



CGA P-29—2022 GUIDELINE FOR THE APPLICATION OF OSHA PSM AND EPA RMP TO THE COMPRESSED GAS INDUSTRY

FIFTH EDITION

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NOTE—Technical changes from the previous edition are underlined.

NOTE—Appendix A (Informative) is for information only.

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1 Introduction

The U.S. Occupational Safety and Health Administration (OSHA) Process Safety Management (PSM) standard and the U.S. Environmental Protection Agency (EPA) Risk Management Program (RMP) rule require that some U.S. industrial gas facilities comply with these regulations. For the purpose of this publication, the OSHA PSM standard refers to Title 29 of the U.S. *Code of Federal Regulations* (29 CFR) Part 1910.119, “Process Safety Management of Highly Hazardous Chemicals”, and the EPA RMP rule refers to Title 40 of the U.S. *Code of Federal Regulations* (40 CFR) Part 68, “Chemical Accident Prevention Provisions” [1, 2].¹

2 Scope

This publication defines the criteria that may be applied to industrial gas facilities to evaluate the scope and extent of application of the PSM standard and the RMP rule. This guidance document also:

- explains how the PSM standard and the RMP rule apply to processes commonly found in the gas industry;
- defines criteria that can be used to determine if a process is covered by the PSM standard or the RMP rule;
- establishes a basis for determining reasonable boundaries of covered processes;
- explains the major differences between the PSM standard and the RMP rule; and
- explains the exemptions allowed under each regulation.

3 Definitions

3.1 Publication terminology

3.1.1 **Shall**

Indicates that the procedure is mandatory. It is used wherever the criterion for conformance to specific recommendations allows no deviation.

3.1.2 **Should**

Indicates that a procedure is recommended.

3.1.3 **May**

Indicates that the procedure is optional.

3.1.4 **Will**

Is used only to indicate the future, not a degree of requirement.

3.1.5 **Can**

Indicates a possibility or ability.

3.2 Technical definitions

3.2.1 **Cargo tank motor vehicle (CTMV)**

Vehicle that has a vessel mounted on it used to store liquids or gases while they are carried over public roadways.

NOTE—A CTMV is considered a transportation container or delivery vehicle under the EPA RMP rule.

3.2.2 **Covered process**

Process regulated by the OSHA PSM standard, 29 CFR 1910.119, or the EPA RMP rule, 40 CFR Part 68 [1, 2].

3.2.3 **DOT container**

Container (CTMV, cylinder, or drum) used to transport hazardous materials over public roadways whose design, use, and maintenance are regulated by DOT.

¹ References are shown by bracketed numbers and are listed in order of appearance in the reference section.

3.2.4 Flammable gas

A gas having a flammable range with air at 20 °C and a standard pressure of 101.3 kPa and is classified in one of the two categories:

- Category 1—Gases, which at 20 °C and a standard pressure of 101.3 kPa:
 - are ignitable when in a mixture of 13% or less by volume in air; or
 - have a flammable range with air of at least 12 percentage points regardless of the lower flammable limit; or
- Category 2—Gases, other than those of Category 1, which, at 20 °C and a standard pressure of 101.3 kPa, have a flammable range while mixed in air [1].

NOTE—Ammonia and methyl bromide may be regarded as special cases for some regulatory purposes.

3.2.5 Flammable liquid

Material that exists as a liquid at ambient temperature and pressure and has a flash point below 100 °F (38.8 °C), except any mixture having components with flashpoints of 100 °F (38.8 °C) or higher, the total of which makes up 99% or more of the total volume of the mixture (29 CFR 1910.1200) [1].

3.2.6 National Fire Protection Association (NFPA) flammability hazard rating 4

Materials that rapidly or completely vaporize at atmospheric pressure and normal ambient temperature or that are readily dispersed in air and burn readily [3]. This classification includes:

- flammable gases;
- flammable cryogenic gases;
- any liquid or gaseous material that is liquid under pressure and has a flash point below 73 °F and a boiling point below 100 °F (Class IA flammable liquids); and
- materials that ignite spontaneously when exposed to air.

3.2.7 Regulated substance

Any chemical regulated under the OSHA PSM standard, 29 CFR 1910.119(a), or the EPA RMP rule, 40 CFR 68.130 [1, 2].

3.2.8 Threshold quantity

Amount of a regulated substance that if contained within a process requires compliance with the OSHA PSM standard or the EPA RMP rule [1, 2].

4 Overview of PSM and RMP requirements

Both the PSM standard and RMP rule are intended to prevent or lessen the consequences of a catastrophic release of a regulated substance from a covered process. Processes are defined broadly to encompass any activity involving a chemical including any use, storage, manufacturing, handling, on-site movement of chemicals, or any combination of these activities. This definition of process also includes any group of vessels that are interconnected and separate vessels that are located so a regulated substance could be involved in a potential release. Transportation activities regulated by the U.S. Department of Transportation (DOT) including pipelines are excluded from coverage.

While PSM requirements focus on facility and worker safety, the RMP requirements are concerned with the possible effects on the community outside the facility in the event of a catastrophic fire or loss of containment at the facility. The RMP rule requires the implementation of a risk management program for all covered processes at facilities containing regulated substances above threshold quantities. A full risk management program is composed of a hazard assessment, a management system, a prevention program, and an emergency response program. However, RMP allows for a tiered approach to regulating stationary sources subject to the rule. In addition, the RMP rule requires covered sites to register with the EPA and submit a risk management plan. There are no such requirements under PSM. Also, PSM does not allow a tiered approach and requires a 14-element prevention program for all covered processes.

A facility's compliance obligations under RMP are determined by the program level for which it qualifies. The placement of a facility into one of the three program levels is based on the facility's 5-year accident history, its off-site impact potential, and the types of processes operated at the site. In short, facilities that present a greater risk to off-site receptors shall comply with more stringent requirements than those that present a lower risk to off-site receptors. Table 1 illustrates the different regulatory requirements between the two regulations.

Table 1—RMP and PSM requirements

Hazard assessment			
Program 1	Program 2	Program 3	PSM
Worst-case analysis	Worst-case analysis	Worst-case analysis	
	Alternative releases	Alternative releases	
5-yr accident history	5-yr accident history	5-yr accident history	<u>Identification of previous incidents included under process hazard analysis</u>
Management program			
Program 1	Program 2	Program 3	PSM
	Documented management system	Documented management system	
Prevention program			
Program 1	Program 2	Program 3	PSM
Certify no additional steps needed	Safety information	Process safety information	Process safety information
	Hazard review	Process hazard analysis	Process hazard analysis
	Operating procedures	Operating procedures	Operating procedures
	Training	Training	Training
	Maintenance	Mechanical integrity	Mechanical integrity
	Incident investigation	Incident investigation	Incident investigation
	Compliance audit	Compliance audit	Compliance audit
		Management of change	Management of change
		Pre-startup review	Pre-startup review
		Contractors	Contractors
		Employee participation	Employee participation
		Hot work permits	Hot work permits
			Emergency planning and response
			Trade secrets
Emergency response program			
Program 1	Program 2	Program 3	PSM
Coordinate with local responders	Develop plan and program	Develop plan and program	Included in prevention program above
Risk management plan contents			
Program 1	Program 2	Program 3	PSM
Executive summary	Executive summary	Executive summary	
Registration	Registration	Registration	
Worst-case data	Worst-case data	Worst-case data	
	Alternative-release data	Alternative-release data	
5-yr accident history	5-yr accident history	5-yr accident history	
	Prevention program data	Prevention program data	
	Emergency response data	Emergency response data	
Certification	Certification	Certification	

The lists of regulated substances under the PSM standard and RMP rule are similar but not identical. Differences can include the substances themselves, the threshold quantity values, or both. Refer to 29 CFR 1910.119(a) and 40 CFR 68.130 for the lists of regulated substances under PSM standard and RMP rule, respectively [1, 2].

Under RMP, the consequence of a worst-case scenario and an alternative-release scenario for each covered process shall be modeled. Off-site impact on public or environmental receptors or both shall be determined. No such modeling is required under PSM.

Under RMP, a risk management plan that includes information about a facility's hazard assessment, prevention program, and emergency response program shall be submitted to EPA. This plan is available for public review. Under PSM, no submittals to OSHA are required, and PSM information does not enter the public record.

See Appendix A for a suggested approach to consequence modeling as well as additional resources on PSM standard and RMP rule implementation and compliance.

5 Compliance considerations

The factors that shall be considered in determining the impact of the PSM standard and RMP rule on a process are:

- whether a process exists;
- inventory of the process;
- boundaries of the covered process; and
- eligibility for exemptions.

Most processes that are subject to the PSM standard are also subject to the RMP rule. However, there are some differences. When differences exist, they are addressed in the applicable sections of this publication.

6 Definition of a process

6.1 Activities that constitute a process

Any activity involving a regulated substance constitutes a process. Activities include use, storage, manufacturing, handling, on-site movement, or any combination of these activities. The regulations are not limited to manufacturing and distribution facilities. For instance, research and development and pilot plant operations are covered. DOT containers such as drums and cylinders are considered storage vessels; therefore, they may be covered by the PSM standard and RMP rule except when they are under DOT jurisdiction with regard to loading/unloading, handling, and storage (see 6.4 for additional information).

The regulations further define that interconnected vessels and separate vessels located so a regulated substance could be involved in a potential release constitute a single process. Using this rationale, the regulating agencies have clarified that isolation devices such as block or check valves, double block and bleed systems, and flexible hose connections between vessels and pieces of equipment do not separate processes or their inventories into less than threshold quantities. Also, it is left to an employer to determine if unconnected vessels are located far enough apart (or have an adequate barrier in place) so that an incident in one could not affect another (see 7.7.2). Active mitigation such as a fire suppression system has no impact on whether or not a process is covered.

Both the PSM standard and the RMP rule contain exemptions that exclude certain substances and processes from their requirements. However, the exemptions are not the same in each regulation. Differences in the exemptions are discussed in Section 9.