



PAPER

EXTREMELY HAZARDOUS SUBSTANCES

# WHY YOU NEED A 112(r) PLAN



# Introduction

When you take a look at the Environmental Protection Agency's (EPA) Risk Management Plan (RMP) regulation [40 CFR 68], it's easy enough to scan through the list of 140 toxic and flammable substances, see the thresholds in the chart and determine whether or not your facility needs to create an RMP.

The regulation itself is straightforward: If your facility has more than a threshold quantity of any chemical that's on the list, you need a plan.

But what if your facility has an "extremely hazardous substance" that's not on that list? Or what if you have a chemical that is on the list, but you store a quantity below the threshold volume?

The scope of RMP covers both of those situations. It states "the list of substances, threshold quantities, and accident prevention regulations promulgated under this part do not limit in any way the general duty provisions under section 112(r)(1)." So while you don't need a full RMP, you might still need to create a 112(r) Plan.

Never heard of 112(r)? You're not alone. Most facilities are familiar with EPA regulations found in the Code of Federal Regulations (CFR). To find 112(r), you'll need to take a step back and look at the Clean Air Act. In a nutshell, the objective of 112(r) is to prevent and minimize the consequences of extremely hazardous substance releases.

In this Pig Paper, you'll learn what is considered an extremely hazardous substance and 112(r) planning requirements.



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## Extremely Hazardous Substances

The extremely hazardous substance clause is painted with a very broad brush. The term is not defined in either the US Code or the CFR. But, a Senate Committee Report stated the intent of the term includes “any agent which may or may not be listed or otherwise identified by any government agency which may as the result of short-term exposures associated with releases to the air cause death, injury or property damage due to its toxicity, reactivity, flammability, volatility, or corrosivity.”

The Senate Report adds that “the release of any substance which causes death or serious injury because of its acute toxic effect or as a result of an explosion or fire or which causes substantial property damage by blast, fire, corrosion or other reaction would create a presumption that such substance is extremely hazardous” while referencing the EPA’s Toxic Substances Control Act Inventory, the National Institute of Occupational Safety and Health, OSHA, NFPA, the CDC, the American Conference of Governmental Industrial Hygienists and others as sources.



So it's easy to see how 112(r) requirements can apply to almost any facility that has chemicals onsite. To determine whether your facility needs a plan, consider whether your facility submits Tier II reports, has a Hazard Communication program, a Spill Prevention Control and Countermeasures plan or other similar plans that outline how you manage chemicals. If you do, it could be an indication that you need a 112(r) plan.



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## 112(r) Plan Requirements



If you've determined that something onsite meets the criteria for 112(r) plan requirements, what's next?

### 112(r) requires you to do three things:

1. Use appropriate assessment techniques to identify hazards of extremely hazardous substance spills.
2. Design and maintain a safe facility while taking any necessary steps to prevent spills.
3. Mitigate the consequences of spills when they do occur.

Because the standard is performance-based, it will be up to you and the facility to determine how you'll meet these obligations. The good news is that if your facility already has safety procedures and emergency response plans in place, you're already well on your way to meeting the requirements.

Read on for information on how to accomplish the three tasks required by 112(r).



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## 1. Assessing Hazards

Although federal, state and local response agencies can — and do — assist facilities after emergencies and disasters, facility owners and operators have the initial and primary responsibility to prevent and mitigate incidents involving chemical releases. Because facility owners and operators should understand their processes and chemicals better than anyone, they are in the best position to analyze and evaluate hazards at their facility and create plans to minimize or eliminate the chance of spills.

One method is to perform a Process Hazard Analysis (PHA), which allows the facility to identify and analyze the hazards associated with each hazardous chemical and process. If you really are diligent about the analysis, the information will help you make decisions that improve worker safety during routine operations, as well as identify potential points of failure and the steps to eliminate them. Facilities that have already done PHAs are ahead of the game.

When analyzing hazards, different methods can be used. Each has strengths and weaknesses. Three common methods of gathering information about hazardous chemicals are:

### Experience

- Using records of earlier problems that have occurred or accident histories
- Compiling information from trade journals and industry newsletters

### Analytical

- Performing a Hazard and Operability (HAZOP) study
- Creating logic trees or fault trees
- Using checklists

### Creative

- Examining regulations, standards, codes and onsite processes
- Brainstorming and asking “What if” questions for each process and chemical

Most facilities use a combination of these methods. The more information that can be gathered on a hazard, the easier it is to make preparations and mitigate it.



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## 2. Designing and Maintaining a Safe Facility

Safe operating processes and equipment usage include doing the things that are most likely already being done every day, such as managing chemicals properly and keeping variables like temperature, pressure, flow rate, volumes, concentrations and pH within specified limits. This makes sense for workplace safety and also helps prevent premature wear or failure of equipment that can contribute to leaks and spills.



A Standard Operating Procedure (SOP) is a valuable tool that:

- Outlines tasks that need to be performed
- Provides specific instructions to operators
- Lists the conditions or operating parameters that need to be maintained
- Describes samples that need to be taken or data that needs to be recorded
- Explains any health, safety or other precautions that need to be taken

A well-written SOP will include information for various phases of operation including pre-startup checks, startup, normal operation and shutdown, as well as corrective measures and emergency shutdown information. The SOP should also include clear, concise, understandable and technically accurate procedures for each process and chemical.

Designing and operating a safe facility also includes having an effective training program. Employees need to understand the hazards associated with the chemicals they use and processes they follow.



Processes need to run within certain parameters for a variety of reasons. When employees understand why upper and lower limits have been established for each process and why things need to run the way they do, they are better aware of those limits and know the consequences of operating outside of established parameters. Good training should also include proper maintenance of processing equipment and instruction on how to maintain processes or use chemicals safely.

Training should include scenarios on what to do when things don't go as they should. Should employees evacuate? Should they shut down machinery? If so, how? The more comfortable your team is at performing nonroutine tasks, the more likely they will perform them correctly when there is an emergency.



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### 3. Mitigating Spill Consequences

Being prepared for spills and having plans in place to respond quickly and effectively are also required 112(r) planning elements.

Most facilities with hazardous substances onsite already have emergency response, contingency and action plans that identify responsibilities, functions and response equipment. In many cases, these plans can be used to fill 112(r) requirements, as long as they include the following elements: planning, coordination with local officials, training and exercises.

- Planning involves reviewing PHAs and developing spill or release scenarios based on those analyses. Local emergency management agencies and free online mapping tools can help identify the areas and populations that may be impacted by various releases. Planning also involves having appropriate response equipment and resources available to quickly mitigate the consequences of spills.
- It's never a good idea to wait for a spill to meet local responders for the first time. Discussing plans with your Local Emergency Planning Committee, firefighters, hospitals and other first responders satisfies the requirement to coordinate with local officials. Open discussions with these entities also helps them to better assist you in the event of a large spill because they will already be familiar with the chemicals and processes that you have onsite.
- Without regular training, plans fail. All employees need to understand what actions to take when there is a hazardous release. Employees also need to be able to recognize anomalies in everyday processes so that they can help avoid spills and other hazards before they happen.
- One of the best ways to determine if training is effective is through drills and exercises. Employees can demonstrate their proficiency with the instructions and skills that they have been taught and they can use any special tools and response equipment that they may not otherwise use on a routine basis. Drills and exercises provide an excellent opportunity to work with local response agencies so they become familiar with your processes and onsite personnel can become familiar with their capabilities. Often, local response agencies can help plan or design drills and evaluate their effectiveness.



Identifying hazards, establishing SOPs and coordinating emergency response plans and training take time, but they are essential elements of many different safety and environmental plans. In addition to enhancing operations, they are a vital key to preventing lost work time, injuries and other tragedies that are often associated with large chemical releases.

If you understand your workplace hazards, as well as your general duty to prevent and mitigate the effects of spills, you are more likely to have adequate plans and resources in place to manage your processes safely. Figure out if your facility needs a 112(r) plan today to minimize environmental harm and safeguard both employees and the community.



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