



Risk Management Guidance Table of Contents

Preface

Note: Chapter sections correlate to USEPA RMP Guidance (See Guidance Document vs Regulation in the Introduction)

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PREFACE

REGULATORY BACKGROUND

The federal Accidental Release Prevention Program (Title 40, Code of Federal Regulations, Part 68) was approved in June 1996. Part 68 implements Section 112 (r)(7) of the Clean Air Act Amendments of 1990. The

California Risk Management and Prevention Program (RMPP) was established in 1986. The federal program, with certain additions specific to the state, has replaced the Risk Management and Prevention Program as the California Accidental Release Prevention (CalARP) Program. The legal authority for the CalARP Program is the California Health and Safety Code (H&SC), Division 20, Chapter 6.95, Article 2 (commencing with Section 25531). The California Office of Emergency Services has issued implementation regulations (CCR Title 19, Division 2, Chapter 4.5, effective date November 16, 1998).

ORANGE COUNTY FIRE AUTHORITY

Orange County Fire Authority (OCFA) is the administering agency (AA) for the CalARP regulation for the cities of Buena Park, Cypress, Dana Point, Irvine, Laguna Hills, Laguna Beach, Laguna Niguel, Laguna

Woods, Lake Forest, La Palma, Los Alamitos, Mission Viejo, Placentia, San Clemente, San Juan Capistrano, Seal Beach, Stanton, Tustin, Villa Park, Westminster, Yorba Linda, and unincorporated areas of Orange County. OCFA's CalARP activities are coordinated with the Orange County Health Care Agency (HCA). HCA is the Certified Unified Program Agency (CUPA) for local implementation of CalARP and several other hazardous materials and hazardous waste programs. However, if your facility is located in any of the jurisdictions listed above, OCFA is the *administering agency* (AA) you will be working with. The OCFA's Hazardous Materials Services Section (HMSS) is staffed with technical and administrative personnel who are assigned implementation and management of the CalARP Program. All facilities are encouraged to work closely with OCFA in order to eliminate any unnecessary efforts or costs in complying with the CalARP program. Staff may be consulted by calling (714) 744-0463.

GUIDANCE DOCUMENT VS REGULATION

If you are the owner or operator of a *stationary source*, this document provides guidance to help you determine if your processes are subject to the CalARP regulations and how to comply with these regulations. This document does not substitute for the CalARP regulations, nor is it a regulation itself. Thus, this document cannot impose legally binding requirements on OCFA or the regulated community, and may not apply to a particular situation based upon the circumstances. However, the Health and Safety Code requires each stationary source to work closely with the administering agency (OCFA) in determining an appropriate level of detail for the Risk Management Plan (RMP), and technical studies including those for external events analysis.

This CalARP Guidance only addresses the specific requirements for the CalARP Program and is intended to be used together with the "General Guidance for Risk Management Programs (40 CFR Part 68)," which has been issued by the USEPA Chemical Emergency Preparedness Prevention Office (CEPPO). The chapters in this Guidance correspond to the same chapters as the USEPA/CEPPO RMP guidance. The OCFA guidelines serve as an addendum or supplement to the federal guidance document. Thus it provides implementation and submission guidelines for compliance with the additional state requirements.

REFERENCES AVAILABLE

The Hazardous Materials Services Section (HMSS) can provide the following information to assist in the preparation of a Risk Management Program under the CalARP Program:

Document	On File	Web Site Address
Local:		
Orange County Fire Authority CalARP Guidelines		http://www.ocfa.org
Regulated Substances Lists		http://www.ocfa.org
State:		
OES CalARP Fact Sheet		http://www.oes.ca.gov
Title 19, California Code of Regulations, Chpt. 4.5		http://www.oes.ca.gov
California Health and Safety Code 25531-25543.3		http://www.leginfo.ca.gov
Government Code 65850.2		http://www.leginfo.ca.gov
Federal:		
RMP Submit/RMP Info Fact Sheet		http://www.epa.gov
RMP Offsite Consequence Analysis Guidance		http://www.epa.gov
General Guidance for Risk Management Programs		http://www.epa.gov/ceppo/
EPA Small Business Assistance Program		http://www.epa.gov/ttn/sbap/

INTRODUCTION

If you handle, manufacture, use, or store any of the toxic and flammable substances listed in Tables 1, 2, or 3 of Section 2770.5 of the *California Code of Regulations (CCR)* above the specified threshold quantity in a process, you are required to comply with the California Accidental Release Prevention Program (CalARP). This regulation, CCR Title 19, Division 2, Chapter 4.5, applies to a wide variety of facilities that manufacture, store, or use toxic substances including chlorine, ammonia, and highly flammable substances such as propane.

PURPOSE OF THIS GUIDANCE DOCUMENT

The purpose of this document is to provide guidance on how to determine: a) If you are subject to the CalARP program, b) How to implement accidental release prevention programs that comply with the CalARP regulations, and c) What to include in the written Risk Management Plan (RMP). Note that any words written in *italics* will be defined in the glossary.

The RMP public document should reflect a facility's overall effort in the management and prevention of risks associated with the storage; use and/or processing of *regulated substances (RS)*. The RMP public document shall be in the form of a single volume for all regulated substances handled unless otherwise instructed by the Orange County Fire Authority. The RMP shall include the information required by CalARP Sections 2745 through 2745.9, and any other information required by the OCFA. Guidance for preparing an RMP document is given in Chapter 9. Specific guidance for preparing the USEPA RMP is contained in the USEPA guidance document. The State RMP document will contain more information than is required in the Federal RMP document.

Draft sections of the RMP should be submitted to OCFA for preliminary review as soon as completed. This will enable OCFA to make comments and request corrections prior to final submission of the completed RMP.

These interim course corrections can greatly improve the cost effectiveness of preparing the final document, significantly reducing the time to review and make corrections to the RMP.

When all corrections have been completed, you will need to provide three copies of the corrected RMP to OCFA. All copies of the final submitted RMP public document should be indexed and tabbed with individual sections as follows:

- RMP Executive Summary
- EPA Risk Management Data Elements
- Five Year Accident History/Investigation
- Offsite Consequence Analysis
- Process Hazards Analysis
- Prevention Program 2 (if applicable)
- Prevention Program 3 (if applicable)
- External Events (Programs 2 and 3) – unless covered in a previous section
- Emergency Response Plan (Programs 2 and 3) – unless covered in a previous section

The RMP public document is supported by technical studies. Separate records for supporting technical information must be prepared and maintained in the custody of the facility. The OCFA will review these supporting documents as part of the CalARP acceptance and during the audit. Facilities should categorize the records of their supporting technical information as follows:

- Five year accident history
- Offsite consequence analysis
- Management system
- Prevention program
- External events (including seismic analysis)
- Emergency response program

Guidance for the preparation of the technical information is given in Chapters 1 through 8.

YOUR GENERAL DUTY FOR ACCIDENTAL RELEASE PREVENTION

Even if you are not required to comply with the CalARP regulation, you have a general duty under Section 112(r)(1) of the federal Clean Air Act Amendments to prevent and mitigate the consequences of releases of extremely hazardous substances. The USEPA has not delegated enforcement of the general duty clause to the states.

GENERAL DUTY

Section 112(r)(1) of the CAA, the “general duty clause”, requires owners and operators of stationary sources producing, processing, handling or storing extremely hazardous substances to do the following:

- Identify hazards which may result from releases using appropriate hazard assessment techniques;
- Design and maintain a safe facility taking such steps as are necessary to prevent releases;
- and,
- Minimize the consequences of accidental releases that do occur

EXTREMELY HAZARDOUS SUBSTANCE

In the general duty context, extremely hazardous substance means any substance, handled in any quantity, listed or unlisted, to which a short-term exposure to could result in death, injury, or property damage.

PROGRAM GOAL

The goal of the California Accidental Release Prevention (CalARP) program is to prevent accidental releases of substances that can cause serious harm to the public and the environment from short-term exposures and to mitigate the severity of releases that do occur. The 1990 Amendments to the *Clean Air Act (CAA)* outline the actions to be taken by facilities (referred to in the law as *stationary sources*) to prevent accidental releases of such hazardous chemicals into the atmosphere and reduce their potential impact on the public and the environment. The USEPA approved regulations (40CFR Part 68) implementing the accidental release provisions of the CAA. The CalARP program incorporates all of Part 68 and includes some amendments specific to California. Therefore, if you comply with the CalARP regulations with respect to the Risk Management Program, you will be in compliance with both federal and California regulations with respect to the program.

In general, the CalARP regulations require that:

- Stationary sources must develop and implement an accidental release prevention program and maintain documentation of the program at the site. The accidental release prevention program must include an analysis of the potential offsite consequences of an accidental release, a five-year accident history, a release prevention program, and an emergency response program.
- Stationary sources must develop and submit a risk management plan (RMP), which includes registration, either to both USEPA and OCFA, or only to OCFA (See Chapters 1 and 9). Because there are California specific requirements, the RMP document submitted to OCFA will contain more information than the RMP submitted to USEPA. The RMP provides a summary of the accidental release prevention program. The RMP will be made available to government agencies and the public.
- Stationary sources must continue to implement the accidental release prevention program and update the RMP within 5 years of the initial submission, when processes change, or as required by the CalARP regulation.

The phrase “*risk management program*” refers to all of the requirements of the CalARP regulation that must be implemented on an on-going basis. The phrase “*risk management plan (RMP)*” refers to the public document that a source must submit summarizing the stationary source’s accidental release prevention program.

CALIFORNIA VS FEDERAL REGULATIONS AND GUIDANCE

As stated above, the CalARP regulation is the same as the federal regulation with some additional requirements. The additional California requirements that affect applicability and RMP preparation are:

- The CalARP regulation expanded state applicability by adding the California Toxic Substance List, Table 3, to the two federal lists of regulated substances. Chapter 1 addresses the facts that Table 3 contains more toxic substances than those in Table 1, the Federal Regulated Substance List. Additionally, the Table 3 threshold quantities are lower than those in Table 1.
- Chapter 2 explains that the CalARP regulation allows OCFA to change covered process program levels for California applicable processes only.
- Section 2735.5 of the CalARP regulation and Section 25534.05(d) of the Health and Safety Code require the stationary source to closely work and coordinate with OCFA to implement the requirements of the CalARP program and to determine the appropriate level of documentation required to comply with the regulation.
- Sections 2755.2(d) and 2760.2(c)(8) of the CalARP regulation and Section 25534.05(c) of the Health and Safety Code require stationary sources to include consideration of external events, including seismic events, in the process hazard analysis or hazards review. Chapters 6, 7, and 9 address which information from the consideration of external events is required to be included in the RMP.
- Section 2745.2 of the CalARP regulations requires public notice of the submittal of an RMP and notification of a formal public review period. The public shall have access to the RMP, including any electronic data submitted as part of the USEPA reporting requirements.

OCFA VS FEDERAL EPA RMP DOCUMENTATION REQUIREMENTS

The RMP submitted to OCFA must comply with the CalARP regulation for all processes containing more than a threshold quantity of a regulated substance listed in Tables 1, 2, or 3 of the CalARP regulation. The RMP submitted to the USEPA must comply with federal regulation 40CFR Part 68 for all processes containing more than a threshold quantity of a regulated substance listed in Tables 1 or 2 of the CalARP regulation. The RMP and documentation required for regulated substances on Table 3 should not be submitted to USEPA. RMP submission is covered in detail in Chapter 9. The major difference between what is submitted to OCFA and USEPA is that OCFA expects more extensive public documentation than the USEPA in order to meet the risk communication needs of the Orange County communities.

MODEL RISK MANAGEMENT PROGRAMS

Industry groups and governmental agencies are developing RMP guidance documents. Those models may be used as a basic guidance once accepted by USEPA. The Office of Emergency Services (OES) may limit the use, application, or scope of these models. RMP guidance documents being developed with USEPA include:

- Propane distributors and retailers (State of Delaware)
- Warehouses (American Warehouse Association)
- Publicly Owned Treatment Works (POTWs)*

-
- Water treatment facilities (American Waterworks Association)
 - Chemical distributors (National Association of Chemical Distributors)
 - Ammonia refrigeration (International Institute of Ammonia Refrigeration)

***Those identified with an asterisk(s) have been published as of February 1999, and more information about them is available at www.epa.gov/ceppo/.**

Note: The EPA's Guidance for Ammonia Refrigeration Units do not cover program level 2 facilities. If you have a program level 2 ammonia refrigeration facility, please contact OCFA for further guidance on your CalARP program.

WHAT DO YOU DO FIRST?

Before developing an accidental release prevention program, you should do five things:

- (1) Determine how many of your processes are covered by this program.**
Only sources with a quantity of a regulated substance in excess of the threshold quantity in a process need to comply with the CalARP regulation. The CalARP regulation requirements apply only to covered processes within a source. See Chapter 1 for more information on how to define your processes and determine if any of them are subject to the CalARP program.
- (2) Determine the appropriate program level for each covered process.**
Depending on specific characteristics of your operations and the results of the offsite consequence analysis for a worst-case release scenario, your covered process may be subject to one of three different program levels with different sets of requirements. See Chapter 2 for more information.
- (3) Determine the CalARP regulatory requirements for the stationary source and each covered process.**
Certain requirements apply to the stationary source as a whole, while others are process-specific.
- (4) Assess your operations to identify current accidental release prevention activities.**
Because you probably conduct some accidental release prevention activities (e.g., employee training, equipment maintenance, and emergency planning), you should review your current operations to determine if you are already in compliance with certain provisions of the CalARP program. OCFA does not expect you to redo these activities if they already meet the CalARP regulation requirements. See Chapters 5 to 8 individually for guidance on how to tell if your existing practices meet those required by the CalARP regulations.

(5) Review the regulations and this guidance to develop a strategy for conducting the additional actions you need to take for each covered process. Discuss the requirements with your management and staff.

The accidental release prevention program is an integrated approach to assessing and managing risks and will involve most of the operations of covered processes. Early involvement of both management and staff will help develop an effective program. The CalARP regulation requires input from all employees. You are also encouraged to consult with OCFA if you have any questions about the program.

Finally, keep in mind that many of these requirements are performance based; for example, the CalARP regulation does not specify how often you should inspect storage tanks, only that you do so in a manner that minimizes the risk of a release. This allows you to tailor your program to fit the particular conditions at your stationary source. The degree of complexity required in an accidental release prevention program will depend on the complexity of the stationary source. For example, the operating procedures for a chemical distributor are likely to be relatively brief, while those for a chemical manufacturing process will be extensive. Similarly, the length of training necessary to educate employees on such procedures would be proportional to the complexity of your operating procedures. A stationary source with complex processes may benefit from a computerized maintenance tracking system, while a small stationary source with a simpler process may be able to track maintenance activities using a logbook.

There are many right ways to develop and implement an accidental release prevention program. Even for the same CalARP regulation elements, your program may be different from everyone else's program (even those processes in the same industry) because it will be designed for your specific situation and hazards. Your program will reflect whether your stationary source is near the public and sensitive environmental areas, the specific equipment you have installed, and the managerial decisions that you have made previously.

GETTING STARTED

In order to assure an efficient preparation and review of technical studies and resulting RMP, OCFA requires that you submit a work plan. The submission of the work plan satisfies several purposes:

- It provides a mutual understanding of the work to be performed.
 - It identifies assumptions and methods that require investigation and clarification.
 - It defines the scope of the RMP, and can prevent additional costs and effort resulting from poor communication.

See the next two pages for the Workplan Form and instructions for completing the form.

**ORANGE COUNTY FIRE AUTHORITY
HAZARDOUS MATERIALS SERVICES SECTION
RISK MANAGEMENT PLAN (RMP) WORKPLAN**

Stationary Source Contact Information

1. Name of Stationary Source: _____

2. Address of Stationary Source: _____
3. Name of RMP Contact: _____
4. Mailing Address: _____
5. Phone #: _____ 6. Fax: _____
7. E-mail: _____

Consultant Contact Information (if applicable)

8. Company Name: _____
9. Name of Project Coordinator & Statement of Qualifications for Team Members: _____
10. Address: _____
11. Phone #: _____ 12. Fax: _____
13. E-mail: _____

Process Information

14. RMP Program Level: 1 2 3 (circle) 15. 4 digit SIC/NAIC Code: _____
16. Process Subject to PSM? Y N (circle) 17. Process Subject to Title V Permit? Y N (circle)
18. Process Installation date (circle one): new facility ~~modified facility~~ _____

RMP Technical Studies

19. Type of Hazard Evaluation to be conducted: _____
20. Date of Seismic Walkdown: _____

Methods for Air Dispersion Modeling

21. Manual Calculations (USEPA Tables): Y N (circle) 22. Computerized Air Model: Y N (circle)
23. Name of Computerized Model (if applicable): _____
24. Passive Mitigation considered for Worst-Case (specify): _____

Prepared by: _____ Date: _____

Instructions for Workplan Form:

1. Business or facility name.
2. Site address of your facility.
3. The name of the primary RMP contact.
4. Mailing address.
5. Phone number of the primary RMP contact.
6. Fax number (if available).
7. E-mail of the primary RMP contact (if available).
8. Company name of your consultant.
9. Primary RMP consultant project coordinator and statement(s) of qualifications for all participating team members.
10. Address of your consultant.
11. Phone number of RMP consultant project coordinator.
12. Fax number (if available).
13. E-mail of your consultant (if known).
14. Circle the program level(s) that will be developed.
15. Standard Industrial Code or North American Industrial Classification System Code for your process.
16. Is facility subject to OSHA Process Safety Management?
17. Is the facility subject to Title V permits?
18. If you are adding a new process or modifying an existing process, provide the date you plan to start-up the process.
19. Provide the name of the type of hazard evaluation you plan to conduct. (i.e., What if?, Checklist, HAZOP, etc.)
20. Projected date of seismic walk through.
21. Do you plan to use USEPA lookup tables or manual calculations for your offsite consequence analysis?
22. Do you plan to use a computerized air model for your offsite consequence analysis?
23. Provide the name and version.
24. Specify the type of passive mitigation you plan to use for your worst-case offsite consequence. If you do not plan to use passive mitigation, state "none."

CHAPTER 1: GENERAL APPLICABILITY

A journey of a thousand miles begins with a single step. – Chinese Proverb

2 EXCLUSIONS

Transportation Activities

The CalARP regulations apply only to stationary sources. The term stationary source does not apply to transportation, including storage incident to transportation. The relationship to the Department of Transportation (*DOT*) regulations is cited in Section 2735.3(tt) of the CalARP regulations.

Transportation containers that remain attached to the motive power that delivered them to the site are generally considered to be in transportation. Transportation containers used for storage incident to transportation are considered to be in transportation. Transportation containers used for storage not incident to transportation and transportation containers connected to equipment at a stationary source are considered part of the stationary source. Therefore, transportation containers that have been disconnected from the motive force that delivered them to the site and left for storage may or may not be part of the stationary source. You must make a reasonable determination based on site-specific circumstances. For example, if you have railcars on a private siding that you use as storage tanks until you are ready to hook them to your process, these railcars are part of your source. If a tank truck is being unloaded and the driving mechanism is still attached, the truck and its contents are generally considered to be in transportation and not covered by the CalARP regulations; but you should consider the substances in the unloading piping or hosing as well as the quantity in the receiving container as part of your stationary source. Some issues related to transportation are still under discussion between USEPA and DOT.

1.3 REGULATED SUBSTANCES, THRESHOLDS, and STATE/FEDERAL APPLICABILITY

Tables listing substances regulated under the CalARP Program are in Section 2770.5 of the CalARP regulations. Check the lists carefully. If you do not have any of these substances (either as pure substances or in mixtures above one-percent concentration) or do not have them above their listed *threshold quantities (TQ)*, the CalARP regulations do not apply to your facility.

Table 1 (the USEPA Regulated Toxic Substances List) and Table 3 (the California Regulated Toxic Substances List) include chemicals that are listed because they are acutely toxic; they can cause serious health effects or death from short-term exposures. Table 2 (the USEPA Regulated Flammable Substances List) covers flammable gases and highly volatile flammable liquids. The flammable substances have the potential to form vapor clouds and explode or burn if released. The CalARP regulations cover Table 2 and flammable mixtures that include any of the listed flammables if the mixture meets the criteria for the *National Fire Protection Association's (NFPA)* 4 rating.

Processes containing a quantity greater than the threshold quantity in Tables 1 or 2 are subject to both the state accidental release prevention program and federal risk management program applicability and compliance.

Processes containing a quantity greater than the threshold quantity in Table 3 and not more than the threshold quantity in Table 1 or Table 2 are subject to state accidental release prevention program applicability and compliance only.

1.4 WHAT IS A PROCESS

The concept of process is key to whether you are subject to CalARP regulations. A process is defined in the CalARP regulations as:

“Any activity involving a regulated substance including any use, storage, manufacturing, handling or on-site movement of such substances, or any 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”.

Vessel means a reactor, tank, drum, barrel, cylinder, vat, kettle, boiler, pipe, hose, or other container.

- If you store a regulated substance in a single vessel in quantities above the threshold quantity, you are covered.
- If you have interconnected tanks that hold more than a threshold quantity of a substance that can be released in a single event, you are covered. The connections need not be permanent. If two vessels are connected occasionally, they are considered a single process for the purposes of determining whether a threshold quantity is present.
- If you have multiple unconnected tanks, cylinders, barrels, or other containers, including pipes, containing the same substance, you will have to work with OCFA to determine whether they need to be considered together.

1.5.4 QUANTITY OF A SUBSTANCE IN A MIXTURE

Toxics With A Listed Concentration

For the four toxic substances with concentrations listed in Table 1 of the CalARP regulations (hydrochloric acid, hydrofluoric acid, nitric acid, ammonia):

If you have these substances in solution and their concentration is less than the listed concentration, you do not need to consider them at all for a federally covered process. If you have greater than 1% solutions, you will need to consider them as state covered processes (see “Toxics without a Listed Concentration” below).

If you have one of these four above their listed concentration, you must determine the weight of the substance in the solution and use that to calculate the quantity present. If that quantity is

greater than the threshold, the process is a federal covered process. For example, aqueous ammonia is covered at concentrations above 20%, with a *threshold quantity* of 20,000 pounds. If the solution is 25% (by weight) ammonia, you would need 80,000 pounds of the solution to reach the threshold quantity; if the solution is 44% (by weight) ammonia, you would need 45,455 pounds to reach the threshold quantity (quantity of mixture x % of regulated substance = quantity of regulated substance).

Toxics Without A Listed Concentration

For toxics without a listed concentration, unless the concentration of the regulated substance is less than 1%, you need to consider the quantity in your threshold determination. You must calculate the weight of the regulated substance in the mixture and use that weight to determine whether a threshold quantity is present. However, if you can measure or estimate (and document) that the partial pressure of the regulated substance in the mixture is less than 10 mm Hg, you do not need to consider the mixture. Note that the partial pressure rule does not apply to toluene di-isocyanate (2-4, 2-6, or mixed isomers) or oleum in Table 1, and does not apply to some toxic liquid and solid substances listed in Table 3.

Flammables

Flammable mixtures are subject to the CalARP regulations only if there is a regulated substance in the mixture above one percent. If the entire mixture also meets the definition of flammability hazard rating 4 in the *NFPA 704*, Standard System for the Identification of the Fire Hazards of Material, then you must use the weight of the entire mixture (not just the listed substance) to determine if you exceed the threshold quantity. Otherwise, you only need to use the weight of the regulated substance. The *NFPA-4* definition is as follows:

Materials that will rapidly or completely vaporize at atmospheric pressure and normal ambient temperature or that are readily dispersed in air, and that will burn readily. This includes:

- *Flammable gases*
- *Flammable cryogenic materials*
- *Any liquid or gaseous material that is liquid while under pressure and has a flash point below 73 F (22.8 C) and a boiling point at atmospheric pressure of 100 F (37.8 C) (i.e., Class 1A flammable liquids). The NFPA 30 Standard published in 1996 is used for the definition of boiling point and flash point. (For purposes of defining this boiling point, atmospheric pressure is 14.7 psia (760mmHg). For mixtures that do not have a constant boiling point, the 20 percent evaporated point of a distillation performed in accordance with ASTM D 86, Standard Method of Test for Distillation of Petroleum Products, shall be considered to be the boiling point).*
- *Materials that will spontaneously ignite when exposed to air.*

1.7 WHEN YOU MUST COMPLY

A stationary source with a covered processes that has in excess of the threshold quantity of a regulated substance listed only in Tables 1 or 2 of Section 2770.5 shall submit the RMPs no later than the latest of the following dates:

- June 21, 1999;
- Three years after the date on which a regulated substance is first listed in Tables 1, 2, or 3 of Section 2770.5 of the CalARP regulation as required by Section 2745.10 (a) and (b); and,
- The date on which a regulated substance in Tables 1, 2, or 3 of the CalARP regulation is first present above a threshold quantity in a process as required by Section 2745.10 (a) and (b).

For further clarification, see “Timeframe” in Chapter 9.

CHAPTER 2: APPLICABILITY OF PROGRAM LEVELS

Imaginary evils are incurable. – Marie vonEbner-Eschenbach

2.1 WHAT DO THE PROGRAM LEVELS MEAN?

- Program 1: Processes with no *public receptors* within the distance to the *endpoint* from a worst-case release and with no accidents with specific offsite consequences within the past five years are eligible for Program 1, which imposes minimal requirements on the process.
- Program 2: Processes not eligible for Program 1 or subject to Program 3 are placed in Program 2, which imposes a streamlined prevention program.
- Program 3: Processes not eligible for Program 1 and subject to any of the following:
 1. OSHA's *Process Safety Management* (PSM) standard (federal and state), **OR**
 2. As described by one of the ten specified NAICS codes (see Appendix B), **OR**
 3. If OCFA determines that a facility imposes a "high risk" to environmental and public receptors. (For facilities that have chemicals which are listed only on Table 3.)

2.1.1 KEY POINTS TO REMEMBER

In determining program levels for your process(es), keep in mind the following:

- The program levels apply to individual processes and generally indicate the accidental release prevention measures necessary to comply with this regulation for the process, not the stationary source as a whole. The eligibility of one process for a program level does not influence the eligibility of other covered processes for other program levels.
- Any process can be eligible for Program 1, even if it is subject to federal or Cal/OSHA PSM or is in one of the NAICS codes.
- Program 2 is the default program level. There are no "standard criteria" for Program 2. Any process that does not meet the eligibility criteria for either Program 1 or 3 is subject to the requirements for Program 2.
- Only one program level can apply to a process. If a process consists of multiple production or operating units and storage vessels, the highest program level that applies to any segment of the process applies to all the parts.
- If you wish to implement a Risk Management Program at a higher level, OCFA will review it and aid in implementation (similar to OSHA's Voluntary Protection Program).

Program Eligibility Criteria		
Program 1	Program 2	Program 3
No offsite accident history.		Process is subject to OSHA

		PSM.
No public receptors in worst-case circle.	The process is not eligible for Program 1 or subject to Program 3.	Process one of the nine SIC or ten NAICS codes found on the following page.
Emergency response coordinated with local responders.		The AA determines the accident risk requires additional safety measures. (Chemicals which appear only on Table 3.)

WHAT IS A PUBLIC RECEPTOR?

The CalARP program defines public as "any person except an employee or contractor of the stationary source." Consequently, employees of other facilities that may share your site are considered members of the public even if they share the same physical location. Being "the public," however, is not the same as being a public receptor.

Public receptors include "offsite residences, institutions (e.g., schools and 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." Offsite means areas beyond your property boundary and "areas within the property boundary to which the public has routine and unrestricted access during or outside business hours."

WHAT IS A DISTANCE TO AN ENDPOINT FROM A WORST-CASE RELEASE?

The CalARP regulation includes *endpoints* for *regulated substances* and define a worst-case release scenario (see Chapter 4 or the *USEPA RMP Offsite Consequence Analysis Guidance* for more information). You will have to define a worst-case release (defined as the loss of the total contents of your largest vessel in a period of 10 minutes) and either use USEPA's *Offsite Consequence Analysis Guidance* (see the reference section in the preface for the web site), or conduct modeling on your own to determine the distance to the endpoint. Beyond that point, the effects on people are not considered to be severe enough to merit the need for additional action under the CalARP regulation.

To define the area of potential impact from the worst-case release, draw a circle on a map, using the process as the center and the distance to the endpoint as the radius. If there are any public receptors within that area, your process is not eligible for Program 1.

2.4.2 WHAT ARE THE NINE SIC AND TEN NAICS CODES?

The U.S. government, in cooperation with the Canadian and Mexican governments, has adopted the North American Industrial Classification System (NAICS) to replace Standard Industrial Codes (SIC). Program 3 requirements are applicable to a covered process if the process involves an activity in one of ten industrial NAICS codes. These NAICS codes were selected based on an analysis of accidental release data and represent activities for which a high proportion of sources reported releases. The following are the SIC and NAICS codes and the associated activity:

SIC & NAICS Code Industry

2611	32211	Pulp Mills
2911	32411	Petroleum Refineries
----	32511	Petrochemical Manufacturing
2812	325181	Alkalis and Chlorine Manufacturing
2819	325188	All Other Basic Inorganic Chemical Manufacturing
2865	325192	Cyclic Crude and Intermediate Manufacturing
2869	325199	All Other Basic Organic Chemical Manufacturing
2821	325211	Plastics Materials and Resin Manufacturing
2873	325311	Nitrogenous Fertilizer Manufacturing
2879	32532	Pesticide and Other Agricultural Chemical Manufacturing

Check EPA's web page (www.epa.gov/swercepp/) for current information on revisions relating to NAICS codes. See Appendix A.

2.4.3 HOW DO I DEFINE A NAICS CODE FOR A PROCESS?

Because the term "process" applies to a discrete section of your stationary source, when you determine the boundaries for a covered process, that process will normally consist of one industrial function and, therefore, one NAICS code. If you determine that a covered process consists of individual process units with different NAICS codes, that covered process should be broken down into separate process units with individual NAICS codes. When determining the boundary of an individual process unit,

focus primarily on the physical properties and operations involved within that process unit and then determine what NAICS code pertains to that particular process function. For example, if you manufacture hydrochloric acid, then use it to produce sanitation goods, the production of the sanitation goods would be assigned to NAICS code 325612. The manufacture of hydrochloric acid is considered NAICS code 325188. Because part of the covered process is in a listed NAICS code, the entire process is assigned to Program 3. Even if a process is considered a support activity for your main production (e.g., your warehouse or wastewater treatment system), you must assign it a separate, appropriate code (e.g., 562219 for waste treatment). This assignment does not affect your ability to consider such support processes as part of the same industrial group for purposes of defining your stationary source; the two decisions are separate.

2.4.4 NAICS CODES FOR A PROCESS VS. PRIMARY STATIONARY SOURCE NAICS CODE

For purposes of determining Program levels, you must identify a NAICS code for each individual process. Unless you have only one process, there may not be a relationship between a process NAICS code and your business' primary NAICS code. Your primary NAICS code may be similar to the NAICS codes that you determine for several if not all of your processes, but the primary NAICS code should not be used as a default value or to identify a NAICS code for a single process. The primary NAICS code is assigned based on the activity that contributes the largest percentage of your revenue and is the code you use when you complete census forms.

2.6 DEALING WITH PROGRAM LEVELS

2.6.1 WHAT IF I HAVE MULTIPLE PROGRAM LEVELS?

If you have more than one covered process, you may be dealing with multiple program levels in your accidental release prevention program.

If your stationary source has multiple processes subject to different program requirements, the CalARP regulations allow you to treat each group of processes in the same program level (and potentially each process) separately from the other processes and program level requirements. Nevertheless, you must submit a single RMP for all covered processes. Another option, if you prefer, is that you may choose to adopt the most stringent applicable program level requirements for all covered processes.

For example, you have three covered processes: one eligible for Program 1 and two subject to Program 3. You may find it more cost effective and efficient to follow the Program 3 requirements for all three covered processes. Remember that this is only an option. You must also make it clear in your RMP the program level of each individual process for compliance requirements, e.g., if Program 3 requirements are being applied to a Program 1 process, you want to make it clear in the RMP that the process is Program 1 to avoid Program 3 compliance requirements. OCFA will inspect and enforce Program 1 or 2 processes for compliance with the minimal Program 1 or 2 requirements even if you apply a higher-level prevention program to them. If you wish to take a more conservative approach and apply a higher level of Risk Management, OCFA will aid you by inspecting to the level you choose. However, OCFA will only enforce to the required level.

2.6.2 CAN THE PROGRAM LEVEL FOR A PROCESS CHANGE?

The CalARP Program regulations allow the AA to change the Program Level for a covered process; this provision applies only to a stationary source which is not otherwise required to submit an RMP to USEPA.

2.6.2a OCFA AUTHORITY TO CHANGE PROGRAM LEVELS

OCFA has the authority under Section 25534 of the Health and Safety Code and Section 2735.4(e)(3) of the CalARP regulations to reclassify state-only covered process program levels. OCFA may not reclassify a process subject to federal RMP regulations nor may OCFA reclassify a state-only process at a stationary source with multiple covered processes that must submit an RMP to the federal EPA for any process. OCFA may reclassify as follows at stationary sources with state-only processes:

- If OCFA determines that there is a significant likelihood of a regulated substances accidental release. OCFA may reclassify a covered process from Program 2 to Program 3.
- If OCFA determines that there is not a significant likelihood of a regulated accidental release. OCFA may reclassify a covered process from Program 3 to Program 2, or Program 2 to Program 1.

CHAPTER 3: FIVE-YEAR ACCIDENT HISTORY

Yesterday is not ours to recover, but tomorrow is ours to win or lose. – Benjamin Franklin

The five-year accident history is a component of the hazard assessment and involves an examination of the effects of an accidental release of one or more of the regulated substances or other extremely hazardous substances in the five years prior to the submission of each Risk Management Plan (RMP). A five-year accident history must be developed and submitted in the RMP for each covered process, including the processes in Program 1.

There is no difference between the state CalARP and federal RMP regulation in this area. No additional guidance will be offered beyond that in the USEPA RMP General Guidance.

CHAPTER 4: OFFSITE CONSEQUENCE ANALYSIS

Facts don't cease to exist because they are ignored. – Aldous Huxley

4.1 PURPOSE & INTRODUCTION

The purpose of this OCFA Offsite Consequence Analysis (OCA) guidance is threefold:

- The guidance is intended to supplement information resources that are already available in some form (e.g., USEPA's "General Guidance on Risk Management Programs" and "RMP Offsite Consequence Analysis Guidance").
- The guidance is intended to provide specific recommendations for dispersion modeling parameter selection where guidelines are not otherwise provided by USEPA or OES.
- The guidance is also intended to reflect the information or communication needs of the local community, the emergency responders, and the stationary source.

The CalARP regulations require offsite consequence analyses for *Worst-Case Scenarios* and *Alternative Release Scenarios*. This guidance describes the requirements of USEPA's Accidental Release Prevention Requirements and CalARP regulations, as well as OCFA expectations, with respect to OCAs. The EPA's Accidental Release Prevention Requirements (federal rule) and the CalARP regulations require you to perform a *Worst-Case Scenario* and an *Alternative Release Scenario* for *regulated substances*.

These guidelines focus on the technical aspects of scenario selection and reporting. They do not contain specific criteria for graphical reporting due to the variation in company resources, stationary source layouts, etc. You should work with OCFA representatives to provide consequence analysis results in a format appropriate for emergency response planning needs.

To conduct these offsite consequence analysis, you may use several tools USEPA has developed, methods and reference tables (called "Lookup Tables") or a software program called RMP*COMP™. You may also use a computer model of your own choice - from the public domain or proprietary. The USEPA RMP General Guidance describes these options in Chapter 4. If you choose to use a proprietary computer model, you will have to provide detailed documentation of the model to the OCFA, including the results of the validation studies performed under similar accidental release conditions.

4.2 WORST-CASE RELEASE SCENARIOS

MODELING ASSUMPTIONS

Topography: It is suggested, based on recent research, that the publicly available air dispersion model DEGADIS may be used for modeling the dispersion of denser-than-air substances when applying large surface roughness values of 1 meter to represent urban topographical conditions.

Release (source) diameter: This parameter is related to the geometry of the source vessel and type of release - it generally describes the size of the hole in a tank or pipeline through which the hazardous substance may escape during an accidental release. It is a necessary input parameter for many air dispersion models and is used to calculate the hazardous substance release rate.

For the worst-case toxic gas releases, where the entire vessel contents are assumed to be released over 10 minutes, an estimate of the source diameter must still be provided for dispersion modeling even though the worst case release rate requirements may make such a source diameter a purely theoretical value. In this situation, the release diameter has to be calculated using a theoretical approach. USEPA has provided guidance for such a theoretical calculation. The details are provided in the USEPA document "Application of Refined Dispersion Models for Hazardous/Toxic Air Releases, May 1993". A summary is provided below:

$$D = \sqrt{(2 / u) * (E / r)}$$

Where,

- D** = Release Diameter, m
- u** = Ambient Wind Speed, m/s
- E** = Emission Rate, kg/s
- r** = Release Density, kg/m³

ESTIMATING RELEASE RATES

Toxic Gases: For dispersion modeling of gases liquefied under pressure, you should consider the formation of aerosols and determine the density of the cloud consisting of vapor and aerosol (especially for anhydrous ammonia, hydrogen fluoride, chlorine, and sulfur dioxide). The results of past studies have shown that clouds generated during accidental releases of anhydrous ammonia and hydrogen fluoride (stored at ambient temperature) are denser than air.

4.3 ALTERNATIVE RELEASE SCENARIOS

ACCEPTABLE ALTERNATIVE SCENARIOS

You should discuss your *Alternative Release Scenario* with the OCFA before performing the OCA, to ensure that the OCFA understands your selection of the *Alternative Release Scenario*. You must consider your accident history (a minimum of five years) in selecting the *Alternative Release Scenario*.

MODELING ASSUMPTIONS

Wind Speed and Atmospheric Stability: An additional source for obtaining the representative meteorological data is the local air quality management district or air pollution control district. If site-specific or locally representative meteorological data is not available, a wind speed of 3.0 meters per second and D stability class, if reasonable, may be used for performing the offsite consequence analysis.

ESTIMATING RELEASE RATES

Toxic Gases: For dispersion modeling of gases liquefied under pressure, you should consider the formation of aerosols and determine the density of the cloud consisting of vapor and aerosol (especially for anhydrous ammonia, hydrogen fluoride, chlorine, and sulfur dioxide). The results of past studies have shown that clouds generated during accidental releases of anhydrous ammonia and hydrogen fluoride (stored at ambient temperature) are denser than air.

4.4 CONDUCTING THE ANALYSIS AND ESTIMATING OFFSITE RECEPTORS

You may use USEPA's *RMP Offsite Consequence Analysis Guidance* to carry out your consequence analysis, if you choose. Results obtained using the methods in USEPA's Guidance are expected to be conservative. Conservative assumptions have been introduced to compensate for high levels of uncertainty.

USEPA's guidance is optional, and you are free to use other dispersion models, fire or explosion models, or computation methods provided that:

- They are publicly or commercially available or are proprietary models that you are willing to share with the implementing agency;
- They are recognized by industry as applicable;
- They are appropriate for the chemicals and conditions being modeled;
- You use the applicable definitions of Worst-Case Scenarios; and
- You use the applicable parameters specified in the rule.

Complex models that can account for many site-specific factors may give more accurate estimates of offsite consequences than the simplified methods in USEPA's guidance, particularly for Alternate Release Scenarios, for which USEPA has not specified many assumptions. However, complex models may be expensive and do require considerable expertise to use; USEPA's optional guidance is designed to be simple and straightforward. You will need to consider the trade-off in deciding how to carry out your required consequence analyses.

Whether you use USEPA's guidance or another modeling method, remember that the results you obtain from modeling your Worst-Case Scenario may differ greatly from the Alternate Release Scenario. The Worst-Case Scenario assumptions (i.e., source term conditions, meteorological conditions, etc.) are very conservative, and, regardless of the model used, you can expect very conservative results. Results from modeling the Alternate Release Scenario will be less conservative than the Worst-Case Scenario. These results will depend on many site-specific conditions (e.g., wind speed and other meteorological conditions) and factors related to the release (e.g., when and how the release occurs, how long it takes to stop it). You should make reasonable assumptions regarding such factors in developing your Alternate Release Scenario. Different models will likely provide different results, even with the same assumptions.

ESTIMATING AND REPORTING OFFSITE RECEPTORS

OTHER PUBLIC RECEPTORS

- A. For the Worst-Case Scenario submission, you only need to indicate whether certain specified public receptors are within the *vulnerability zone* (you do not have to count them or list them individually). However, backup data to substantiate these public receptor findings should be kept at the facility.

These specific public receptors include: child day-care and long-term healthcare facilities (convalescent homes), schools, residential areas, hospitals, prisons, public recreational areas or arenas, and commercial or industrial areas. You will need to list all of the environmental receptors in both the *Worst Case and Alternative Release Scenarios*. See section B for a description.

Additionally, you may want to include in the Risk Management Plan a legibly prepared map for the *Worst Case Scenario* showing the location of the regulated facility and including major features and roads within the zone of vulnerability. The map should be of appropriate scale and be legible. The minimum size of the map should be 8 ½" x 11". Submission of such a map is optional, but recommended as it could be useful for communication of risk to the public and assisting outside agencies with emergency response planning.

- B. For each Alternate Release Scenario, you should include in the Risk Management Plan a legibly prepared map showing the locations of the facility and the following sensitive receptors: child day-care facilities, long-term health-care facilities, schools, hospitals, residential areas, and prisons within the zone of vulnerability. If using a dispersion model, provide a footprint of a release in the direction of the prevailing wind.

In case the radius of the vulnerability zone is less than one-half mile, the sensitive receptor map should be developed for a radius of one-half mile to comply with the California Health and Safety Code, Chapter 6.95, Article 1, Section 25507.10. The sensitive receptors map should show major features and roads, including the names of freeways and major roads. The map should be of appropriate scale and be legible. The minimum size of the map should be 8 ½" x 11".

- C. For the Alternate Release Scenario, a list of sensitive receptors within the vulnerability zone should be developed and included in the Risk Management Plan. This list should include name, address, and telephone number of each sensitive receptor.

Information on child day-care and long-term healthcare facilities in your area may be obtained by purchasing a directory through the California Department of Social Services Community Care Licensing Office in Sacramento. Send the request on letterhead to Myran Crawford, 744 P Street, MS 19-50, Sacramento, 95814 or call (916) 327-0982. The OCFA also retains one copy, which may be viewed at the offices of the Hazardous Materials Services Section (HMSS).

OFFSITE CONSEQUENCE ANALYSIS TECHNICAL DOCUMENT

The following records shall be maintained on the Offsite Consequence Analyses in a Technical Document. This Technical Document will be subject to submittal upon OCFA's request and/or by onsite auditing by OCFA:

1. Include a table of contents.
2. Place divider tabs between sections of the OCA.
3. For the **WORST-CASE SCENARIO**, describe the vessel or pipeline and substance selected as worst-case, assumptions and parameters used, and the rationale for selection. Assumptions should include any *passive mitigation* that was assumed to limit the quantity that could be released.
4. For the **ALTERNATIVE RELEASE SCENARIO**, describe the scenarios identified, assumptions and parameters used, and the rationale for the selection of specific scenarios. Assumptions shall include use of any *active and passive mitigation* that was assumed to limit the quantity that could be released.
5. Include the same information required in the *RMP Public Document* in this section.
6. If using a computer air model, include the computer-generated runs of the scenario(s).
7. If using a proprietary model, include the test runs and calibrations for the model.

Please see the next page for the modeling parameters.

Required Parameters for Modeling	
Worst Case	Alternative Scenario
ENDPOINTS	
Endpoints for toxic substances are specified in CalARP regulations, Appendix A.	Endpoints for toxic substances are specified in CalARP regulations, Appendix A.
For flammable substances, endpoint is overpressure of 1 pound per square inch (psi) for vapor cloud explosions.	For flammable substances, endpoint is overpressure of 1 psi for vapor cloud explosions, or Radiant heat level of 5 kilowatts per square meter for 40 seconds for heat from fires (or equivalent dose), or Lower flammability limit (LFL) as specified in NFPA documents or other generally recognized sources.
WIND SPEED/STABILITY	
Use wind speed of 1.5 meters per second and F stability class unless you can demonstrate that local meteorological data applicable to the site show a higher minimum wind speed or less stable atmosphere at all times during the previous three years. If you can so demonstrate, these minimums may be used. USEPA Guidance assumes 1.5 meters per second and F stability.	For site-specific modeling, use typical meteorological conditions for your site. USEPA Guidance assumes wind speed of 3 meters per second and D stability.
AMBIENT TEMPERATURE/HUMIDITY	
For toxic substance, use the highest daily maximum temperature and average humidity for the site during the past three years. USEPA Guidance assumes 25°C (77°F) and 50 percent humidity.	You may use average temperature/humidity data gathered at the site or at a local meteorological station. USEPA Guidance assumes 25°C and 50 percent humidity.
HEIGHT OF RELEASE	
For toxic substances, assume a ground level release.	Release height may be determined by the release scenario. A ground level release is assumed.
TOPOGRAPHY	
Use urban or rural as appropriate.	Use urban or rural as appropriate.
DENSE OR NEUTRALLY BUOYANT GASES	
Tables or models used for dispersion of regulated toxic substances must appropriately account for gas density. See Tables 1-4 and 5-8 in the USEPA Guidance.	Tables or models used for dispersion must appropriately account for gas density. See Tables 10-13 and 14-17 in the USEPA Guidance.
TEMPERATURE OF RELEASED SUBSTANCE	
Consider liquids (other than gases liquefied by refrigeration) to be released at the highest daily maximum temperature, based on data for the previous three years, or at process temperature, whichever is higher. Assume gases liquefied by refrigeration at atmospheric pressure are released at their boiling points. 25°C or the boiling point of the released substance may be used.	Substances may be considered to be released at a process or ambient temperature that is appropriate for the scenario. 25°C or the boiling point of the released substance may be used.

CHAPTER 5: MANAGEMENT SYSTEM

A successful Risk Management Program is merely a by-product of business excellence.

5.1 GENERAL INFORMATION

If you have at least one Program 2 or Program 3 process (see Chapter 2 for guidance on determining the Program levels of your processes), the management system provision in Section 2735.6 of the CalARP regulation requires you to:

- ◆ Develop a management system to oversee the implementation of the CalARP program elements;
- ◆ Designate a qualified person or position with the overall responsibility for the development and integration of the CalARP program elements; and
- ◆ Document the people or positions and define the lines of authority through an organizational chart or other similar document, if you assign people or positions other than the person or position with overall responsibility to implement individual CalARP program requirements.

5.2 HOW TO MEET THE MANAGEMENT SYSTEM REQUIREMENTS

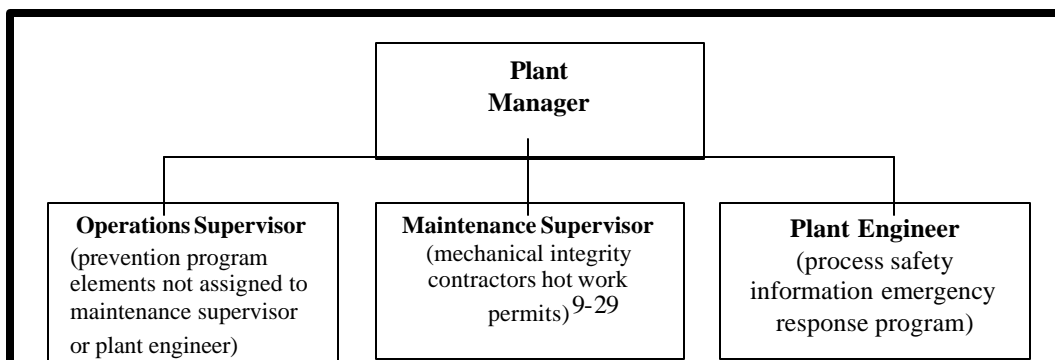
The guidance that follows refers to small, medium, and large facilities. Small, medium and large are not defined. OCFA understands that sources covered by the CalARP regulations are diverse and that you are in the best position to decide how to appropriately implement and incorporate the management system requirement at your stationary source. Therefore, you should assess your operation and choose an appropriate management system that meets your needs.

5.2.1 WHAT DOES THIS MEAN FOR YOU AS A SMALL STATIONARY SOURCE?

The management system requirement does not apply to Program 1 processes. As a small stationary source that must comply with this provision, you most likely have one or two Program 2 or 3 processes. To begin, you may either identify the qualified person *or* position with overall responsibility for implementing the CalARP program elements at your stationary source. The person in this position should have signature authority and be able to accept responsibility for the program on behalf of the company. As a small stationary source, it may make sense and be practical to identify the name of the qualified person, rather than the position. Further, changes to this data element in your RMP do not necessarily require that you update your entire RMP.

An example organizational chart for a small stationary source is Exhibit 5-1.

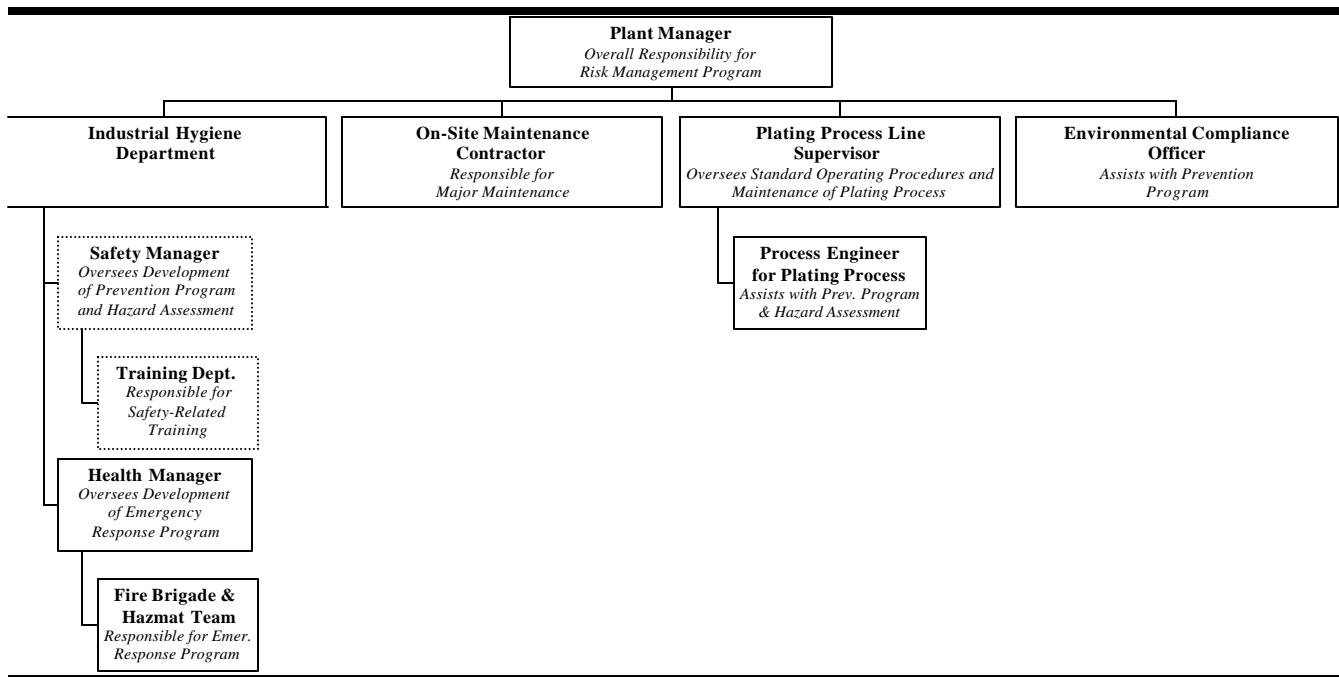
EXHIBIT 5-1



5.3 SPECIFIC GUIDANCE FOR MEDIUM STATIONARY SOURCES

If your stationary source is split into several relatively distinct process areas or divisions, you may want to select a person or position to be responsible for the CalARP program within that division (e.g., a process area supervisor or equivalent position). If so, then each person responsible needs to certify his or her position of responsibility within the RMP and should have signature authority for their portion of the RMP on behalf of the company. This means that they should be able to accept legal responsibility for those programs. Communication between divisions becomes extremely important. For example, the person in charge of emergency response should be notified when a process change is made that might affect the hazards in a particular area of your stationary source. The person in charge of implementing the CalARP program elements in each process must ensure that appropriate changes are made within the process area. Exhibit 5-2 provides an organizational chart for a source with one Program 2 process and one Program 3 process.

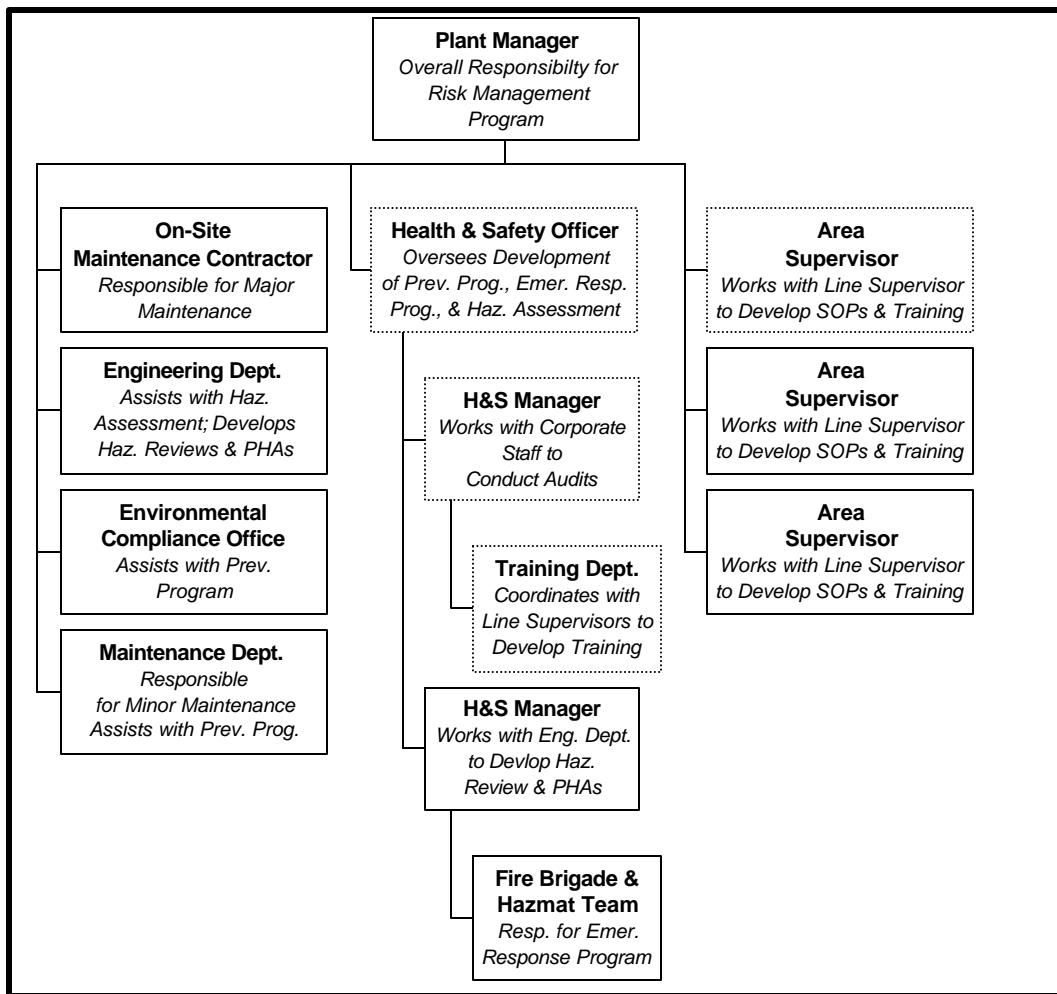
Exhibit 5-2



5.4 SPECIFIC GUIDANCE FOR LARGE STATIONARY SOURCES

This section is for stationary sources with a combination of distinct process areas and different groups responsible for certain tasks (e.g., safety, maintenance, emergency response, audits) throughout the stationary source. The organizational chart in this example applies to a relatively complex stationary source in which one person has overall responsibility for the Program (as is required). This person needs to be able to accept responsibility for the entire program on behalf of the company. In addition, several different people maintain responsibility for safety, maintenance, etc., and three process supervisors are responsible for changes within their process areas. Exhibit 5-3 shows a possible organizational chart for a large chemical manufacturer.

EXHIBIT 5-3



Note: There is no difference between the state CalARP and federal RMP regulation in this area. No additional guidance is offered beyond that in the USEPA RMP General Guidance.

CHAPTER 6: LEVEL 2 PREVENTION PROGRAM

The more hidden the venom, the more dangerous it is. – Marguerite deValoes

6.1 ABOUT THE PROGRAM 2 PREVENTION PROGRAM

The Program 2 prevention program in Article 5 of Title 19 CCR identifies the seven basic elements that are the foundation of sound prevention practices — Safety Information, Hazard Review, Operating Procedures, Training, Maintenance, Compliance Audits, and Accident Investigation. The good news is that through meeting other federal regulations, state laws, industry codes and standards, and good engineering practices, you probably are already in compliance with most of the Program 2 prevention elements.

SUMMARY OF PROGRAM 2 PREVENTION PROGRAM

Subpart C of Title 19	Section Title
Section 2755.1	Safety Information
Section 2755.2	Hazard Review
Section 2755.3	Operating Procedures
Section 2755.4	Training
Section 2755.5	Maintenance
Section 2755.6	Compliance Audits
Section 2755.7	Incident Investigation

You must integrate these seven elements into a risk management program that you and your employees implement on a daily basis. Understanding and managing risks must become part of the way you operate. Doing so will provide benefits beyond accident prevention as well. Preventive maintenance and routine inspections will lessen the number of equipment failures and down time; well trained workers, aware of optimum operating parameters, will allow you to gain the most efficient use of your processes.

A. SAFETY INFORMATION

You must compile and maintain safety information related to the regulated substances and process equipment for each Program 2 process. You probably have much of this information already, because you would have developed it to comply with OSHA or other rules. The USEPA has limited the required information to what is likely to apply to the processes covered under the Program 2 program.

SAFETY INFORMATION REQUIREMENTS

Information you must compile and maintain:	You must ensure:	You must update the safety information if:
<ul style="list-style-type: none"> ✓ Material Safety Data Sheets ✓ Maximum intended inventory ✓ Safe upper and lower parameters ✓ Equipment specifications ✓ Codes & standards used to design, build, and operate the 	<ul style="list-style-type: none"> ✓ That the process is designed in compliance with recognized codes and standards ✓ That the process is operating in a safe manner 	<ul style="list-style-type: none"> ✓ There is a major change at your business that makes the safety information inaccurate. Check with OCFA if you need to assess whether a change is considered “major.”

process.		
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After you have documented your safety information, you should double-check it to be sure that the files you have reflect the equipment you are currently using. It is important to keep this information up to date. Whenever you replace equipment, be sure that you put the new equipment specifications in the file and consider whether any of your other prevention elements need to be reviewed to reflect the new equipment. Also, it is important that your operations personnel be able to use the information in an emergency. For example, Material Safety Data Sheets (MSDS) must not only be available to personnel, but they must know the location of the MSDS(s) and how to interpret them.

B. HAZARD REVIEW

You do not have to perform a full *Process Hazard Analysis* for a Program 2 process, but you must conduct a *hazard review*. The hazard review will help you determine whether you're meeting applicable codes and standards, identify and evaluate the types of potential failures, and focus your emergency response planning efforts. The hazard review is key to understanding your operation and continuing to operate safely. You must identify and review specific hazards and safeguards of your Program 2 processes. The OCFA strongly discourages "What-If" studies because it is very difficult to ensure a comprehensive study using this methodology. If you choose to use a "What-If" methodology for your study, then OCFA will probably have many more follow-up questions than would normally be asked under another methodology (such as "What-If Checklist", or "HAZOP") to ensure completeness of the Process Hazards Reviews.

The hazard review shall include the consideration of applicable external events (see the External Events table following), including seismic events. These are events which might occur outside the boundaries of the process and/or may be the result of a malicious or intentional act, which could have a deleterious impact on the process perhaps resulting in an accidental release of a regulated substance.

PARIAL LIST OF EXTERNAL EVENTS FOR CONSIDERATION IN HAZARD REVIEW OR PROCESS HAZARD ANALYSIS

EVENT	NOTES AND COMMENTS
Aircraft Impact	Sites less than three miles from airport have higher frequencies
Avalanche	Can be excluded from most sites in the United States
Coastal Erosion	Also review external flooding
Drought	May impact the availability of cooling water for plant site
External Flooding	Review rivers, lakes, streams, and storm water drainage impacts
Extreme Winds or Tornadoes	Site specific; extreme winds can create large numbers of missiles
Fire	Review location of flammable-containing systems near plant site; gasoline storage, LPG, fuel oil, etc.
Fog	May increase frequency of accidents
Forest/Wild Fire	Review location of plant relative to large areas of

	standing vegetation
Frost	Frost heave may damage foundation of plant structures
Hail	Include with review of possible missile impacts on plant
High Tide, Lake Level, or River Stage	Include in external flooding review
High Summer Temperature	Review impact on vapor pressure of chemicals in storage systems
Hurricane	Site specific; include impacts under storm surge and extreme winds
Ice Cover	Ice blockage of rivers, loss of cooling, and mechanical damage due to falling ice are possible
Industrial or Military Facility Accident	Site specific (What other facilities are near plant site?)
Internal Flooding	Review failure of any large water storage tank on plant site; blockage of storm-water sewers
Lightning	Should be considered during design; computer control systems are vulnerable; may also damage plant power grid
Low Lake or River Level	May halt raw materials and product shipping; alternative truck or rail shipping may be used
Low Winter Temperature	Thermal stresses and embrittlement may occur in storage tanks
Meteorite Impact	Shrapnel and large pieces of pressure vessels are possible from explosions; rocks, bolts, and lumber may become missiles as a result of extreme winds
Nearby Pipeline Accident	Site specific (What pipelines are nearby?); un-confined vapor cloud explosions, spreading pool fires, and toxic chemical release possible
Intense Precipitation	Include under external and internal flooding
Release of Chemicals from On-Site Storage	Toxic chemicals may impair operators; corrosive chemicals may damage equipment and instruments
River Diversion	Include under low river stage
Sabotage*	Disgruntled employee deliberately damages/destroys vital systems
Sandstorm	May damage equipment and block air intakes
Seiche	Include under flooding
Seismic Activity*	Review earthquake classification of site; may require detailed analysis
Shipwreck	May halt raw material and product shipping; alternative truck or railing shipping may be used
Snow	Review design load of roofs; may increase frequency of in-plant accidents; include snow melt under high river and flooding
Soil Shrink/Swell or Consolidation	May damage structure foundations or roads
Storm Surge	Include under flooding; impact surge may damage structures
Terrorist Attack*	High explosives and weapons may be used against selected targets; essential personnel may be ransomed or killed
Transportation Accidents	Site-specific; accident on major highway may cause plant evacuation
Tsunami	Site-specific; include under flooding and storm surge
Toxic Gas	May impair operations
Turbine-generated Missiles	Review location of high-speed rotating equipment
Volcanic Activity	May cause extensive downstream flooding; volcanic ash may damage equipment and plug air intakes
War	Damage caused by high-intensity combat will probably be greater than that caused by worst credible case from

	plant site
Waves	Include under external flooding
Y2K*	Ensure that systems are Y2K compliant or ensure that procedures/equipment are in place to mitigate problems resulting from Y2K issues

* These items are required to be addressed in the Risk Management Program. They may be considered as external events during the PHA, or may be covered in separate studies.

SEISMIC ASSESSMENTS

The intent of the CalARP Program seismic assessment is to provide reasonable assurance that a release of any *regulated substance* having offsite consequences will not occur as a result of an earthquake. For those items of equipment requiring seismic evaluation, you are required to follow the “Guidance for CalARP Program Seismic Assessments” document included in Appendix B.

Only equipment items that are part of a *covered process* require a seismic assessment. The seismic assessments may range from review of a previous evaluation to a completely new evaluation that results in the need for seismic upgrades. Specific items of equipment that store or process regulated substances in excess of the threshold quantity must be evaluated. Other equipment that store or process regulated substances in covered processes should receive assessments commensurate with the potential that their seismically induced failure during an earthquake could result in offsite consequences.

Facilities should consider a phased seismic assessment plan:

- Phase 1 – Determine the equipment in each covered process requiring evaluation, review previous seismic evaluations to determine current compliance, and outline a strategy for field inspection;
- Phase 2 - Perform a field inspection, if necessary;
- Phase 3 - Perform detailed evaluations, if necessary; and
- Phase 4 – Design upgrades and schedule their implementation.

Facilities that have recently performed seismic evaluations under *RMPP* or other programs, and can demonstrate that the equipment is in current compliance with CalARP requirements and have recently inspected the equipment may only have to perform Phase 1. Equipment that is in current seismic compliance but has not been inspected for several years may only require Phase 1 and 2 evaluations. Items in covered processes that have not previously received a seismic assessment, or are no longer in compliance, may require a partial or full evaluation if their failure could result in offsite consequences.

It is the responsibility of your facility (and your seismic consultant if you have one) to set up a seismic assessment plan and coordinate it with OCFA to help prevent an offsite release as the result of an earthquake.

HAZARD REVIEW REQUIREMENTS

Conduct a review & identify...	Use a guide for conducting the review	Document results & resolve problems	Update your Hazard review
<ul style="list-style-type: none"> ✓ The hazards associated with the Program 2 process & regulated substances ✓ Opportunities for equipment malfunction or human error that could cause a release ✓ Safeguards that will control the hazards or prevent the malfunction or error ✓ Steps to detect or monitor releases 	<ul style="list-style-type: none"> ✓ You may use any approved methodology to conduct the Hazard Review. Contact OCFA to coordinate ✓ For a process designed to industry standards (e.g. NFPA-58) you may use the design standards as a guide for your chosen methodology 	<ul style="list-style-type: none"> ✓ Your hazard review must be documented and you must show that you have addressed problems 	<ul style="list-style-type: none"> ✓ You must update your review at least once every five years or whenever there is a major change in the process ✓ You must resolve problems identified in the new review before you startup the changed process

Record the Results

The results should be recorded by the team scribe during the Hazard Evaluation process. An example of a recording format is attached in Appendix C.

Hazard Evaluation Document

The Hazard Evaluation Document **should include the following:**

1. A table of contents.
2. Place dividers and tabs between the sections of the Hazard Evaluation document.
3. Describe the regulated substance process(es) studied, including a review of the chemistry and chemical reactions that take place in the system.
4. Provide a copy of the process flow diagram and color code if required by the methodology chosen.
5. List the individual pieces of equipment (i.e. pumps, reactors, heat exchangers, etc.) and piping that were studied.
6. If using a "What-If", provide a copy of the "What-If" questions used in the evaluation.
7. Provide copies of the session worksheets.
8. Include a table of the individuals involved in the Hazard Evaluation, the role of each individual, and their qualifications. See sample sign-in sheet and resume form in Appendix C.

9. Include a table of all the operating procedures for the equipment analyzed during the Hazard Evaluation.
10. Include a table of all the documents available during the Hazard Evaluation.
11. Provide a description of the methodology used to rank scenarios. If scenarios are not ranked, explain how the high risk items were separated. Sample Likelihood and Risk Ranking Matrices are included in Appendix C.
12. Describe the database or sources used to estimate equipment failure.
13. Provide a table of all the recommendations from the Hazard Evaluation by individual equipment according to process flow and in order of priority. Sort recommendations by risk. For all recommendations that will not be addressed, explain why. Include the node number (if appropriate) in the recommendation table. Sample Recommendations Format is included in Appendix C.
14. Provide a table of any other references used in the hazard analysis.
15. Consideration of applicable *external events*, including seismic events.

The minimum required team for a Hazard Evaluation should be:

1. Someone who is familiar with the requirements and methodology of the Process Hazard Review,
2. Someone who is familiar with the equipment, and
3. Someone who understands the technical issues involved.

The final Hazard Evaluation report should include documentation that the team was qualified to perform the Hazard Evaluation.

C. OPERATING PROCEDURES

You must prepare written operating procedures that give workers clear instruction for safely conducting activities involving a covered process. You may use standardized procedures developed by industry groups or provided in model risk management programs as the basis for your operating procedures, but ensure that these standard procedures are appropriate for your activities. If necessary, you must update your Program 2 operating procedures whenever there is a major change and before you start up the changed process. The following table briefly summarizes what your operating procedures **must address**.

OPERATING PROCEDURES REQUIREMENTS

Steps for each operating phase	Operating limits
<ul style="list-style-type: none"> ✓ Initial start up ✓ Normal operations ✓ Temporary operations ✓ Emergency shutdown ✓ Emergency operations ✓ Normal shutdown ✓ Startup following a normal or emergency shutdown or a major change 	<ul style="list-style-type: none"> ✓ Consequences of deviating ✓ Steps to avoid, correct deviations

You must update your procedures whenever you change your process in a way that alters the steps needed to operate safely. If you add new equipment, you will need to expand your procedures or develop a separate set to cover the new items. Whenever you change your safety information, you should review your procedures to be sure that they are still appropriate. Any time you conduct a hazard

review, check your operating procedures as you implement changes to address hazards. Operators must follow the written operating procedures.

What Kind Of Documents Do I Have To Keep?

You must maintain a current set of operating procedures. You are not required to keep old versions; in fact, you should avoid doing so **because** keeping copies of outdated procedures may cause confusion. You **should date** all procedures so you will know when they were last updated.

Can I use electronic copies? Yes, but security must be maintained to ensure that proper procedures are followed when updating occurs. Also, all operations personnel must have access to them.

D. TRAINING

Training programs often provide immediate benefits because trained workers have fewer accidents, damage less equipment, and improve operational efficiency. Training gives workers the information they need to understand how to operate safely and why safe operations are necessary. A training program, including refresher training, is the key to ensuring that the rest of your prevention program is effective. You already have some type of training program because you must conduct training to comply with OSHA's Hazard Communication standard (29 CFR 1910.1200).

The following things may be useful in developing your training program:

- **Who needs training?** Clearly identify the employees who need to be trained and the subjects to be covered.
- **What are the objectives?** Specify learning objectives, and write them in clear, measurable terms before training begins. Remember that training must address the process operating procedures.
- **How will you meet the training objectives?** Tailor the specific training modules or segments to the training objectives. Enhance learning by including hands-on training like using simulators whenever appropriate. Make the training environment as much like the working environment as you can, consistent with safety. Allow your employees to practice their skills and demonstrate what they know.
- **Is your training program working?** Evaluate your training program periodically to see if your employees have the skills and know the routines required under your operating procedures. Make sure that language or presentations are not barriers to learning. Decide how you will measure and document your employees' competence.
- **How will your program work for new hires and refresher training?** Make sure all workers - including maintenance and contract employees - receive initial and refresher training. Note how you determine and document the frequency and scope of the refresher training. If you make changes to process chemicals, equipment, and technology, make sure that involved workers understand the changes and the effects on their job. **How often does training need to be done?**

- **Accidents or threatened releases:** Any accident, release or threatened release should always result in evaluation of the training program.

The true test of your Training Program is: Do your operators know what to do and when?

What Kind of Documentation Do I Need to Keep?

You should keep documentation of your training program. An attendance log for any formal training courses and refresher training is required to ensure that everyone who needs to be trained is trained. Such logs will help you when you perform a compliance audit.

E. MAINTENANCE/MECHANICAL INTEGRITY

You must prepare and implement procedures for maintaining the mechanical integrity of process equipment, and train your workers in the maintenance procedures. You may use procedures or instructions from equipment vendors, Federal or state regulations, or industry codes as the basis of your maintenance program. You should develop a schedule for inspecting and testing your equipment based on manufacturers' recommendations, industry standards, and your own experience. The following is a summary of the elements of a maintenance program:

Written procedures	Training	Inspection & testing
<ul style="list-style-type: none"> ✓ You may use someone else's procedures as the basis for your program. If you choose to develop you own, you must write them down 	<ul style="list-style-type: none"> ✓ Train process maintenance employees in process hazards, and how to avoid or correct an unsafe condition. ✓ Make sure this training covers the procedures applicable to safe job performance 	<ul style="list-style-type: none"> ✓ Inspect & test process equipment ✓ Use recognized and generally accepted good engineering practices ✓ Follow a schedule that matches the manufacturer's recommendations or that prior operating experience indicates is necessary

What Kind of Documentation Must I Keep?

You must keep your written procedures and schedules as well as any agreements you have with contractors. You should also keep training logs or maintenance logs. Without some record, you would have to rely on workers' memories about when something was last checked. As workers leave or change jobs at your company, it can be difficult to keep track of when inspections and tests were done. Maintaining a record of when something was last done or is scheduled to be done next can help keep your program working smoothly.

F. COMPLIANCE AUDITS

At least every three years, you must certify that you have evaluated compliance with the requirements for the prevention program for each covered process. At least one person on your audit team must be knowledgeable about the covered process. You must develop a report of your findings, determine and document an appropriate response to each finding, and document that you have corrected any deficiency.

What Kind of Documentation Must I Keep?

You must keep a written record of the findings and actions for the last two compliance audits. When a compliance audit is over five years, you may dispose of it. You may also want to keep a record of who conducted the audit, but you are not required to do this.

G. INCIDENT INVESTIGATION

You must investigate each incident which resulted in, or could have resulted in, a “catastrophic release” of a regulated substance. A catastrophic release is one that presents an imminent and substantial endangerment to public health and the environment. The following table briefly summarizes the steps you must take for investigating incidents. You should also consider investigating minor accidents or near misses because they may help you identify problems that could lead to more serious accidents. Under OCFA’s Hazardous Materials and Business Plan Program, all releases or threatened releases of hazardous materials are required to be reported to HMSS at (714) 744-6699.

INCIDENT INVESTIGATION REQUIREMENTS

✓ Initiate an investigation promptly.	Begin investigating no later than 48 hours following the incident. An investigation “team” is recommended.
✓ Summarize the investigation in a report.	This report will include at a minimum: 1) The date of the incident and date it began, 2) A description of the incident, 3) Factors contributing to the incident, and 4) Recommendations. Remember that identifying the root cause may be more important than identifying the initiating event. Also, the purpose of the report is to help management take corrective action.
✓ Address the team's findings and recommendations	Establish a system to address the incident report findings and recommendations, and document resolutions and corrective actions.
✓ Review the report with your staff and contractors	You must share the report - its findings and recommendations - with affected workers whose job tasks are relevant to the incident. Document how you shared the report with them.
✓ Retain the report.	Keep incident investigation summaries for five years.

What Kind of Documentation Must I Keep:

You must maintain the written summary report of the accident, recommendations, and actions for 5 years. A sample format is found in the Appendix D. Note that the form also includes accident data that you will need for the five-year accident history. This data should be part of the incident investigation report, since they can be used later to create the accident history.

CHAPTER 7: LEVEL 3 PREVENTION PROGRAM

We need to restore the full meaning of that old word, duty. It is the other side of rights. – Pearl Buck

7.1 ABOUT THE PROGRAM 3 PREVENTION PROGRAM

Many of you will need to do little that's new to comply with the Program 3 prevention program, because you already have the PSM program in place. However, if your process is in Program 3 and is not subject to PSM, you may have to develop a new program virtually identical to PSM. Whether you are building on the PSM standard or creating a new program, keep these things in mind:

- CalARP and PSM have different authorities and objectives. OSHA PSM addresses releases that affect worker safety, while CalARP addresses releases that affect the public and the environment. If you are already complying with the PSM standard, your PHA team may have to review your PHAs, including recommendations for worker safety for hazards that could affect the public or the environment **offsite**.
- Integrate the elements of your prevention program. You must ensure that a change in any single element of your program leads to a review of other elements to identify any effect caused by the change.
- Most importantly, make accident prevention an institution at your site. Like the entire risk management program, a prevention program is more than a collection of written documents. It is a way to make safe operations and accident prevention the way you do business every day.

There are twelve elements in the Program 3 prevention program. Two OSHA elements are not included: Emergency Response is dealt with separately in CalARP; and the OSHA Trade Secrets requirement (provision of trade secret information to employees) is beyond the CalARP statutory authority.

SUMMARY OF PROGRAM 3 PREVENTION PROGRAM

Section	Title	OSHA PSM Reference
Section 2760.1	Process Safety Information	PSM Standard Section 1910.119(d)
Section 2760.2	Process Hazard Analysis (PHA)	PSM Standard Section 1910.119(e)
Section 2760.3	Operating Procedures	PSM Standard Section 1910.119(f)
Section 2760.4	Training	PSM Standard Section 1910.119(g)
Section 2760.5	Mechanical Integrity	PSM Standard Section 1910.119(j)
Section 2760.6	Management of Change	PSM Standard Section 1910.119(l)
Section 2760.7	Pre-Startup Review	PSM Standard Section 1910.119(i)
Section 2760.8	Compliance Audits	PSM Standard Section 1910.119(o)
Section 2760.9	Incident Investigation	PSM Standard Section 1910.119(m)
Section 2760.10	Employee Participation	PSM Standard Section 1910.119(c)
Section 2760.11	Hot Work Permits	PSM Standard Section 1910.119(k)
Section 2760.12	Contractors	PSM Standard Section 1910.119(h)

A. PROCESS SAFETY INFORMATION

The following table summarizes the safety information requirements.

PROCESS SAFETY INFORMATION

For chemicals, you must complete information on:	For process technology, you must provide:	For equipment in the process, you must include:
<ul style="list-style-type: none"> ✓ Toxicity ✓ Permissible exposure limits ✓ Physical data ✓ Reactivity ✓ Corrosivity ✓ Thermal & chemical stability ✓ Hazardous effects you can foresee if you mixed materials together accidentally 	<ul style="list-style-type: none"> ✓ A current block diagram or simplified process flow diagram ✓ process chemistry ✓ Maximum intended inventory of the CalARP-regulated chemical ✓ Safe upper & lower limits for such items as temperature, pressure, flows, or composition ✓ An evaluation of the consequences of deviation 	<ul style="list-style-type: none"> ✓ Materials of construction ✓ Piping & instrumentation diagrams (P&IDs) ✓ Electrical classification ✓ Relief system design & design basis ✓ Ventilation system design ✓ Design codes & standards employed ✓ Safety systems

B. PROCESS HAZARD ANALYSIS

A *process hazard analysis (PHA)*, is one of the most important elements of the process safety management program. A PHA is a comprehensive, organized and systematic effort to identify and analyze the significance of potential hazards associated with the processing or handling of highly hazardous chemicals. A PHA provides information that will assist employers and employees in making decisions for improving safety and reducing the consequences of unwanted or unplanned releases of hazardous chemicals.

A PHA is directed toward analyzing potential causes and consequences of fires, explosions, releases of toxic or flammable chemicals, and major spills of hazardous chemicals. The PHA focuses on equipment, instrumentation, utilities, human actions (routine and non-routine), and external factors that might impact the process. These considerations assist in determining the hazards and potential failure points or failure modes in a process.

The PHA shall include the consideration of external events (see table in Chapter 6), including seismic events. These are events which might occur outside the boundaries of the process and/or may be the result of a malicious or intentional act, which could have a deleterious impact on the process, perhaps resulting in an accidental release of a regulated substance. PHAs, completed for other regulations where external events were not considered, shall be updated to include them in the analysis.

PROCESS HAZARD ANALYSIS REQUIREMENTS

Conduct a review & identify...	Use a guide for conducting the review	Document results & resolve problems	Update your hazard review
<ul style="list-style-type: none"> ✓ The hazards associated with the process & regulated substances ✓ Opportunities for equipment malfunction or human error that could result in a release 	<ul style="list-style-type: none"> ✓ You may use any approved methodology to conduct the Hazard Review (Contact OCFA to coordinate) ✓ For a process designed to industry standards (e.g. 	<ul style="list-style-type: none"> ✓ Your PHA must be documented and you must show that you have addressed problems 	<ul style="list-style-type: none"> ✓ You must update your review at least once every five years or whenever there is a major change in the process ✓ You must resolve problems identified in the new review before you startup the changed

<ul style="list-style-type: none"> ✓ External events that could impact the process and result in a release ✓ Safeguards that will control the hazards or prevent the malfunction or error ✓ Steps to detect or monitor releases ✓ All process safety information and ensure that it is up-to-date 	<p>NFPA-58) you may use the design standards as a guide for your chosen methodology</p> <ul style="list-style-type: none"> ✓ Ensure that the team is qualified 		<p>process</p>	
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Seismic Assessment

The intent of the CalARP Program seismic assessment is to reduce the probability that a release of any *regulated substance* having offsite consequences will occur as a result of an earthquake. For those items of equipment requiring seismic evaluation, it is required that you follow the “Guidance for CalARP Program Seismic Assessments” document included in Appendix B.

Only equipment items that are part of a *covered process* require a seismic assessment. The seismic assessments may range from review of a previous evaluation to a completely new evaluation that results in the need for seismic upgrades. Specific items of equipment that store or process regulated substances in excess of the threshold quantity must be evaluated. Other equipment that store or process regulated substances in covered processes should receive assessments commensurate with the potential that their seismically induced failure during an earthquake could result in offsite consequences.

Facilities should consider a phased seismic assessment plan:

- Phase 1 – Determine the equipment in each covered process requiring evaluation, review previous seismic evaluations to determine current compliance, and layout a strategy for field inspection;
- Phase 2 - Conduct a field inspection, if necessary;
- Phase 3 - Perform detailed evaluations, if necessary; and
- Phase 4 – Design upgrades and schedule their implementation.

Facilities that have recently performed seismic evaluations under *RMPP* or other programs, and can demonstrate that the equipment is in current compliance with CalARP requirements and have recently inspected the equipment may only have to perform Phase 1. Equipment that is in current seismic compliance but has not been inspected for several years may only require Phase 1 and 2 evaluations. Items in covered processes that have not previously received a seismic assessment, or are no longer in compliance, may require a partial or full evaluation if their failure could result in offsite consequences.

It is the facility’s responsibility to set up a seismic assessment plan and coordinate it with OCFA to help prevent an offsite release that could otherwise occur as the result of an earthquake.

Selection of a PHA Methodology

In Orange County most facilities that conducted a PHA under the previous Risk Management and Prevention Program used either a What-If/Checklist method or Hazard and Operability Analysis (HAZOP). For more detailed information regarding these techniques, refer to “*Guidelines for Hazard Evaluation Procedures, 2nd Ed.*”, published by Center for Chemical Process Safety of the American Institute of Chemical Engineers.

Offsite Impacts

You must consider offsite impacts when you conduct a PHA under CalARP. A well-done PHA should identify all failure scenarios that could lead to significant exposure of workers, the public, or the environment. The only issue that is likely to require consideration above what you have done already for the PSM standard, is whether any protection measures that were adequate for worker safety are inadequate for public and environmental safety.

Consider two circumstances - one where PSM and the risk management program rule should lead to the same result and another where protecting workers could mean endangering the public and the environment. For flammables, any scenario that could affect the public almost certainly would have the potential to affect workers; measures taken to protect your employees likely will protect the public and the environment. On the other hand, for toxics under PSM, you may plan to address a loss of containment by venting toxic vapors to the outside air. In each circumstance, a PHA should define the failure sequence. However, for toxics, the PHA team must reassess venting as an appropriate mitigation measure, since it may cause increased risk to the public and environment.

PHA Team Composition

The minimum required team for a PHA is:

1. A qualified facilitator,
2. An experienced representative of operations, and
3. A qualified engineer.

The final PHA report should include documentation that the team was qualified to perform the PHA. Note: it is possible that one person might fulfill more than one requirement.

Rejecting Team Recommendations

You may not always agree with your PHA team's recommendations and may wish to reject a recommendation. See the federal guidance for a detailed discussion of rejection of team recommendations. Rejection of a team recommendation should be discussed with OCFA.

Updating and Revalidating your PHA

For CalARP, you must complete the initial PHA for each Program 3 process not later than June 21, 1999 for federal quantities or as indicated in the CalARP regulations for state quantities, and update it at least once every five years. You may complete an initial PHA before that date. If you have already completed an OSHA PHA, you may submit the OSHA PHA as your initial PHA, and update and revalidate it every five years on

the OSHA schedule.

Revising your PHA

You should revise your PHA whenever there is a new hazard or risk created by changes to your process. Such changes might include introducing a new process, process equipment, or regulated substance; altering process chemistry that results in any change to safe operating limits; or other alteration that introduces a new hazard. However, USEPA recommends that you consider revising your PHA whenever adjoining processes create a hazard. Remember that you have a general duty to prevent accidents and ensure safety at your source, which may require you to take steps beyond those explicitly specified in the risk management program regulations.

Process Hazard Analysis Document

The Process Hazard Analysis Document **should include the following:**

1. A table of contents.
2. Place dividers and tabs between the sections of the Hazard Evaluation document.
3. Describe the regulated substance process(es) studied, including a review of the chemistry and chemical reactions that take place in the system.
4. Provide a copy of the process flow diagram and color code if required by the methodology chosen.
5. List the individual pieces of equipment (i.e. pumps, reactors, heat exchangers, etc.) and piping that were studied.
6. If using a "What-If", provide a copy of the "What-If" questions used in the evaluation.
7. Provide copies of the session worksheets.
8. Include a table of the individuals involved in the Hazard Evaluation, the role of each individual, and their qualifications. See sample sign-in sheet and resume form in Appendix C.
9. Include a table of all the operating procedures for the equipment analyzed during the Hazard Evaluation.
10. Include a table of all the documents available during the Hazard Evaluation.
11. Provide a description of the methodology used to rank scenarios. If scenarios are not ranked, explain how the high risk items were separated. Sample Severity & Likelihood and Risk Rank Matrices are included in Appendix C.
12. Describe the database or sources used to estimate equipment failure.
13. Provide a table of all the recommendations from the Hazard Evaluation by individual equipment according to process flow and in order of priority. Sort recommendations by risk. For all recommendations that will not be addressed, explain why. Include the *node* number (if appropriate) in the recommendation table. Sample recommendations format included in Appendix C.
14. Provide a table of any other references used in the hazard analysis.
15. Consideration of applicable *external events*, including seismic events.

C. OPERATING PROCEDURES

You must prepare written operating procedures that give workers clear instruction for safely conducting activities involving a covered process. You may use standardized procedures developed by industry groups or provided in model risk management programs as the basis for your operating procedures, but be sure to check that these standard procedures are appropriate for your activities. If necessary, you must update your Program 3 operating procedures whenever there is a major change and before you start up the changed process. The following table briefly summarizes what your operating procedures **must address:**

OPERATING PROCEDURES REQUIREMENTS

Steps for each operating phase	Operating limits	Safety & health considerations	Safety systems & their functions
<ul style="list-style-type: none"> ✓ Initial start-up ✓ Normal operations ✓ Temporary operations ✓ Emergency shutdown ✓ Normal shutdown ✓ Start-up following a turnaround or emergency shutdown 	<ul style="list-style-type: none"> ✓ Consequences of deviating ✓ Steps to avoid, correct deviations 	<ul style="list-style-type: none"> ✓ Chemical properties & hazards ✓ Precautions for preventing chemical exposure ✓ Control measures for exposure ✓ Quality Control for raw materials and chemical inventory ✓ Special or unique hazards 	<ul style="list-style-type: none"> ✓ Address whatever is applicable

You must update your procedures whenever you change your process in a way that alters the steps needed to operate safely. If you add new equipment, you will need to expand your procedures or develop a separate set to cover the new items. Whenever you change your safety information you should review your procedures to be sure that they are still appropriate. Anytime you conduct a hazard review, check your operating procedures as you implement changes to address hazards. In accordance with CalARP Section 2760.3(c), you must certify at least annually that your procedures are up to date.

What Kind of Documents do I have to Keep?

You must maintain a current set of operating procedures. You are not required to keep old versions; in fact, you should avoid doing so because keeping copies of outdated procedures may cause confusion. You should date all procedures so you will know when they were last updated.

Can I use electronic copies? Yes, but security must be maintained to ensure that proper procedures are followed when updating occurs. Also, all operations personnel must have access to them.

D. TRAINING

Training programs often provide immediate benefits because trained workers have fewer accidents, damage less equipment, and improve operational efficiency. Training gives workers the information they need to understand how to operate safely and why safe operations are necessary. A training program, including refresher training, is the key to ensuring that the rest of your prevention program is effective.

The following lists things that you may find useful in developing your training program:

- **Who needs training?** Clearly identify the employees who need to be trained and the subjects to be covered.
- **What are the objectives?** Specify learning objectives, and write them in clear, measurable terms before training begins. Remember that training must address the process operating procedures.
- **How will you meet the training objectives?** Tailor the specific training modules or segments to the training objectives. Enhance learning by including hands-on training like using simulators whenever appropriate. Make the training environment as much like the working environment as you can, consistent with safety. Allow your employees to practice their skills and demonstrate what they know.
- **Is your training program working?** Evaluate your training program periodically to see if your employees have the skills and know the routines required under your operating procedures. Make sure that language or presentations are not barriers to learning. Decide how you will measure and document your employees' competence.
- **How will you program work for new hires and refresher training?** Make sure all workers - including maintenance and contract employees - receive initial and refresher training. Determine and document the frequency and scope of refresher training. If you make changes to process chemicals, equipment, and technology, make sure that involved workers understand the changes and the effects on their job. **How often does training need to be done?**
- Careful consideration must be given to assure that employees including maintenance and contract employees receive current and updated training.
- **Accidents or threatened releases:** Any accident, release or threatened release should always result in evaluation of the training program.

The true test of your Training Program is: Do your operators know what to do and when?

What Kind of Documentation Do I Need to Keep?

You should keep documentation of your training program. An attendance log for any formal training courses and refresher training is required to ensure that everyone who needs to be trained is trained. Such logs will help you when you do a compliance audit.

E. MECHANICAL INTEGRITY

You must have a mechanical integrity program for pressure vessels and storage tanks, piping systems, relief and vent systems and devices, emergency shutdown systems, controls, and pumps. The following table summarizes other requirements of a mechanical integrity program:

MECHANICAL INTEGRITY

Written Procedures	Training	Inspection & Testing	Equipment Deficiencies	Quality Assurance
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<ul style="list-style-type: none"> ✓ Establish & implement written procedures to maintain the integrity of process equipment 	<ul style="list-style-type: none"> ✓ Train process maintenance employees in an overview of the process and its hazards ✓ Make sure this training covers the procedures applicable to safe job performance 	<ul style="list-style-type: none"> ✓ Inspect & test process equipment ✓ Use recognized and generally accepted good engineering practices ✓ Follow a schedule that matches the manufacturer's recommendations or that prior operating experience indicates is necessary ✓ Document each inspection & test 	<ul style="list-style-type: none"> ✓ Correct equipment deficiencies before further uses of process equipment or whenever necessary to ensure safety 	<ul style="list-style-type: none"> ✓ Establish a QA program for new construction & equipment, newly installed equipment, maintenance materials, and spare parts & equipment
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What Kind of Documentation Must I Keep?

You must keep for 5 years, your written procedures and schedules as well as any agreements you have with contractors. You should also keep training logs, inspection & testing logs, and maintenance logs. Without some record, you will have to rely on workers' memories about when something was last checked. As workers leave or change jobs at your company, it can be difficult to keep track of when inspections and tests were done. Maintaining a record of when something was last completed or is scheduled to be performed next can help keep your program working smoothly.

F. MANAGEMENT OF CHANGE (M.O.C.)

To properly manage changes to process chemicals, technology, equipment and facilities, one must define what is meant by change. In the management of change procedure, change includes all modifications to equipment, procedures, raw materials and processing conditions other than "replacement in kind." Copies of process change documentation need to be kept in an accessible location to ensure that records of design changes are available to operating personnel, as well as to PHA team members when a PHA is being done or is updated. Consider using the MOC process as a trigger for updating the other elements of the RMP.

MANAGEMENT OF CHANGE (MOC) REQUIREMENTS

MOC procedures must address:	Employees affected by the change must:	Update process safety information if:	Update operating procedures if:
✓ Technical basis	✓ Be informed of	✓ A change covered	✓ A change covered

for the change ✓ Impact on safety and health ✓ Modifications to operating procedures ✓ Necessary time period for the change	the change before startup ✓ Trained in the change before startup	by MOC procedures results in a change in any Process Safety Information required under USEPA's regulations	by MOC procedures results in a change in any operating procedure required under USEPA's regulations
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G. PRE-STARTUP SAFETY REVIEW

You must conduct a pre-startup review before you introduce a regulated substance into a process. Section 2745.12 of the CalARP Regulations state that a *new or modified stationary source* must comply with Government Code Section 65850.2 (b) **prior** to the issuance of a Certificate of Occupancy. The following table lists items you must address:

PRE-STARTUP REVIEW REQUIREMENTS

Design Specifications	Adequate Procedures	Training
✓ Confirm that new or modified construction and equipment meet design specifications	✓ Ensure that procedures for safety, operating, maintenance, and emergencies are adequate and in place	✓ Confirm that each employee involved in the process has been trained completely

New Processes

The initial startup procedures and normal operating procedures need to be fully evaluated as part of the pre-startup review to assure a safe transfer into the normal operating mode for meeting the process parameters. The RMP must be complete **prior** to the regulated substance being brought onto the site, and **prior** to the Certificate of Occupancy being issued.

Existing Processes

For existing processes that have been shutdown for maintenance, or modification, etc., the employer must assure that any changes other than "replacement in kind" made to the process during shutdown go through the management of change procedures. Piping and Instrumentation Diagrams (*P&IDs*) will need to be updated as necessary, as well as operating procedures and instructions. If the changes made to the process during shutdown are significant and impact the training program, then operating personnel as well as employees

engaged in routine and non-routine work in the process area may need some refresher or additional training in light of the changes. Any incident investigation recommendations, compliance audits or PHA recommendations need to be reviewed as well to see what impacts they may have on the process before beginning the startup.

H. COMPLIANCE AUDITS

At least every three years, you must certify that you have evaluated compliance with the requirements for the prevention program for each covered process. At least one person on your audit team must be knowledgeable about the covered process. You must develop a report of your findings, determine and document an appropriate response to each finding, and document that you have corrected any deficiency.

What Kind of Documentation Must I Keep?

You must keep a written record of the findings and actions of the last two compliance audits. When a compliance audit is over five years, you may dispose of it. You may also want to keep a record of who conducted the audit, but you are not required to do this.

I. INCIDENT INVESTIGATION

You must investigate each incident that resulted in, or could have resulted in, a “catastrophic release of a regulated substance.” A catastrophic release is one that presents an imminent and substantial endangerment to public health and the environment. Although the CalARP requires you to investigate only those incidents that resulted in, or could reasonably have resulted in a catastrophic release, you are encouraged to investigate all accidental releases. Investigating minor accidents or near misses can help you identify problems that could result in major releases if left unaddressed. Under OCFA’s hazardous materials and business plan program, all releases or threatened releases of hazardous materials are required to be reported to HMSS at (714) 744-6699. Releases also need to be reported to OES at 1-800-852-7550.

INCIDENT INVESTIGATION REQUIREMENTS

✓ Initiate an investigation promptly.	Begin investigating no later than 48 hours following the incident. An investigation “team” is recommended.
✓ Summarize the investigation in a report.	This report will include at a minimum: 1) The date of the incident, 2) A description of the incident, 5) Factors contributing to the incident, and 6) Recommendations. Remember that identifying the root cause may be more important than identifying the initiating event. Also, that the purpose of the report is to help management take corrective action.
✓ Address the team's findings and recommendations	Establish a system to address the incident report findings and recommendations and document resolutions and corrective actions.
✓ Review the report with your staff and contractors	You must share the report - its findings and recommendations - with affected workers whose job tasks are relevant to the incident. Document

	how you shared the report with them.
✓ Retain the report.	Keep incident investigation summaries for at least five years.

What Kind of Documentation Must I Keep:

You must maintain for 5 years, the written summary report of the accident, recommendations, and actions. A sample format is found in the Appendix D. Note that the form also includes accident data that you will need for the five-year accident history. These data should be part of the incident investigation report, but including them will create a record you can use later to create the accident history.

J. EMPLOYEE PARTICIPATION

Section 2760.10 in Title 19 of the California Code of Regulations states that employers are to consult with their employees and their representatives regarding the employer's efforts in the development and implementation of the process safety management program elements and hazard assessments. Many employers, under their safety and health programs, have already established means and methods to keep employees and their representatives informed about relevant safety and health issues. Employers may be able to adapt these practices and procedures to meet their obligations under this section. Employers who have not implemented an occupational safety and health program may wish to form a safety and health committee of employees and management representatives to help the employer meet the obligations specified by this standard. This committee can become a significant ally in helping the employer to implement and maintain an effective process safety management program for all employees.

✓ Write a plan	Develop a written plan of action regarding how you will implement employee participation.
✓ Consult with employees	Consult your employees and their representatives regarding conducting and developing PHAs and other elements of process safety management and the risk management program
✓ Provide access to information	Ensure that your employees and their representatives have access to PHAs and all other information required to be developed under CalARP

K. HOT WORK PERMITS

You must implement a Hot Work Permit Procedure in all facilities that have a regulated substance, in a covered process, meeting the threshold quantity. For information on Hot Work Permits, refer to CCR, Title 8, Section 5189. Work authorization procedures need to reference and coordinate, as applicable, lockout/tagout procedures, line-breaking procedures, confined space entry procedures and hot work authorizations. Such procedures also need to provide clear steps to follow once the job is completed, to provide closure for those that need to know the job is now completed and equipment can be returned to normal.

✓ Issue a hot work permit	You must issue this permit for hot work conducted on or near a covered process
✓ Implement fire prevention and protection	You must ensure that the fire prevention and protection requirements in 8 CCR 5189 (k) are implemented before the hot work begins. The permit must document this
✓ Indicate the appropriate dates	The permit should indicate the dates authorized for hot work
✓ Identify the work	The permit must identify the object on which hot work is to be performed
✓ Maintain the permit on file	You must keep the permit on file until workers have completed the hot work operations

Additionally, the Uniform Fire Code requires that a permit be obtained from the bureau of fire prevention prior to engaging in hot work activities. Please contact HMSS at (714) 744-0463 for additional information.

L. CONTRACTORS

Sources that use contractors to perform work in and around processes that involve regulated substances, will need to establish a screening process so that they contractors hired will accomplish the desired job tasks without compromising the safety and health of employees at a facility. For contractors whose safety performance on the job is not known to the hiring facility, the facility will need to obtain information on injury and illness rates and experience, and should obtain contractor references. Additionally, the facility must assure that the contractor has the appropriate job skills, knowledge and certifications (such as for pressure vessel welders). Contractor work methods and experiences should be evaluated.

Contract employees must perform their work safely. Considering that contractors often perform very specialized and potentially hazardous tasks such as confined space entry activities and non-routine repair activities, it is important that their activities be controlled while they are working on or near a covered process. A permit system or work authorization system for these activities would also be helpful to all affected facilities. The use of a work authorization system keeps a facility informed of contract employee activities, and as a benefit the facility will have better coordination and more management control over the work being performed in the process area. A well run and well maintained process where employee safety is fully recognized will benefit all of those who work in the facility, whether they be contract employees or employees of the owner.

OSHA requires that facilities subject to PSM maintain an occupational injury and illness log for contract employees.

The following table summarizes the responsibilities of both your facility and the contractor:

You must:	Your contractor must:
✓ Check safety performance. You must evaluate the safety performance of the	✓ Ensure training for their employees. The contractor must train and supervise contract

<p>contractor.</p> <ul style="list-style-type: none"> ✓ Provide safety and hazard information. You must inform the contractor of potential fire, explosion or toxic release hazards; and of your emergency response activities as they relate to the contractor's work and the process. ✓ Ensure safe practices. You must ensure that you have safe work practices such as controlling the entrance, presence, and exit of contract employees in covered process areas. You should verify that any contractors you employ have fulfilled their responsibilities which are delineated in the contractor portion of this table. <p>Verify that the contractor acts responsibly. You must verify that the contractor is fulfilling their responsibility to provide appropriate health, safety, and craft training. Remember that the responsibility for safety rests with the facility</p>	<p>employees to ensure that they perform their jobs safely and in accordance with your safety procedures.</p> <ul style="list-style-type: none"> ✓ Ensure its employees know process hazards and applicable emergency actions. The contractor must assure that contract employees are aware of hazards and emergency procedures relating to the employees' work at your site. ✓ Document training. The contractor must prepare a record documenting and verifying adequate employee training. ✓ Inform you of hazards. The contractor must tell you of any unique hazards presented by its work or of any hazards it finds during performance.
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CHAPTER 8: EMERGENCY RESPONSE PROGRAM

No one ever understood disaster until it came. – Josephine Herbst

If you have hazardous materials in your facility, you should have some sort of plan to respond to emergency situations involving the hazardous materials. For some facilities, that will be HazMat teams trained and standing by to deal with the situation. Other facilities may just coordinate with the local authorities and contractors to ensure that the authorities can handle the emergency situation and the contractors can clean up any spills. For purposes of this regulation, EPA determines “response” to be consistent with OSHA’s HAZWOPER standard. See the USEPA RMP Guidance for further details.

If you have at least one Program 2 or Program 3 process at your stationary source, then the CalARP regulations may require you to implement an emergency response program consisting of an emergency response plan, emergency response equipment procedures, employee training, and procedures to ensure that the program is current.

You are responsible for ensuring that any release from your stationary source can be handled effectively regardless of program level or whether you will respond to emergencies or not. If you plan to rely on local responders for some or all of the response, you must determine that those responders have both the equipment and training needed to do so. If they do not, you must take steps to meet any response equipment or training needs, either by developing your own response capabilities, developing mutual-aid agreements with other stationary sources, hiring response contractors, or providing support to local responders so they can acquire equipment or training. See section 8.6 for guidance on coordinating with local response agencies.

8.1 FACILITIES WITHOUT ON-SITE RESPONSE

For facilities that do not have onsite response capabilities, federal and state regulations require:

- That they ensure their stationary source is included in the Orange County Hazardous Materials Area Plan prepared under Emergency Planning and Community Right-to-Know Act (EPCRA, also known as SARA Title III). The Orange County Hazardous Materials Area Plan addresses coordination of local, state, and federal emergency response agencies (pre-emergency planning, responsibilities, capabilities, training, notification policy, etc.). Contact OCFA/HMSS to verify whether or not your source has been included.
- If their substances are flammable, they have coordinated their response actions with OCFA/HMSS (UFC permits/requirements and Business Emergency Plan (BEP) are up to date). Note: OCFA issues Uniform Fire Code permits for flammable, combustible, and hazardous materials. Should you have questions regarding obtaining permits, please contact HMSS at (714) 744-0463.
- Business Emergency Plan 911 notification requirements are up to date and followed.

8.2 ELEMENTS OF AN EMERGENCY RESPONSE PROGRAM

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If a facility does have onsite response, or does not meet the requirements of the above sections, then they will have to implement an Emergency Response Program as part of the CalARP/RMP effort. This Emergency Response Program requires, at a minimum:

- **Coordination with OCFA and other response agencies (i.e. Health, Public Works) to ensure that they will be prepared to respond to an emergency at the stationary source. See section 8.6 for more detail.**
- **An emergency response plan (maintained at the stationary source) that includes:**
 - Procedures for informing and interfacing with the public and emergency response agencies about releases, planning, and response;
 - Proper first aid and emergency medical treatment necessary to treat human exposures; and
 - Procedures and measures for emergency response.

- In addition to the emergency response requirements specifically identified in the CalARP regulation, the stationary source must also address the following California regulatory requirements:

- **California Requirements** Cal/OSHA's or USEPA's Hazardous Waste Operations and Emergency Response (HAZWOPER) standard, Title 8 CCR §5192 and 40 CFR part 311.

These regulations require that stationary sources with the potential to release hazardous substances develop and implement an emergency response plan and program, if their employees will respond to the release. HAZWOPER addresses preparing an emergency response plan, employee training, medical monitoring, recordkeeping, and other issues.

- California regulation (Title 19 CCR§2731) requires stationary sources (non-responding and responding) who handle hazardous substances to develop emergency response plans and procedures and submit a Business Emergency Plan (BEP) to the administering agency. If you have an accurate BEP on file with OCFA/HMSS, you have met this requirement, but you should review and update it in conjunction with your CalARP Planning. The BEP documents the following emergency response information:

1. Site Layout and Facility Maps;
2. Notification Alarm Procedures;
3. Evacuation Procedures/Shelter-In-Place Procedures (for employees);
4. Emergency Equipment, including the location and use of each piece;
5. Emergency Response Procedures including: the procedures for handling a release and a list of all emergency contact personnel; and

Employee Training Requirements including: initial and refresher training requirements, evacuation procedures, hazardous materials handling procedures,

emergency response team procedures, and all training documentation.

Note: You still have to complete the annual inventory and emergency response planning requirements for hazardous materials which are not regulated substances.

Be careful not to confuse writing a set of emergency response procedures in a plan with developing an emergency response program. An emergency response plan is only one element of the integrated effort that makes an emergency response program. Although the plan outlines the actions and equipment necessary to respond effectively, training, program evaluation, equipment maintenance, and coordination with local agencies must occur regularly if your plan is to be useful in an emergency. The goal of the program is to enable you to respond quickly and effectively to any emergency.

8.3 DEVELOPING AN EMERGENCY RESPONSE PROGRAM

The development of an emergency response program should be approached systematically. Stationary sources maintaining hazardous substances are already subject to Cal/OSHA HAZWOPER. As a result, you are likely to fall into one of two groups:

- You are already in compliance with several federal and state requirements for emergency planning and are interested in developing an integrated program to minimize duplication (see section 8.4).
Note: New facilities will also fall into this group.
- You have a pre-existing emergency response program (perhaps based on an internal policy decision) and need to determine what additional activities you will need to conduct (see USEPA Guidance).

8.4 INTEGRATION OF EXISTING PROGRAMS

The California Health and Safety Code (H&S), Section 25503.4, will allow a facility subject to two or more of the following planning requirements to meet those requirements in one document. The following table outlines the six emergency response plans and the applicable regulatory references.

The format adopted by OES in the CCR, Title 19, Section 2731, establishes the standard for the organization of “California Hazardous Materials Consolidated Contingency Plan”. This plan is modeled after the National Response Team’s Integrated Contingency Plan, the “One Plan”. OES has prepared a Guidance Document to assist you, if you choose to use the consolidated plan format in meeting the statutory and regulatory emergency planning requirements. This Guidance Document can be obtained from the Senior Emergency Operations Planner – OES, at (916) 464-3279.

Emergency Plan Required	Program Element	Regulatory Reference
Business Plan	Hazardous Materials Release Response Plans and Inventory	CCR, Title 19, Section 2729-2732
Contingency Plan	Hazardous Waste Generator Program	CCR, Title 22, Section 6626.24-6626.25
Spill Prevention Control and Countermeasure Plan	Oil Pollution Prevention / Above Ground Storage of Petroleum	Ca. H&S, Chapter 6.67, Section 25270.5
Marine Facility Oil Spill Contingency Plan	Oil Spill Prevention and Response Program	CCR, Title 14, Section 816.02-817.02
Accident/Spill Prevention Plan or Response Plan	Underground Storage Tank Program	CCR, Title 23, Section 2632(d)
Risk Management Plan – Emergency Response Program Component	California Accidental Release Prevention Program	CCR, Title 19, Section 2765.2

8.6 COORDINATION AND COMMUNICATION FOR OFF-SITE EMERGENCY PLANNING

This topic is too broad to provide comprehensive guidance within this document. However, it is an important issue that should be addressed jointly by the Administering Agency and the facility. Although the primary responsibility and authority for off-site emergency response rest with OCFA and other emergency response agencies, the primary body of knowledge of the details associated with potential emergencies generally lies at the facility. It is important for the Administering Agency and the facility personnel to plan and coordinate both on-site and off-site response to potential emergencies.

Every facility and community represents a unique situation, and every local emergency response agency has different capabilities. Therefore, there is no single solution for every facility.

Once you determine that you have at least one covered process, you should open communications (if you have not already done so) with OCFA/HMSS if you have toxic or flammable materials. The coordination process will help both the community and the stationary source prepare for an emergency, reducing expenditures of time and money, as well as helping eliminate redundant efforts.

Activities to Consider:

1. Ensuring at a minimum, that emergency response plans:
 - ✓ **Have been prepared and have been coordinated with OCFA and the local response agencies;**
 - How plant personnel will interface with the Incident Command System
 - Communication issues before, during, and after an emergency
 - Mutual aid participation agreement
 - ✓ Address necessary community actions in response to potential events;
 - ✓ **Include not only notification phone numbers for responsible agencies, but also key contact phone numbers for neighboring facilities and sensitive populations;**
 - ✓ Identification of a stationary source emergency coordinator who has authority to authorize actions and expenditures;
 - ✓ Verification of populations located in schools, general acute care hospitals, long-term health care facilities, and child day care facilities within a distance equal to the longer of a 1 mile radius or the distance to the ERPS reported in the offsite consequence analysis.
2. Performance of emergency drills (“Tabletop Drills”).
 - ✓ **These should include personnel from the facility, OCFA, and other emergency response agencies.**
3. Familiarization training and joint exercises.
 - ✓ **These should include personnel from the facility, OCFA, and other emergency response agencies.**
4. Testing, reviewing and updating the emergency response plan.
5. Develop a reasoned communication of emergency planning/emergency response issues to the community.
 - ✓ Discussion of relevant potential hazards and risks;
 - ✓ Emergency response and risk mitigation measures in place at the facility;
 - ✓ Actions that facility personnel may take;
 - ✓ Actions that emergency response personnel may take;
 - ✓ **Coordination between facility emergency responders and emergency response agencies;**

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- ✓ Potential emergency response measures for the Community to take, such as shelter-in-place, or sampling.

The above activities are in addition to specific emergency response requirements mandated by the CalARP regulation and may be coordinated with other risk communication activities (see Chapter 11 of the USEPA RMP General Guidance – “Communication with the Public”). The primary objective of the above coordination and communication items in emergency planning/emergency response is for the facility to interface with OCFA and the general public about action to be taken in the event of an accidental release.

OCFA suggests that stationary sources collect the information needed to perform emergency pre-planning (i.e., the processes and chemicals of concern, the response capabilities and resources) and then send a letter to the Deputy Fire Marshal of the Hazardous Materials Services Section requesting a meeting to coordinate emergency response activities. If you are already coordinating with OCFA, you should include documentation of your coordination in the letter and ask whether any additional measures are needed to meet OCFA expectations.

For stationary sources that will respond to releases, OCFA can support your emergency response program by providing, or providing sources for, the following information:

- Data on wind direction and weather conditions, or access to local meteorological data, to help you make decisions related to the evacuation of employees and public alert notification;
- Lists of emergency response training programs available in the area for training police, medical, and fire department personnel, to help you identify what training is already available;
- Schedules of emergency exercises designed to test the community response plan to spur coordinated community-facility exercises;
- Lists of emergency response resources available from both public and private sources to help you determine whether and how a mutual aid agreement could support your program; and
- Details on incident command structure, emergency points of contact, availability of emergency medical services, and public notification systems.

The stationary source should perform an annual review of the emergency response plan with OCFA to ensure that OCFA is aware of the scope of stationary source response efforts prior to an emergency. This annual review may be performed in conjunction with OCFA’s Business Emergency Plan and Uniform Fire Code inspections. Although the summary of your emergency response program will be publicly available as part of your RMP, this information may not be as current or as comprehensive as an annual review.

Upon its completion, you should distribute your emergency response plan to the local response organizations, local hospitals, and other response organizations if requested. In some instances, only a portion of the plan may be of use to individuals or organizations; in such cases, you should consider making only that portion of the plan available. For instance, it may be appropriate to send a hospital only the sections of your plan that address emergency medical procedures and decontamination.

CHAPTER 9: RISK MANAGEMENT PLAN

If you do it, write it. If you write it, do it. If it isn't written, it didn't happen. - Unknown

The Risk Management Plan (RMP) refers to the public document that a source must submit summarizing the stationary source's accidental release prevention program.

TIMEFRAME

The due dates for RMPs depend upon which regulated substance(s) a facility/stationary source has, and in what quantities. There are three categories of substance quantities with corresponding deadlines. These substance quantities are listed in Tables 1, 2, and 3 of CCR, Title 19, Division 2, Chapter 4.5, Section 2770.5. A process with a regulated substance in a quantity greater than the threshold quantity shall submit the RMP to OCFA no later than:

Table 1 or 2 (not on Table 3):

- Due June 21, 1999;
- Three years after the date on which a regulated substance is first listed in Tables 1, 2, or 3;
- The date on which a regulated substance is first present above a threshold quantity listed in Tables 1, 2, or 3 in a process.

Table 1 or 2 and 3:

- Due June 21, 1999;
- Three years after the date on which a regulated substance is first listed in Tables 1, 2, or 3;
- The date on which a regulated substance is first present above a threshold quantity listed in Tables 1, 2, or 3 in a process.

Table 3 & Table 1, but in a quantity less than Table 1 TQ:

- Due 1 year following the submission request from OCFA¹;
- Three years after the date on which a regulated substance is first listed in Tables 1, 2, or 3;
- The date on which a regulated substance is first present above a threshold quantity listed in Tables 1, 2, or 3 in a process.

Note: The CalARP as well as the USEPA requirements must be met by the above deadline. As explained in the Introduction of this guidance, the RMP document submitted to OCFA will contain more information than the RMP submitted to USEPA.

9.0.1 ELECTRONIC SUBMISSION

As explained in the USEPA Guidance, most stationary sources will be required to submit the RMP electronically, by means of the publicly available RMP*Submit program. USEPA has made RMP*Submit available via the internet. RMP*Submit is available electronically through the Chemical Emergency Preparedness and Prevention Office web site. (See preface for website information.)

¹ It is expected at the time of this printing that OCFA will begin to request RMPs from facilities that fall under the state-only program around September of 1999.

RMP*Submit will do the following:

- Provide a user-friendly, PC-based RMP Submission System available on diskettes and via the Internet;
- Use a standards-based, open systems architecture so private companies can create compatible software;
- Perform data quality checks, accept limited graphics, and provide on-line help including defining data elements and instructions; and
- Accommodate, as appropriate, additional state chemicals (i.e., those listed under state, but not USEPA, risk management program regulations) and lower thresholds.

The software will run on Windows 3.1 and above. There will not be a DOS or MAC version. OCFA currently has the capability to receive RMPs electronically on a limited basis. If you wish to submit your RMP electronically, please contact OCFA.

9.0.2 HARD COPY SUBMISSION

Stationary sources required to submit an RMP to OCFA will do so by initially delivering three copies of the RMP with a cover letter to the Deputy Fire Marshal of the Hazardous Materials Services Section. One of the three copies will be placed in the OCFA library. The remaining two copies will be maintained as working copies. Following the OCFA review, a minimum of three copies of the revised RMP will be required for the public comment period. Some stationary sources may be asked to submit additional copies of their RMPs to allow libraries to “check out” the documents for review. The copies should each be in a three-ring binder with the title on the cover and the spine of the notebook, and have dividers for the chapters. (See Appendix E for recommended Table of Contents).

9.1 ELEMENTS OF THE OCFA RMP

The length and content of your RMP will vary depending on the number and program level of the covered processes at your stationary source. See Chapter 2 for detailed guidance on how to determine which program levels are applicable to the covered processes at your stationary source. All stationary sources with covered processes must include some or all of the following information:

Program 1, 2, and 3:

1. The Executive Summary.
2. Five year accident history/investigation.
3. Offsite consequence analysis.
4. The certification statement and registration.

Program 2 or 3:

5. Conformance Matrix (recommended but not required - See Attachment 2)
6. USEPA risk management data elements (if applicable).
7. Prevention Program 2 or 3.
8. Emergency response program.
9. Management Program.

Please include a change log to document any changes made to the RMP. A sample is included in Attachment 1.

Section 9.2 of this chapter provides guidance for preparing an RMP to stationary sources that have only Program 1 covered processes. The remaining sections apply to all stationary sources with covered processes regardless of program level.

9.2 PROGRAM 1 COVERED PROCESSES

Stationary sources that have only Program 1 covered processes are responsible for submitting an RMP with the information shown above in numbers 1-4 in section 9.1 above. Because you meet the Program 1 eligibility requirements, you are not required to develop or implement a prevention program or conduct an OCA for *Alternative Release Scenarios*.

9.3 THE RMP PUBLIC DOCUMENT

The CalARP regulatory requirements and AA expectations for each of the RMP sections are described below.

9.3.1 EXECUTIVE SUMMARY

The Executive Summary provides the stationary source the opportunity to communicate information regarding the nature of the risks presented by the stationary source and the prevention and preparedness programs adopted to reduce those risks.

Remember that this will be a focus of the public's attention. Briefly describe each of the following items (OCFA suggests using approximately half a page):

- **The accidental release prevention and emergency response policies at your stationary source - Describe safety programs and corporate/ senior management's safety policies to provide the community with an understanding of your safety "culture" and philosophy. The commitment to safety at the senior/corporate level establishes the commitment to safety throughout the organization and dictates how programs and policies are developed and implemented. We recommend that you briefly describe the following information to the extent applicable:**

- Corporate or senior management's safety and environmental policies;
- Overall safety and environmental program and how the risk management program is incorporated into it;
- **Methods used by corporate or senior management to verify and improve safety and environmental programs throughout the organization.**

- **A description of your stationary source and the regulated substances handled - Convey fundamental information regarding your process(es) to the community to increase their understanding of your operation. This information will also serve as a reference for the remaining sections of the Executive Summary and RMP (e.g., data elements, five-year accident history).**

- The offsite consequence analyses - Mention which modeling methods were used. Address the public and environmental receptors in the zone of vulnerability. For stationary sources that previously submitted RMPP documents, and intend to use the Worst-Credible Release Scenarios from the RMPP for the *Alternative Release Scenarios*, this fact should be mentioned here. You should also mention any mitigation measures used to limit the distance to endpoint in the scenarios.

- The general accidental release prevention program and chemical-specific prevention steps - Identify the person with overall responsibility for the Accident Release Prevention Program and any persons who have the delegated responsibility for portions of the program. If the table of organization is too complex for a summary, specify where in the RMP it can be found. Briefly describe which programs are in place at the facility to address various portions of the program and where they are detailed in the RMP.

- The five-year accident history - List any major incidents if there have been any. If there have not, describe the procedures you use to track accidents/incidents and prevent reoccurrence.

- The emergency response program - We recommend that you develop a brief summary of the response organizations with which you coordinated activities (e.g., walk-through of the stationary source, a description of the characteristics and hazards of the regulated substances, notification procedures, etc.). Additionally, indicate how often the coordination activities will be conducted (e.g., annual review of activities between you and the response organizations).

- Planned changes to improve safety - Summarize the procedures you have for tracking recommendations from PHAs, Seismic Analyses, Accident Investigations and any internal methods of improvement (audits, etc.). Explain how you ensure that recommendations are addressed in a timely manner.

9.3.2 FIVE-YEAR ACCIDENT HISTORY

The five-year accident history component includes all accidental releases from covered processes that in deaths, injuries, or significant property damage on site, or known offsite deaths, injuries, evacuations, sheltering in place, property or environmental damage. The following data are required for each release:

- Date, time, and approximate duration of the release.
- Regulated substance(s) released.
- Estimated quantity released in pounds.
- The type of release event and its source.
- Weather conditions at the time of the release, if known.
- Known offsite impacts.

- Onsite impacts.
- Initiating event and contributing factors.
- Whether offsite responders were notified.
- Operational or process changes (procedural and technological) made to prevent reoccurrence and how these changes were tracked to ensure completion.

You can simply state that there is no information to report if no accidental releases of regulated substances meeting the criteria occurred in the past 5 years.

9.3.3 OFFSITE CONSEQUENCE ANALYSIS

Well-documented offsite consequence analyses (*OCAs*) are essential for adequate communication to the public regarding potential hazards at the stationary source. The following data must be submitted for the offsite consequence analysis component of the RMP:

- **Chemical name**
- **Physical state (toxics only)**
- **Basis of results**
- **Scenario**
- **Quantity released in pounds**
- **Release rate**
- **Release duration**
- **Wind speed and atmospheric stability class (toxics only)**
- **Topography (toxics only)**
- **Distance to endpoint**
- **Public and environmental receptors within the endpoint distance**
- **Passive mitigation considered**
- **Active mitigation considered (alternative releases only)**

9.3.4 PROGRAM 2 PREVENTION

The Program 2 Prevention Program component of your Plan must describe the following for each covered process:

- **NAICS Code.**
- **Name(s) of the chemical(s) covered.**
- **Review or revision date of the safety information, including regulatory or industry-specific design codes/standards used for compliance.**
- **The date of completion for the most recent *hazard review* or update. The hazard review includes all of the elements in the Hazard Review Document specified in Chapter 6.**
- **Review/revision date of operating procedures.**
- **Review/revision date of training programs and the following information:**

- Type of training provided.
- Type of competency testing used.

- Review/revision date of maintenance procedures, equipment inspection/test, and the equipment inspected or tested.
- Compliance audit date and completion date of any recommendations.
- Incident investigation date and completion date of any recommendations.
- Change date that triggered a review/revision of safety information, the hazard review, operating or maintenance procedures, or training.
- External events analysis information:

- Types of external events considered in the PHA and elsewhere in the Program.
- Estimated magnitude/scope of external events which were considered.
- For each external event with a potential to create a release of a regulated substance that will reach an endpoint offsite, apply any information determined from the PHA.
- Date of equipment field verification.

9.3.5 PROGRAM 3 PREVENTION

The Program 3 Prevention Program component is the same as Program 2, except you also need to include the following:

- Review/revision date of employee participation plans.
- Review/revision date of hot work permit procedures.
- Review/revision date of contractor safety performance.

9.3.6 EMERGENCY RESPONSE PROGRAM

The following questions must be addressed:

- Do you have a written emergency response plan?
- Does the plan include specific actions to be taken in response to an accidental release of a regulated substance?
- Does the plan include procedures for informing the public and local agencies responsible for responding to accidental releases?
- Does the plan include information on emergency health care?
- When was the last review/update date of the emergency response plan?
- When was the date of the last emergency response training for employees?
- What is the name and telephone number of the primary local emergency response agency with which the plan is coordinated?
- What other federal or state emergency plan requirements do you have to comply with?

9.4 CERTIFICATION AND REGISTRATION

Program 1 Certification

The owner, operator, or senior official with management responsibility for the person or persons who have completed the RMP must sign the following certification statement as required by Section 2735.5(d)(4) of the CalARP regulation:

Based on the criteria in CCR Title 19, Section 2735.4, the distance to the specified endpoint for the worst-case accidental release scenario for the following process(es) is less than the distance to the nearest public receptor: [list process(es)]. Within the past five years, the process(es) has (have) had no accidental release that caused offsite impacts provided in the risk management program Section 2735.4(e)(1). No additional measures are necessary to prevent offsite impacts from accidental releases. In the event of fire, explosion, or a release of a regulated substance from the process(es), entry within the distance to the specified endpoints may pose a danger to public emergency responders. Therefore, public emergency responders should not enter this area except as arranged with the emergency contact indicated in the RMP. The undersigned certifies that, to the best of my knowledge, information, and belief, formed after reasonable inquiry, the information submitted is true, accurate, and completed. (Signature, title, date signed).

This certification statement means that you certifying that your RMP is accurate and complete, and the process has met the necessary criteria to be designated as a Program 1 covered process. The person who signs must have signature authority for the business submitting the certification.

Program 2 and 3 Certification

Submit a certification statement that states, “To the best of the signer’s knowledge, information, and belief formed after reasonable inquiry, the information submitted is true, accurate, and complete.” The person who signs must have signature authority for the business submitting the certification

Resubmission and Updates

You must update the RMP whenever there is a significant change to the process. Whenever you are considering a major process change, you should contact OCFA/HMSS to determine if such a change requires updating and resubmission of the RMP. If a resubmission is required, then you will have 60 days to complete the update and file it with the OCFA. As when you created the original RMP, you should coordinate with the OCFA to ensure compatibility and comprehensiveness in your updates.