
Chlorine Risk Management Plans – How Do I Develop One?

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The presence of chlorine gas in cylinders and ton containers has always created safety concerns for the chlorine users. This concern has been raised to a new level in the last year because of the additional requirements to develop Risk Management Plans (RMPs) to meet the EPA regulations. This regulation requires that any facility having 2,500 pounds of chlorine on site develop an approved RMP. More importantly, there is a time constraint. Any RMPs must be completed by June 21, 1999. In most water and waste utilities the concern is not so much the development of the RMP but how to develop the RMP in a timely fashion.

Background

Utilities have been increasingly required over the past 20 years to meet more stringent requirements from the quality of their product to the materials, equipment and processes used to meet these requirements. To a water and waste utility, it has been one thing after another. If it's not DBPs, it's SARA, Title III or the Fire Codes. And now the RMP! In addition, there is another regulation that can be just as important. This is the PSM or Process Safety Management Plan. There are some major differences between the two.

A PSM is required when there is at least 1,500 pounds of chlorine on site. The PSM is an analysis of the facility's chlorine safety planning with the goal of protecting the employee. The PSM, an OSHA developed requirement, has been in effect since February, 1992. The governing Federal Code of Regulations (29 CFR, 1910.119) had been introduced as a result of the Occupational Safety and Health Act of 1970. A PSM is also applicable to sulfur dioxide if used at the facility and is present in quantities of at least 1500 pounds.

The RMP is required when there is at least 2,500 pounds of chlorine on site. There are additional points of definition which will further classify the utility in different categories. This is covered later. The RMP is an analysis of the facility's chlorine safety planning that helps protect the surrounding community. The governing Federal Code of Regulations (40CFR68) is an EPA developed requirement adopted in May of 1996 as a result of the 1990 Clean Air Act Amendments. The RMP for sulfur dioxide is not required unless there is at least 5,000 pounds present.

PSM

The PSM requires participation of employees or their representatives with management in the development of a plan and implementation of a program that has the following elements:

1. Process Information
2. Process Hazard Analysis
3. Operating Procedures and Practices
4. Employee Training
5. Contractors
6. Pre-start Up Safety
7. Mechanical Integrity
8. Non-routine Work Authorizations
9. Managing Change
10. Investigation of Incidents
11. Emergency Preparedness
12. Compliance Audits
13. Trade Secrets

These elements require a complete analysis of the existing facility, the process employing chlorine (or sulfur dioxide), a process flow diagram for the chlorine (or sulfur dioxide) system, the equipment in use, current safety practices and the training involved with the employees. Integral in the PSM development, is the involvement of the employees in the process.

There are books and documents available to assist in the preparation of PSMs. In most cases, the utility has the elements already completed but has not put them in one place or under one title. PSMs are not necessary to submit or file with the government, but usually with the state labor department or the organization concerned with employee safety. The exact group may vary in some states. PSM guidelines are available from other organizations such as the AWWA, WEF or Chlorine Institute. Each state's department of labor or group associated with employee safety may, in fact, have a typical PSM for a utility's consideration. One example is that produced by the Iowa Department of Labor (Consultation and Education Department, 1000 East Grand Avenue, Des Moines, IA 50319). Additional help can be obtained by contacting OSHA on the web at www.osha-slc.gov/SLTC/Process Safety Management/index.html.

RMP

The RMP uses as a basis for development the information presented in the PSM and evaluates that data in light of potential leaks and their impact on the surrounding community. The development of the following information is needed to assess what part of the RMP program is applicable to the utility:

1. **Hazard Assessment** - the user must evaluate the potential effects of an accidental release of chlorine (or sulfur dioxide). This includes performing an off-site consequence analysis and the assembly of a five year accident history at the utility. Two emergency scenarios are required to be presented. One is a worst case where the largest container releases all the chlorine (or sulfur dioxide) in ten minutes and the other an alternative release of a less severe nature. Guidelines are provided by the EPA that establish the conditions of the release (ambient temperature, humidity, wind velocity, direction, distance of cloud released, etc) so that this evaluation is relatively easy. A plot of the estimated release using a local topographical map is required to see the public facilities (schools, hospitals, etc.) and the community impact as a whole.
2. **Prevention Program** - establishes the conditions, practices, processes, equipment, maintenance and training of the personnel in use at the utility. The PSM developed by the utility will satisfy this section.
3. **Response Program** - includes procedures for notifying public and local agencies responsible for responding to accidental releases, information of emergency health care and employee response training. There is a need to have the response program developed with the local emergency responder and coordinate with the local HAZWOP team.
4. **Program Level** - Most utilities, having met the minimum capacity requirement for chlorine (or sulfur dioxide), must then determine the depth of RMP development based upon the following EPA established criteria:

Level I - This is where the worst case release calculation and determination does not reach a public receptor (school, hospital, etc.) and there have been no releases from the utility with off site consequences in the last five years.

Level II - This includes water or wastewater utilities not covered by the PSM requirement. There are very few utilities in Level II since, according to the PSM regulation, utilities are covered by the PSM regulation since they "store, transport, use or produce" chlorine (or sulfur dioxide).

Level III - This includes those utilities subject to the PSM requirement and/or those utilities that are classified by one of following SIC codes: 2611, 2812, 2819, 2821, 2865, 2869, 2873, 2879, 2911. (Note - Such SIC codes are highly unlikely for utilities, since most of these classifications are for industrial chemicals, refineries, fertilizers, pulp mills, etc., manufacturing plants).

It is generally felt that most utilities will fall into Level III unless they are so remote that they fit into Level I. (see flow chart)

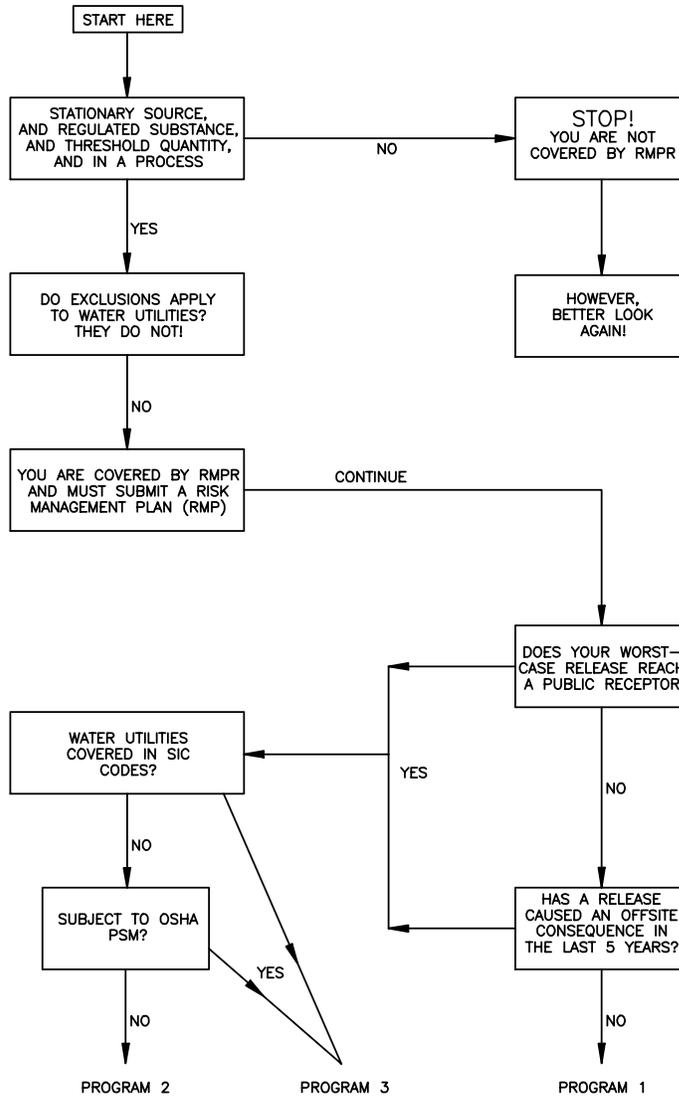
The EPA can be contacted for information on the preparation of RMPs by asking for a copy of the RMP Submit software necessary for electronic filing of RMPs. (RMPs can be filed electronically). To order RMP Submit, contact 800-490-9919/8, (fax) 513-489-8695, (e-mail) www.epa.gov/ncepihmom or download the program from www.epa.gov/ceppo.

The AWWA Research Foundation has RMP preparation information available in their publication, Compliance Guidance and Model Risk Management Program for Water Treatment Plants. In October, 1998 the EPA published a manual, Risk Management Program Guidance For Wastewater Treatment Plants (40CFR68) (EPA Number 550-B-98-010) that can be helpful.

A video is also available "The RMP Rule: Basics of Compliance" (#65151) AWWA Bookstore, telephone: 800-926-7337.

The Chlorine Institute has available some publications. One is a guide to "Communicating Your Chlorine Risk Management Plan" which helps a utility talk to the community about RMP Plans. For a complete list, visit their website at www.cl2.com.

RISK MANAGEMENT PROGRAM RULE (RMPR)
Flowchart to determine if and how a facility
is covered by RMPR



Design improvements may be made without notice.

Represented by:



CAPITAL CONTROLS

3000 Advance Lane Colmar, PA 18915
Tel: 215-997-4000 • Fax: 215-997-4062
Web: www.capitalcontrols.com
E-mail: marketing@capitalcontrols.com

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