities are proven to be effective. All organizations that are required to complete a RMP should consider doing the following:

Develop public notification procedures with local emergency response groups that accommodate community concerns.

If these procedures are developed, documentation will help reduce or eliminate the sense of dread that may develop for those people who may be potentially effected by an accident at your facility. There may be special concerns that should be added to these procedures. Separate notification for schools and senior citizen facilities may ease community concerns for family and friends.

Prepare a fact sheet of responses to the most likely to be asked questions.

Misperceptions about your operations will grow when there is a lack of information that is available and clearly understood within the community. Accidents, changes in the physical appearance of your facility, and seemingly unrelated events such as a dispute with organized labor, often results in misinformation that spreads through the community which can either start or add to misperceptions. A short, preferably less than two pages, fact sheet that can be understood by the community serves two functions by filling an information gap and providing something in writing.

3.2 Employee Education

Inform your employees of the purpose, content, and answers to these most likely to be asked questions about the RMP. One of the primary sources of information about your organization to the community is your employees. If they are properly informed, the chances of misinformation and rumors will decrease.

Select a **spokesperson** who is knowledgeable about emergency response procedures who is available locally to handle questions from citizen groups and the news media.

3.3 Public Accessibility

Make copies of your RMP accessible to your community. Place copies of your RMP at a location, such as a public library, that will be convenient for members of the community. Inform the community that the plans are available for them to look at and the times and locations where they can view them.

For some organizations there will be a high level of public interest in their organization and their risk management plans. The level of public interest in your organization can depend on several factors, including:

- your organizations safety record;
- the types and quantities of materials you use; and
- prior level of interest in your organization by the community.

Organizations that have a high level of public interest should consider the following additional activities in beginning a dialogue with a community:

- **Hosting an Open House**--One of the best ways for the public to understand what your organization does is to see it in operation. Open houses or facility tours give your organization a setting to respond to incorrect or misinformation people may have heard about your company. It also provides you with the opportunity to address community concerns about your organization.
- **Creating a Repository**--Create a file item such as your organization's RMP, environmental permits, emergency response information and general information about your organization. Select a location, preferably off-site, such as a library, where this information is available to the public. By doing this, your organization provides information to the community at their convenience.

3.4 Dialogue Through Citizens Advisory Panels

Setting up a Citizens Advisory Panel--For some organizations, setting up a Citizens Advisory Panel (CAP) will be the best way to identify the concerns of the community. CAPs are most often used in larger communities where there many different stakeholders and competing interests. CAPs can help organizations by providing a forum for gathering public opinion, providing accurate information, and resolving differences. The panels are usually represented individuals from many different segments of the community.

Who should be part of this dialogue?

The individuals and groups who you initially contact should include the following:

- Adjacent property owners;
- Administrators of organizations within the worst-case scenario distance:
 - schools, nursing and senior citizen facilities,
 - hospitals, day-care centers, and places of worship;
- County Board Members;
- Mayor and council members;
- Public Health Agencies;
- Civic and environmental groups; and
- The Media.

Should I form a citizens panel such as those advocated by the chemical industry?

An organized forum for formal dialogue between an organization and the community has been proven effective in many areas of Illinois and elsewhere. Citizen panels are one of many tools and techniques that you can use to establish and maintain formal dialogue.

Should every organization required to submit a RMP form a citizens panel?

No. This tool is recommended when:

- a large number of residents are potentially affected by your operation, especially where multiple communities are involved;
- high interest in your facility is evident through direct inquiries or news media coverage, or
- when misperceptions exist about risk posed to the community, site safety, operations, or other key issues.

Who can provide further assistance?

If you have specific questions regarding section 112(r), please contact Hank Naour or Dixon Nwaji at the Illinois EPA at 217/782-2113.

The Illinois EPA's Office of Community Relations has expertise in both risk communication and public involvement. You can contact:

Office of Community Relations
P.O. Box 19276
1021 North Grand Avenue, East
Springfield, Illinois 62794-9276
Tel: 217/782-5562
Fax: 217/785-7725
E-Mail: epa8122@epa.state.il.us.

APPENDIX

LIST OF REGULATED SUBSTANCES AND THRESHOLDS FOR ACCIDENTAL RELEASE PREVENION

TABLE 1 TO § 68.130.
LIST OF REGULATED TOXIC SUBSTANCES AND
THRESHOLD QUANTITIES FOR ACCIDENTAL RELEASE PREVENTION
[ALPHABETICAL ORDER - 77 SUBSTANCES]

<u>Chemical Name</u>	<u>CAS No</u>	<u>Threshold Quantity (lbs)</u>
Acrolein [2-Propenal]	107-02-8	5,000
Acrylonitrile [2-Propenenitrile]	107-13-1	20,000
Acrylyl chloride [2-Propenoyl chloride]	814-68-6	5,000
Allyl alcohol [2-Propen-1-ol]	107-18-6	15,000
Allylamine [2-Propen-1-amine]	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 [Borane, trichloro-]	10294-34-5	5,000
Boron trifluoride [Borane, trifluoro-]	7637-07-2	5,000
Boron trifluoride compound with methyl ether (1:1) [Boron, trifluoro[oxybis[metane]]-, T-4-	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 [Chlorine oxide (ClO ₂)]	10049-04-4	1,000
Chloroform [Methane, trichloro-]	67-66-3	20,000
Chloromethyl ether [Methane, oxybis[chloro-]	542-88-1	1,000
Chloromethyl methyl ether [Methane, chloromethoxy-]	107-30-2	5,000
Crotonaldehyde [2-Butenal]	4170-30-3	20,000
Crotonaldehyde, (E)- [2-Butenal, (E)-]	123-73-9	20,000
Cyanogen chloride	506-77-4	10,000
Cyclohexylamine [Cyclohexanamine]	108-91-8	15,000
Diborane	19287-45-7	2,500
Dimethyldichlorosilane [Silane, dichlorodimethyl-]	75-78-5	5,000
1,1-Dimethylhydrazine [Hydrazine, 1,1-dimethyl-]	57-14-7	15,000
Epichlorohydrin [Oxirane, (chloromethyl)-]	106-89-8	20,000
Ethylenediamine [1,2-Ethanediamine]	107-15-3	20,000
Ethyleneimine [Aziridine]	151-56-4	10,000
Ethylene oxide [Oxirane]	75-21-8	10,000

<u>Chemical Name</u>	<u>CAS No</u>	<u>Threshold Quantity (lbs)</u>
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) [Hydrochloric acid]	7647-01-0	5,000
Hydrogen fluoride/Hydrofluoric acid (conc 50% or greater) [Hydrofluoric acid]	7664-39-3	1,000
Hydrogen selenide	7783-07-5	500
Hydrogen sulfide	7783-06-4	10,000
Iron, pentacarbonyl- [Iron carbonyl (Fe(CO) ₅), (TB-5-11)-]	13463-40-6	2,500
Isobutyronitrile [Propanenitrile, 2-methyl-]	78-82-0	20,000
Isopropyl chloroformate [Carbonochloridic acid, 1-methylethyl ester]	108-23-6	15,000
Methacrylonitrile [2-Propenenitrile, 2-methyl-]	126-98-7	10,000
Methyl chloride [Methane, chloro-]	74-87-3	10,000
Methyl chloroformate [Carbonochloridic acid, methylester]	79-22-1	5,000
Methyl hydrazine [Hydrazine, methyl-]	60-34-4	15,000
Methyl isocyanate [Methane, isocyanato-]	624-83-9	10,000
Methyl mercaptan [Methanethiol]	74-93-1	10,000
Methyl thiocyanate [Thiocyanic acid, methyl ester]	556-64-9	20,000
Methyltrichlorosilane [Silane, trichloromethyl-]	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 [Nitrogen oxide (NO)]	10102-43-9	10,000
Oleum (Fuming Sulfuric acid) [Sulfuric acid, mixture with sulfur trioxide] ¹	8014-95-7	10,000
Peracetic acid [Ethaneperoxoic acid]	79-21-0	10,000
Perchloromethylmercaptan [Methanesulfenyl chloride, trichloro-]	594-42-3	10,000
Phosgene [Carbonic dichloride]	75-44-5	500
Phosphine	7803-51-2	5,000
Phosphorus oxychloride [Phosphoryl chloride]	10025-87-3	5,000
Phosphorus trichloride [Phosphorous trichloride]	7719-12-2	15,000
Piperidine	110-89-4	15,000

<u>Chemical Name</u>	<u>CAS No</u>	<u>Threshold Quantity (lbs)</u>
Propionitrile [Propanenitrile]	107-12-0	10,000
Propyl chloroformate [Carbonochloridic acid, propylester]	109-61-5	15,000
Propyleneimine [Aziridine, 2-methyl-]	75-55-8	10,000
Propylene oxide [Oxirane, methyl-]	75-56-9	10,000
Sulfur dioxide (anhydrous)	7446-09-5	5,000
Sulfur tetrafluoride [Sulfur fluoride (SF ₄), (T-4)-]	7783-60-0	2,500
Sulfur trioxide	7446-11-9	10,000
Tetramethyllead [Plumbane, tetramethyl-]	75-74-1	10,000
Tetranitromethane [Methane, tetranitro-]	509-14-8	10,000
Titanium tetrachloride [Titanium chloride (TiCl ₄) (T-4)-]	7550-45-0	2,500
Toluene 2,4-diisocyanate [Benzene, 2,4-diisocyanato-1-methyl-] ¹	584-84-9	10,000
Toluene 2,6-diisocyanate [Benzene, 1,3-diisocyanato-2-methyl-] ¹	91-08-7	10,000
Toluene diisocyanate (unspecified isomer) [Benzene, 1,3-diisocyanatomethyl-] ¹	26471-62-5	10,000
Trimethylchlorosilane [Silane, chlorotrimethyl-]	75-77-4	10,000
Vinyl acetate monomer [Acetic acid ethenyl ester]	108-05-4	15,000

¹The mixture exemption in '68.115(b)(1) does not apply to the substance

TABLE 2 TO § 68.130.
LIST OF REGULATED TOXIC SUBSTANCES AND
THRESHOLD QUANTITIES FOR ACCIDENTAL RELEASE PREVENTION
[CAS NUMBER ORDER - 77 SUBSTANCES]

<u>CAS No.</u>	<u>Chemical Name</u>	<u>Threshold Quantity (lbs)</u>
50-00-0	Formaldehyde (solution)	15,000
57-14-7	1,1-Dimethylhydrazine [Hydrazine, 1,1-dimethyl-]	15,000
60-34-4	Methyl hydrazine [Hydrazine, methyl-]	15,000
67-66-3	Chloroform [Methane, trichloro-]	20,000
74-87-3	Methyl chloride [Methane, chloro-]	10,000
74-90-8	Hydrocyanic acid	2,500
74-93-1	Methyl mercaptan [Methanethiol]	10,000
75-15-0	Carbon disulfide	20,000
75-21-8	Ethylene oxide [Oxirane]	10,000
75-44-5	Phosgene [Carbonic dichloride]	500
75-55-8	Propyleneimine [Aziridine, 2-methyl-]	10,000
75-56-9	Propylene oxide [Oxirane, methyl-]	10,000
75-74-1	Tetramethyllead [Plumbane, tetramethyl-]	10,000
75-77-4	Trimethylchlorosilane [Silane, chlorotrimethyl-]	10,000
75-78-5	Dimethyldichlorosilane [Silane, dichlorodimethyl-]	5,000
75-79-6	Methyltrichlorosilane [Silane, trichloromethyl-]	5,000
78-82-0	Isobutyronitrile [Propanenitrile, 2-methyl-]	20,000
79-21-0	Peracetic acid [Ethaneperoxoic acid]	10,000
79-22-1	Methyl chloroformate [Carbonochloridic acid, methylester]	5,000
91-08-7	Toluene 2,6-diisocyanate [Benzene, 1,3-diisocyanato-2-methyl-] ¹	10,000
106-89-8	Epichlorohydrin [Oxirane, (chloromethyl)-]	20,000
107-02-8	Acrolein [2-Propenal]	5,000
107-11-9	Allylamine [2-Propen-1-amine]	10,000
107-12-0	Propionitrile [Propanenitrile]	10,000
107-13-1	Acrylonitrile [2-Propenenitrile]	20,000
107-15-3	Ethylenediamine [1,2-Ethanediamine]	20,000
107-18-6	Allyl alcohol [2-Propen-1-ol]	15,000
107-30-2	Chloromethyl methyl ether [Methane, chloromethoxy-]	5,000
108-05-4	Vinyl acetate monomer [Acetic acid ethenyl ester]	15,000

<u>CAS No.</u>	<u>Chemical Name</u>	<u>Threshold Quantity (lbs)</u>
108-23-6	Isopropyl chloroformate [Carbonochloridic acid, 1-methylethyl ester]	15,000
108-91-8	Cyclohexylamine [Cyclohexanamine]	15,000
109-61-5	Propyl chloroformate [Carbonochloridic acid, propylester]	15,000
110-00-9	Furan	5,000
110-89-4	Piperidine	15,000
123-73-9	Crotonaldehyde, (E)- [2-Butenal, (E)-]	20,000
126-98-7	Methacrylonitrile [2-Propenenitrile, 2-methyl-]	10,000
151-56-4	Ethyleneimine [Aziridine]	10,000
302-01-2	Hydrazine	15,000
353-42-4	Boron trifluoride compound with methyl ether (1:1) [Boron, trifluoro[oxybis[metane]]-, T-4-	15,000
506-77-4	Cyanogen chloride	10,000
509-14-8	Tetranitromethane [Methane, tetranitro-]	10,000
542-88-1	Chloromethyl ether [Methane, oxybis[chloro-]	1,000
556-64-9	Methyl thiocyanate [Thiocyanic acid, methyl ester]	20,000
584-84-9	Toluene 2,4-diisocyanate [Benzene, 2,4-diisocyanato-1-methyl-] ¹	10,000
594-42-3	Perchloromethylmercaptan [Methanesulfenyl chloride, trichloro-]	10,000
624-83-9	Methyl isocyanate [Methane, isocyanato-]	10,000
814-68-6	Acrylyl chloride [2-Propenoyl chloride]	5,000
4170-30-3	Crotonaldehyde [2-Butenal]	20,000
7446-09-5	Sulfur dioxide (anhydrous)	5,000
7446-11-9	Sulfur trioxide	10,000
7550-45-0	Titanium tetrachloride [Titanium chloride (TiCl ₄) (T-4)-]	2,500
7637-07-2	Boron trifluoride [Borane, trifluoro-]	5,000
7647-01-0	Hydrochloric acid (conc 30% or greater)	15,000
7647-01-0	Hydrogen chloride (anhydrous) [Hydrochloric acid]	5,000
7664-39-3	Hydrogen fluoride/Hydrofluoric acid (conc 50% or greater) [Hydrofluoric acid]	1,000
7664-41-7	Ammonia (anhydrous)	10,000
7664-41-7	Ammonia (conc 20% or greater)	20,000
7697-37-2	Nitric acid (conc 80% or greater)	15,000
7719-12-2	Phosphorus trichloride [Phosphorous trichloride]	15,000
7726-95-6	Bromine	10,000

<u>CAS No.</u>	<u>Chemical Name</u>	<u>Threshold Quantity (lbs)</u>
7782-41-4	Fluorine	1,000
7782-50-5	Chlorine	2,500
7783-06-4	Hydrogen sulfide	10,000
7783-07-5	Hydrogen selenide	500
7783-60-0	Sulfur tetrafluoride [Sulfur fluoride (SF4), (T-4)-]	2,500
7784-34-1	Arsenous trichloride	15,000
7784-42-1	Arsine	1,000
7803-51-2	Phosphine	5,000
8014-95-7	Oleum (Fuming Sulfuric acid) [Sulfuric acid, mixture with sulfur trioxide] ¹	10,000
10025-87-3	Phosphorus oxychloride [Phosphoryl chloride]	5,000
10049-04-4	Chlorine dioxide [Chlorine oxide (ClO2)]	1,000
10102-43-9	Nitric oxide [Nitrogen oxide (NO)]	10,000
10294-34-5	Boron trichloride [Borane, trichloro-]	5,000
13463-39-3	Nickel carbonyl	1,000
13463-40-6	Iron, pentacarbonyl- [Iron carbonyl (Fe(CO)5), (TB-5-11)-]	2,500
19287-45-7	Diborane	2,500
26471-62-5	Toluene diisocyanate (unspecified isomer) [Benzene, 1,3-diisocyanatomethyl-] ¹	10,000

¹The mixture exemption in '68.115(b)(1) does not apply to the substance.

TABLE 3 TO § 68.130.
LIST OF REGULATED FLAMMABLE SUBSTANCES AND
THRESHOLD QUANTITIES FOR ACCIDENTAL RELEASE PREVENTION
[ALPHABETICAL ORDER - 63 SUBSTANCES]

<u>Chemical Name</u>	<u>CAS No.</u>	<u>Threshold Quantity (lbs)</u>
Acetaldehyde	75-07-0	10,000
Acetylene [Ethyne]	74-86-2	10,000
Bromotrifluorethylene [Ethene, bromotrifluoro-]	598-73-2	10,000
1,3-Butadiene	106-99-0	10,000
Butane	106-97-8	10,000
1-Butene	106-98-9	10,000
2-Butene	107-01-7	10,000
Butene	25167-67-3	10,000
2-Butene-cis	590-18-1	10,000
2-Butene-trans [2-Butene, (E)]	624-64-6	10,000
Carbon oxysulfide [Carbon oxide sulfide (COS)]	463-58-1	10,000
Chlorine monoxide [Chlorine oxide]	7791-21-1	10,000
2-Chloropropylene [1-Propene, 2-chloro-]	557-98-2	10,000
1-Chloropropylene [1-Propene, 1-chloro-]	590-21-6	10,000
Cyanogen [Ethanedinitrile]	460-19-5	10,000
Cyclopropane	75-19-4	10,000
Dichlorosilane [Silane, dichloro-]	4109-96-0	10,000
Difluoroethane [Ethane, 1,1-difluoro-]	75-37-6	10,000
Dimethylamine [Methanamine, N-methyl-]	124-40-3	10,000
2,2-Dimethylpropane [Propane, 2,2-dimethyl-]	463-82-1	10,000
Ethane	74-84-0	10,000
Ethyl acetylene [1-Butyne]	107-00-6	10,000
Ethylamine [Ethanamine]	75-04-7	10,000
Ethyl chloride [Ethane, chloro-]	75-00-3	10,000
Ethylene [Ethene]	74-85-1	10,000
Ethyl ether [Ethane, 1,1'-oxybis-]	60-29-7	10,000
Ethyl mercaptan [Ethanethiol]	75-08-1	10,000
Ethyl nitrite [Nitrous acid, ethyl ester]	109-95-5	10,000
Hydrogen	1333-74-0	10,000
Isobutane [Propane, 2-methyl]	75-28-5	10,000

<u>Chemical Name</u>	<u>CAS No.</u>	<u>Threshold Quantity (lbs)</u>
Isopentane [Butane, 2-methyl-]	78-78-4	10,000
Isoprene [1,3-Butadiene, 2-methyl-]	78-79-5	10,000
Isopropylamine [2-Propanamine]	75-31-0	10,000
Isopropyl chloride [Propane, 2-chloro-]	75-29-6	10,000
Methane	74-82-8	10,000
Methylamine [Methanamine]	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 [Methane, oxybis-]	115-10-6	10,000
Methyl formate [Formic acid, methyl ester]	107-31-3	10,000
2-Methylpropene [1-Propene, 2-methyl-]	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 [1,2-Propadiene]	463-49-0	10,000
Propane	74-98-6	10,000
Propylene [1-Propene]	115-07-1	10,000
Propyne [1-Propyne]	74-99-7	10,000
Silane	7803-62-5	10,000
Tetrafluoroethylene [Ethene, tetrafluoro-]	116-14-3	10,000
Tetramethylsilane [Silane, tetramethyl-]	75-76-3	10,000
Trichlorosilane [Silane, trichloro-]	10025-78-2	10,000
Trifluorochloroethylene [Ethene, chlorotrifluoro-]	79-38-9	10,000
Trimethylamine [Methanamine, N,N-dimethyl-]	75-50-3	10,000
Vinyl acetylene [1-Buten-3-yne]	689-97-4	10,000
Vinyl chloride [Ethene, chloro-]	75-01-4	10,000
Vinyl ethyl ether [Ethene, ethoxy-]	109-92-2	10,000
Vinyl fluoride [Ethene, fluoro-]	75-02-5	10,000
Vinylidene chloride [Ethene, 1,1-dichloro-]	75-35-4	10,000
Vinylidene fluoride [Ethene, 1,1-difluoro-]	75-38-7	10,000
Vinyl methyl ether [Ethene, methoxy-]	107-25-5	10,000

TABLE 4 TO § 68.130.
LIST OF REGULATED FLAMMABLE SUBSTANCES AND
THRESHOLD QUANTITIES FOR ACCIDENTAL RELEASE PREVENTION
[CAS NUMBER ORDER - 63 SUBSTANCES]

<u>CAS No.</u>	<u>Chemical Name</u>	<u>Threshold Quantity (lbs)</u>
60-29-7	Ethyl ether [Ethane, 1,1'-oxybis-]	10,000
74-82-8	Methane	10,000
74-84-0	Ethane	10,000
74-85-1	Ethylene [Ethene]	10,000
74-86-2	Acetylene [Ethyne]	10,000
74-89-5	Methylamine [Methanamine]	10,000
74-98-6	Propane	10,000
74-99-7	Propyne [1-Propyne]	10,000
75-00-3	Ethyl chloride [Ethane, chloro-]	10,000
75-01-4	Vinyl chloride [Ethene, chloro-]	10,000
75-02-5	Vinyl fluoride [Ethene, fluoro-]	10,000
75-04-7	Ethylamine [Ethanamine]	10,000
75-07-0	Acetaldehyde	10,000
75-08-1	Ethyl mercaptan [Ethanethiol]	10,000
75-19-4	Cyclopropane	10,000
75-28-5	Isobutane [Propane, 2-methyl]	10,000
75-29-6	Isopropyl chloride [Propane, 2-chloro-]	10,000
75-31-0	Isopropylamine [2-Propanamine]	10,000
75-35-4	Vinylidene chloride [Ethene, 1,1-dichloro-]	10,000
75-37-6	Difluoroethane [Ethane, 1,1-difluoro-]	10,000
75-38-7	Vinylidene fluoride [Ethene, 1,1-difluoro-]	10,000
75-50-3	Trimethylamine [Methanamine, N,N-dimethyl-]	10,000
75-76-3	Tetramethylsilane [Silane, tetramethyl-]	10,000
78-78-4	Isopentane [Butane, 2-methyl-]	10,000
78-79-5	Isoprene [1,3-Butadiene, 2-methyl-]	10,000
79-38-9	Trifluorochloroethylene [Ethene, chlorotrifluoro-]	10,000
106-97-8	Butane	10,000
106-98-9	1-Butene	10,000
106-99-0	1,3-Butadiene	10,000
107-00-6	Ethyl acetylene [1-Butyne]	10,000

<u>CAS No.</u>	<u>Chemical Name</u>	<u>Threshold Quantity (lbs)</u>
107-01-7	2-Butene	10,000
107-25-5	Vinyl methyl ether [Ethene, methoxy-]	10,000
107-31-3	Methyl formate [Formic acid, methyl ester]	10,000
109-66-0	Pentane	10,000
109-67-1	1-Pentene	10,000
109-92-2	Vinyl ethyl ether [Ethene, ethoxy-]	10,000
109-95-5	Ethyl nitrite [Nitrous acid, ethyl ester]	10,000
115-07-1	Propylene [1-Propene]	10,000
115-10-6	Methyl ether [Methane, oxybis-]	10,000
115-11-7	2-Methylpropene [1-Propene, 2-methyl-]	10,000
116-14-3	Tetrafluoroethylene [Ethene, tetrafluoro-]	10,000
124-40-3	Dimethylamine [Methanamine, N-methyl-]	10,000
460-19-5	Cyanogen [Ethanedinitrile]	10,000
463-49-0	Propadiene [1,2-Propadiene]	10,000
463-58-1	Carbon oxysulfide [Carbon oxide sulfide (COS)]	10,000
463-82-1	2,2-Dimethylpropane [Propane, 2,2-dimethyl-]	10,000
504-60-9	1,3-Pentadiene	10,000
557-98-2	2-Chloropropylene [1-Propene, 2-chloro-]	10,000
563-45-1	3-Methyl-1-butene	10,000
563-46-2	2-Methyl-1-butene	10,000
590-18-1	2-Butene-cis	10,000
590-21-6	1-Chloropropylene [1-Propene, 1-chloro-]	10,000
598-73-2	Bromotrifluoroethylene [Ethene, bromotrifluoro-]	10,000
624-64-6	2-Butene-trans [2-Butene, (E)]	10,000
627-20-3	2-Pentene, (Z)-	10,000
646-04-8	2-Pentene, (E)-	10,000
689-97-4	Vinyl acetylene [1-Buten-3-yne]	10,000
1333-74-0	Hydrogen	10,000
4109-96-0	Dichlorosilane [Silane, dichloro-]	10,000
7791-21-1	Chlorine monoxide [Chlorine oxide]	10,000
7803-62-5	Silane	10,000
10025-78-2	Trichlorosilane [Silane, trichloro-]	10,000
25167-67-3	Butene	10,000