CHAPTER 9: RISK MANAGEMENT PLAN

One of the four following categories applies to all stationary sources and will mandate submission of the risk management plan (RMP) to CCCHSD and EPA or CCCHSD only. These descriptions are depicted graphically in the figure below.

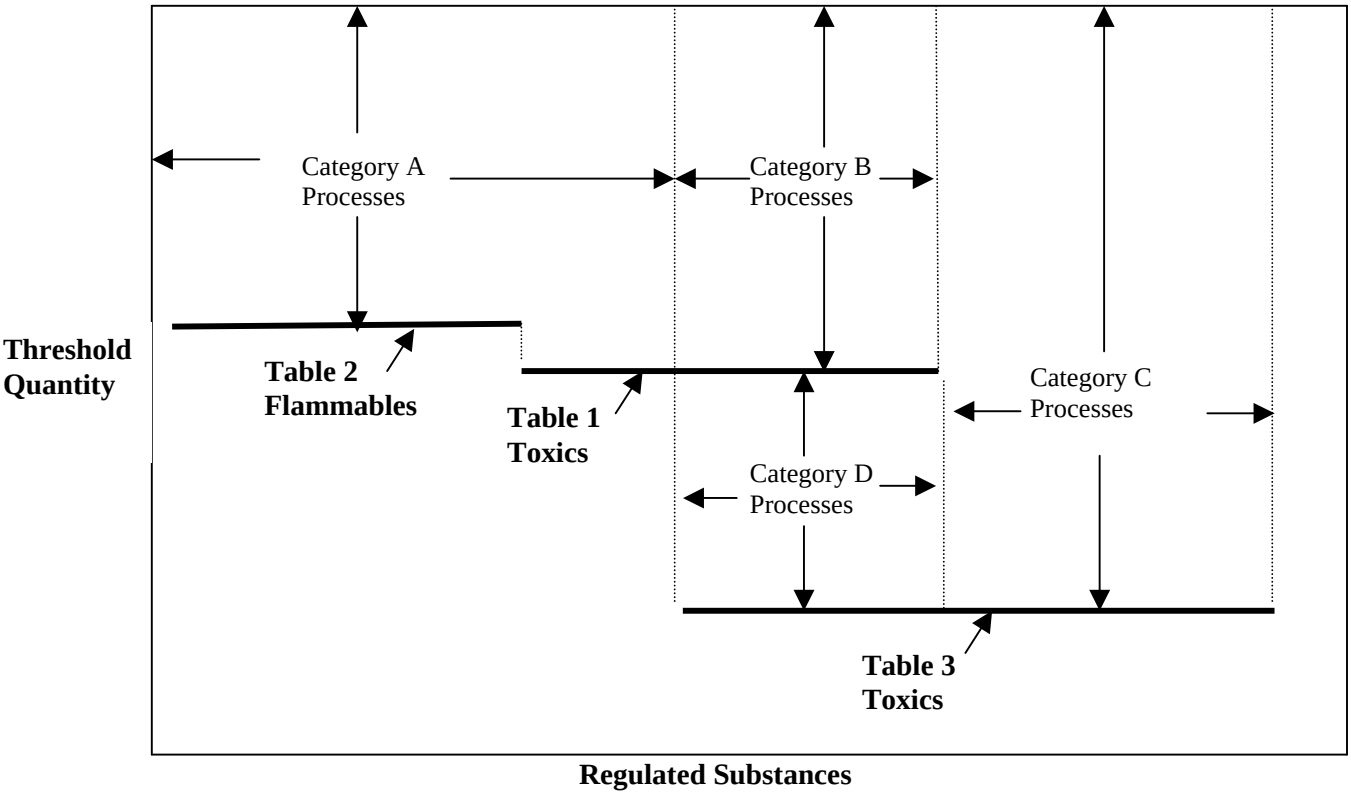
A. Stationary source with a process that has in excess of the threshold quantity of a regulated substance listed only in Tables 1 or 2 of Section 2770.5;

B. Stationary source with a process(es) that has (have) in excess of the threshold quantity(ies) of regulated substances listed in both Table 1 and Table 3 of Section 2770.5;

C. Stationary source with a process that has in excess of the threshold quantity of a regulated substance listed only in Table 3 of Section 2770.5; and,

D. Stationary source with a process that has in excess of the threshold quantity of a regulated substance listed in Table 3 but not an excess of the threshold quantity of the same regulated substance listed in Table 1 of Section 2770.5.

Figure 1. Covered Process Categories



Stationary sources described under the "A" and "B" categories will electronically submit one RMP to EPA, meeting the requirements of Title 40 CFR Part 68, for all covered processes with regulated substances listed in Tables 1 or 2. Information regarding regulated substances listed only on Table 3 does not have to be submitted in the RMP to the EPA. A copy of this RMP must be submitted to CCCHSD. The stationary source must also submit an RMP meeting the CalARP regulatory requirements and the level of detail agreed to with CCCHSD for all covered processes with regulated substances on Tables 1or 2 and Table 3 to CCCHSD. The stationary source may elect to adopt an RMP format that meets the Title 40 CFR Part 68 requirements, CalARP regulatory requirements, and CCCHSD expectations.

Stationary sources described under the "C" and "D" categories will submit an RMP meeting the CalARP regulatory requirements and the level of detail agreed to with CCCHSD for all covered processes with regulated substances listed on Table 3 to CCCHSD.

Stationary sources with covered processes described under the "A" and "B" categories, or described under categories "A" or "B" and "C" or "D" must 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 stationary sources with covered processes only described under the "C" and "D" categories, CCCHSD will make a preliminary determination, for each stationary source, whether there is a significant likelihood that the use of the regulated substance may pose a regulated substance accident risk. If CCCHSD determines that the stationary source must comply with this chapter, the stationary source will have between 1 year and 3 years following the submission request to submit the RMP. The schedule and appropriate program level will be determined by CCCHSD in consultation with the stationary source.

9.0.1 ELECTRONIC SUBMISSION

By early 1999, EPA will make RMP*Submit available to complete and file your federal RMP. RMP*Submit will be available electronically through the Chemical Emergency Preparedness and Prevention Office web site as provided in Appendix F of this document. 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 federal EPA 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. CCCHSD does not have the capability to receive RMPs electronically.

9.0.2 HARD COPY SUBMISSION

Stationary sources required to submit an RMP to CCCHSD, will do so by initially delivering three copies of the RMP with a cover letter to Mr. Lewis G. Pascalli, Jr., Director of the Hazardous Materials Programs. One of the three copies will be placed in the CCCHSD library. The remaining two copies will be maintained as working copies. Following the CCCHSD review, a minimum of five copies of the revised RMP will be required for the public comment period. Three of the five copies will be distributed by CCCHSD to the local library, the CCCHSD library, and the local fire department. The remaining two copies will be maintained as working copies. 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.

9.1 ELEMENTS OF THE CCCHSD 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. Throughout the guidance provided in this chapter, CCCHSD used "We recommend…" to identify our expectations. We used "Optionally…" or "The stationary source may elect…" to identify information that is discretionary. In most instances, this discretionary information would be beneficial for stationary sources to include or it was information previously submitted in the RMPP document that community members found particularly helpful. All stationary sources with covered processes must include the following information:

- An executive summary;
- An offsite consequence analysis including worst-case scenario for each Program 1 process; at least one worst-case scenario for Program 2 and 3 toxic substances; at least one worst-case scenario for Program 2 and 3 flammables;
- Covered processes data sheet completion including:
  - registration;
  - offsite consequence analysis;
  - five-year accident history **NOTE**: CCCHSD requests that a narrative addendum also be submitted with the five-year accident history data element information; and
  - emergency response program.
- The certification statement; and
- A glossary of terms and acronyms. Appendix E from this guidance document will be made available for stationary sources to incorporate stationary source-specific terminology.

All stationary sources with at least one Program 2 or 3 covered process must include in the RMP the elements listed above, and:

- An offsite consequence analysis including at least one alternative release scenario for each toxic substance at the stationary source and one flammable substance at the stationary source;
- A summary of the seismic events analysis;
- Covered processes data sheet completion including:
  - a summary of the prevention program for each Program 2 process including an external events addendum; and,
  - a summary of the prevention program for each Program 3 process including an external events addendum.
- Include a copy of Exhibits 7.4.d-h of Appendix H with your RMP to assist the readers. These exhibits are available on disk through CCCHSD.

Section 9.2 of this chapter provides stationary sources with only Program 1 covered processes with guidance for preparing an RMP. Section 9.3 of this chapter provides stationary sources with Program 2 and Program 3 covered processes with guidance for preparing an RMP. The remaining chapters apply to all stationary sources with covered processes regardless of program level. Examples of the narrative sections of the RMP for stationary sources with Program 1 only, Program 2, and Program 3 covered processes are included in Appendix A of this document.

9.2 STATIONARY SOURCES WITH ONLY PROGRAM 1 COVERED PROCESSES

Stationary sources with only Program 1 covered processes are responsible for submitting an RMP with the information shown in the first series of bullets in section 9.1. Because you meet the Program 1 eligibility requirements (see Chapter 2 for detailed guidance), you are not required to develop or implement a prevention program or conduct an OCA for alternative release scenarios. The RMP, particularly the executive summary, may therefore be significantly less detailed than the RMP for a stationary source with Program 2 or Program 3 covered processes.

9.2.1 EXECUTIVE SUMMARY

The executive summary provides stationary sources with only Program 1 covered processes with 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. A comprehensive executive summary can stimulate dialogue and help to develop improved relationships between the stationary source, the community, and CCCHSD. The executive summary is comprised of the following subsections:

- The accidental release prevention and emergency response policies at your stationary source;
- A description of your stationary source and the regulated substances handled;
- The worst-case release scenario(s);
- The general accidental release prevention program and chemical-specific prevention steps;
- The five-year accident history;
- The emergency response program; and
- Planned changes to improve safety.

The CalARP regulatory requirements and CCCHSD expectations for each of the RMP sections is described in detail below.

THE ACCIDENTAL RELEASE PREVENTION AND EMERGENCY RESPONSE POLICIES AT YOUR STATIONARY SOURCE

Describing safety programs and corporate and senior management's safety policies will provide the community with an understanding of your safety "culture" and philosophy. The commitment to safety at the senior management and corporate levels 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 and stationary source mission or vision statements;
- 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;
- Corporate and stationary source safety and environmental policy;
- Corporate and stationary source safety and environmental programs; and,
- Corporate and stationary source safety or environmental policy and program manuals.

A DESCRIPTION OF YOUR STATIONARY SOURCE AND THE REGULATED SUBSTANCES HANDLED

Conveying fundamental information regarding your process(es) to the community will increase their understanding of your operation. This information will also serve as an accompaniment to or reference for the remaining sections of the executive summary and RMP (e.g., data elements, five-year accident history).

We recommend that you include the following information:

- A simplified process flow diagram of each covered process that indicates risk management program applicability boundaries;
- A brief description of the stationary source and the individual covered processes, including the purpose(s); and,
- A table listing all covered processes indicating state or federal applicability, regulated substance(s), and quantities of each regulated substance. For regulated substances, list each toxic substance above a threshold quantity and list flammables above a threshold quantity simply as "flammables" i.e., do not list individual flammable substances.

Optionally, you may elect to briefly describe how regulated substances handled below threshold quantity and non-regulated substances of particular interest are used or produced within the covered process(es) (e.g., hydrofluoric acid or hydrogen sulfide at a petroleum refinery). The stationary source may also elect to provide general examples of the types of flammables present.

THE WORST-CASE RELEASE SCENARIO(S)

Well-documented offsite consequence analyses are essential to adequate communication of potential hazards at the stationary source to the public. To qualify as a Program 1 stationary source, you must conduct and document a Worst-Case Scenario (WCS) to demonstrate that it does not affect public receptors. The purpose of this section of the Executive Summary is to summarize the results of the WCS for a Program 1 stationary source.

CCCHSD recommends you develop a brief description of the results of your offsite consequence analysis, including:

- Description of the WCS (e.g., failure of a vessel containing 30,000 pounds of chemical X released over a ten-minute period);

- OCA method used (e.g. dispersion model type, EPA's *RMP Offsite Consequence Guidelines*, etc.);

- Distance to endpoint; and

- Passive mitigation measures considered in the WCS that limit the distance to endpoint.

THE GENERAL ACCIDENTAL RELEASE PREVENTION PROGRAM AND CHEMICAL-SPECIFIC PREVENTION STEPS

Implementation of appropriate administrative and technological safeguards (i.e., those procedures or equipment that prevent, detect, or mitigate releases) ensures the safety of your employees and the continued safety of public receptors. Those recommendations that are planned for implementation can be discussed in "Planned Changes to Improve Safety".

We recommend that you communicate the following information, including:

- Examples of, or summaries of, safeguards (passive and active) including technological safeguards (e.g., electrical backup system) and procedural safeguards (e.g., hot-work permits) that are key to your accidental release prevention program **NOTE:** the stationary source may elect to generally describe their process safety management (PSM) program developed to satisfy the Cal/OSHA requirements (if applicable) or their management system (if applicable);
- Source(s) of each safeguard or grouped safeguards (e.g., equipment inspection);
- Purpose or common achievement of each safeguard or grouped safeguards; and,
- Date of implementation of each safeguard or grouped safeguards, where appropriate.

Optionally, you may elect to use the following categories to structure grouping:
- Prevention of the cause or consequences of a potential scenario
  - Automatic safety systems (e.g., interlocks, cut outs or shutdowns);
  - Manual isolation systems;
  - Leak reduction (e.g., double block and bleed configurations, plugs);
  - Inventory reduction;

- Specific codes or standards used to design equipment; and,
- Specific mechanical integrity practices (e.g., ultrasonic thickness gauging, infrared thermography, radiography of welds).

- Detection of the cause or consequences of a potential scenario
  - Sensors or detectors with alarms and/or automatic shutdown; and,
  - Process parameters (e.g., temperature, pressure) automated alarms and shutdown systems (e.g., high level alarm and high-high level shutdown).

- Mitigation of the consequences of a potential scenario
  - Pressure relief systems (e.g., pressure relief valves, fire-dump systems);
  - Secondary containment (e.g., curbing, diking);
  - Neutralization (e.g., scrubbers);
  - Deluge systems;
  - Redundant equipment;
  - Fire suppression and extinguishing systems (e.g., sprinklers, foam systems); and,
  - Facility siting (e.g., placement and design of inhabited buildings)

- Procedural

THE FIVE-YEAR ACCIDENT HISTORY

You are required to compile a five-year accident history for all accidental releases (including regulated substances and other extremely hazardous substances) from covered processes that resulted in deaths, injuries, or significant property damage onsite, or known offsite deaths, injuries, evacuations, sheltering in place, property damage, or environmental damage. The five-year accident history allows you to explain to the community the factors causing or contributing to accidental releases, the onsite and offsite impacts of accidental releases, and the procedural and technological changes made to minimize the likelihood that these accidental releases will reoccur. The intent of this information exchange is to create an informed community while also documenting that accidental releases are investigated and concrete changes are made to protect against reoccurrence.

The five-year accident history compiled by the stationary source satisfies the requirements of Section 2750.9 of the CalARP regulation. Note that the five-year accident history reporting requirements are different than the five-year accident history applicability requirements for Program 1 eligibility in Section 2735.4.

We recommend that you develop a brief summary of the accidental releases that have occurred over the past five years, including the following information:

- Number of accidental releases and the chemicals released;
- Offsite impacts:
  - activation of the community warning system (CWS);

  - evacuations;
  - shelter in place; and,
  - injuries or fatalities.
- Onsite injuries or deaths; and
- General types of 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.

Optionally, the stationary source may elect to include:

- Reaction and degradation products and byproducts released to the extent known;
- Near misses of averting a catastrophic release as defined in the CalARP regulation; and,
- Accidental releases that did not meet the reporting criteria but that received substantial community attention.

THE EMERGENCY RESPONSE PROGRAM

The overall safety of your stationary source is governed not only by your ability to prevent accidental release of regulated substances from occurring, but also by your ability to respond to and mitigate any accidental releases of regulated substances. As a stationary source with only Program 1 covered processes, you are only required to demonstrate that emergency response procedures have been coordinated between yourself and the local emergency planning and response organizations (i.e., CCCHSD for toxic substances and the local fire department for flammable substances).

We recommend that you develop a brief summary of the response organizations that you coordinated with, the coordination activities (i.e., walk-through of the stationary source, a description of the characteristics and hazards of the regulated substances, notification procedures), and how often the coordination activities will be conducted (i.e., annual review of coordination activities between you and the response organizations). Optionally, you may elect to fully describe your emergency response program. Refer to the Program 2 and Program 3 RMP executive summary discussion regarding emergency response program for guidance.

PLANNED CHANGES TO IMPROVE SAFETY

As a stationary source with only Program 1 covered processes, you have certified that no additional measures are necessary to prevent offsite impacts from accidental releases. You may include a statement that no changes to improve offsite safety are planned or required. This satisfies the regulatory requirements of Section 2745.3 of the California Accidental Release Prevention (CalARP) regulation.

However, you may be developing recommendations as a result of equipment inspections, safety meetings, review of industry experience, technology improvements, and employee suggestions. Once formulated, recommendations are reviewed and corresponding action items or planned activities are developed to implement each recommendation that is accepted. Communication of these action items or planned activities informs the public of measurable improvements for safety that are being incorporated at your stationary source.

You may elect to include a site-specific summary of key action items or planned activities (both procedural and technological) for communication purposes.

Appropriate communication of these action items or planned activities will include:

- Summary of the source(s) of specific or summarized action items or planned activities (e.g., audits, internal inspections, safety meetings, incident investigations);
- Summarize action items or planned activities, grouping similar action items or planned activities (e.g. line and valve labeling can be presented as one entry) and specific action items or planned activities made to achieve one purpose (e.g., a group of specific action items or planned activities made to upgrade a flare system can be presented as one entry). Optionally, the stationary source may find it beneficial to use the following categories, taken from the CalARP Data Elements, to structure the grouping of action items or planned activities:

  - **Relief systems** - vents, relief valves, flares, scrubber, and rupture disks;
  - **Flow Restriction** - excess flow device, check valves, and fire valves;
  - **Shut-down Systems** - manual shutoffs, automatic shutoffs, interlocks, and alarms and procedures;
  - **Emergency Backup** - emergency utilities, backup equipment;
  - **Misc. Prevention Systems** - grounding equipment, inhibitor addition, quench systems, and purge systems;
  - **Post – Release Mitigation** - sprinkler, dikes, fire or blast walls, deluge systems, water curtain, enclosure, neutralization;
  - **Monitoring/Detection** - process area detectors, perimeter monitors;
  - **Administrative/Procedural;** and
  - **Other .**

- Description of the purpose of specific or summarized action items or planned activities (e.g., high level, pressure, and temperature alarms alert personnel to deviations above the desired upper operating limits and require that appropriate steps be taken to correct the deviation).

9.2.2 OFFSITE CONSEQUENCE ANALYSIS

Well-documented offsite consequence analyses (OCAs) are essential for adequate communication to the public of potential hazards at the stationary source. The purpose of this section of the RMP is to describe the results of the Worst-Case

Scenario (WCS) for a Program 1 stationary source.

CCCHSD recommends you include a description of the regulated substances modeled in your OCA. This description should include, but is not limited to, all pertinent physical and chemical properties, as well as potential health effects and hazards. You should also include the toxic/flammable endpoint and definitions used in your OCA.

CCCHSD recommends you also include a description and explanation of the scenario selection process/criteria used for the scenario in your OCA.

For the WCS, CCCHSD recommends you develop a brief description of the results of your offsite consequence analyses, including:

- Selection Criteria and Scenario Description:
  - OCA method used (e.g., dispersion model type, EPA's *RMP Offsite Consequence Guidelines*, etc.);
  - Description of the scenario (e.g., failure of a vessel containing 30,000 pounds of chemical X released over a ten-minute period);
  - Method for selection of scenario;
  - Mitigation measures considered in each scenario; and
  - Modeling input data (including an explanation of key parameters/input);

- Results Summary:
  - Tabular form of WCS results; and
  - Graphical representation of results on a map of the area, showing the affected areas of concern Your maps should:
    - Include vulnerability zones with orientation of your stationary source to true north (i.e., with an arrow, latitude/longitude grid, etc.);
    - Include either the plume (if using a dispersion model) or an arrow in the direction of the prevailing wind; and
    - Be consistent for ease of use (i.e., one chemical release scenario per single page, size 8½" X 11" or 11" X 17"), and include a scale of the map (e.g., one inch equals 2,400 feet).

9.2.3 COVERED PROCESSES DATA SHEETS

A description of each element of the covered processes data sheets is provided in Section 9.3.3 of this document. You are responsible for completing and submitting the following covered processes data sheets:

- Registration;
- Offsite consequence analysis information (worst-case scenario only);
- Five-year accident history **NOTE**: CCCHSD is requesting that an addendum to the data sheets for five-year accident history also be submitted. This is discussed in Section 9.3.3 of this document; and
- Emergency response plan.

9.2.4 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 not only are you certifying that your RMP is accurate and complete, but also that the process has met the necessary criteria to be designated as a Program 1 covered process.

9.3 STATIONARY SOURCES WITH PROGRAM 2 OR PROGRAM 3 COVERED PROCESSES

9.3.1 EXECUTIVE SUMMARY

The executive summary provides stationary sources with Program 2 or Program 3 covered processes with 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. A comprehensive executive summary can stimulate dialogue and help to develop improved relationships between the stationary source, the community, and CCCHSD. The executive summary is comprised of the following subsections:

- The accidental release prevention and emergency response policies at your stationary source;
- A description of your stationary source and the regulated substances handled;
- The worst-case release scenario(s) and the alternative release scenario(s);
- The general accidental release prevention program and chemical-specific prevention steps;
- The five-year accident history;
- The emergency response program; and
- Planned changes to improve safety.

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

THE ACCIDENTAL RELEASE PREVENTION AND EMERGENCY RESPONSE POLICIES AT YOUR STATIONARY SOURCE

Describing safety programs and corporate and senior management's safety policies will provide the community with an understanding of your safety "culture" and philosophy. The commitment to safety at the senior management and corporate levels establishes the commitment to safety throughout the organization and dictates how programs and policies, such as the prevention program elements, are developed and implemented.

We recommend that you briefly describe the following information to the extent applicable:

- Corporate and stationary source mission or vision statements;
- Corporate or senior management's safety and environmental policies;
- Overall safety and environmental program and how the accidental release prevention program is incorporated into it;
- Methods used by corporate or senior management to verify and improve safety and environmental programs throughout the organization;

- Corporate and stationary source safety and environmental policy;
- Corporate and stationary source safety and environmental programs; and
- Corporate and stationary source safety or environmental policy and program manuals.

A DESCRIPTION OF YOUR STATIONARY SOURCE AND THE REGULATED SUBSTANCES HANDLED

Conveying fundamental information regarding your process(es) and the hazards related to handling regulated substances to the community will stimulate dialogue and increase their understanding of your operation. This information will also serve as an accompaniment to or reference for the remaining sections of the executive summary and RMP (e.g., data elements, five-year accident history).

We recommend that you include the following information:

- A simplified process flow diagram of each covered process that indicates risk management program applicability boundaries;
- A brief description of the stationary source and the individual covered processes, including the purpose(s); and
- A table listing all covered processes indicating state or federal applicability, program level, regulated substance(s), and quantities of each regulated substance. For regulated substances, list each toxic substance above a threshold quantity and list flammables above a threshold quantity simply as "flammables" i.e., do not list individual flammable substances.

Optionally, you may elect to briefly describe how regulated substances handled below threshold quantity and non-regulated substances of particular interest are used or produced within the covered process(es) (e.g., hydrofluoric acid or hydrogen sulfide at a petroleum refinery). The stationary source may also elect to provide general examples of the types of flammables present.

THE WORST-CASE RELEASE SCENARIO(S) AND THE ALTERNATIVE RELEASE SCENARIO(S)

Well-documented offsite consequence analyses (OCAs) are essential to adequate communication of potential hazards at the stationary source to the public. OCAs are also a tool used by the stationary source to assist the CCCHSD Incident Response Team in emergency response planning. The purpose of this section of the Executive Summary is to summarize the results of the Worst-Case Scenarios (WCSs) and Alternative Release Scenarios (ARSs) for Program 2 and Program 3 covered processes.

CCCHSD recommends you develop your Alternative Release Scenarios (ARSs) to

assist in emergency response planning. ARSs and hazard assessment results are useful for assessing the potential hazards posed by a facility and developing or assessing emergency response plans to respond to such an event. For stationary sources that previously submitted RMPP documents, the worst-credible release scenarios in your RMPP should be sufficient for the ARSs.

For each WCS and ARS, CCCHSD recommends you develop brief descriptions of the results of your offsite consequence analyses, including:

- Description of the scenario (e.g., failure of a vessel containing 30,000 pounds of regulated substance X over a ten-/thirty-minute period, etc.);
- Rationale for selecting alternative scenarios;
- Mitigation measures considered in each scenario;
- OCA method used (e.g. dispersion model type, EPA's *RMP Offsite Consequence Guidelines*, etc.);
- Distances to endpoints;
- Estimates of the residential population affected by the release; and
- For the ARSs only, CCCHSD recommends you list the population within the vulnerability zone (a radius of one mile or distance to the toxic or flammable endpoint, whichever is greater). Also, you should indicate if any in schools, general acute care hospitals, long-term health care facilities, and child day care facilities are within this vulnerability zone.

Note: ARSs you submit to the EPA may be different than ARSs you submit to CCCHSD for emergency response planning. If this is the case, you may elect to include your EPA ARS in your RMP to CCCHSD to communicate the range of different release scenarios to the community.

THE GENERAL ACCIDENTAL RELEASE PREVENTION PROGRAM AND CHEMICAL-SPECIFIC PREVENTION STEPS

Management System

If you have Program 2 or 3 covered processes, you are required to implement a system for developing and continually improving the risk management program elements. This includes identifying the qualified person or position with overall responsibility for the risk management program. It also includes identifying person(s) and lines of authority when responsibility for implementing any of the risk management program elements is designated to individuals other than the qualified

person with overall responsibility.

The management system satisfies the requirements of Section 2735.6 of the CalARP regulation.

We recommend that you develop a brief, site-specific overview of the characteristics of the management system and the general duties for individuals responsible for the risk management program elements, including:

- An organizational chart or similar document to record or identify the lines of authority and individuals responsible for each risk management program element;
- Description of integration and coordination with other regulatory requirements (e.g., OSHA's process safety management regulation);
- Description of CalARP program element development including planning and organizing (e.g., identifying goals, resource requirements, assigning responsibility and lines of authority);
- Description of CalARP program element implementation (e.g., employee training, record retention requirements);
- Description of CalARP program element control (e.g., identification of standards and criteria, reviews and reauthorization);
- Description of CalARP program element integration (e.g., how changes in one element are communicated to individuals responsible for controlling other elements that are possibly impacted); and,
- Description of document management including record retention.

Chemical-Specific Prevention Steps

The following prevention programs represent integrated administrative controls intended to ensure the safety of workers, the public, and the environment. Many of these prevention programs (e.g., PHAs, compliance audits, incident investigation) result in the development and implementation of additional safeguards (administrative and engineering controls). Those recommendations that are planned for implementation will be discussed in "Planned Changes to Improve Safety". Examples of existing safeguards or groups of safeguards are provided below. These safeguards prevent, detect, or mitigate accidental releases of regulated substances.

We recommend that you communicate the following information, including:

- examples of, or summaries of, safeguards (passive and active), grouping similar safeguards that reduce the severity or the likelihood of an accidental release that could have reasonably resulted in an offsite consequence as defined in the CalARP regulation (exceeding the ERPG-2 for toxic substances or exceeding the overpressure or thermal radiation limits for flammables);
- purpose or common achievement of each safeguard or grouped safeguards; and,
- date of implementation of each safeguard or grouped safeguards, where

appropriate.

NOTE: The administrative controls (e.g., inclusion in the mechanical integrity program, training program, or operating procedure program) do not need to be included if you have already done so in the prevention program element descriptions

Optionally, you may elect to use the following categories to structure grouping:

- Prevention of the cause or consequences of a potential scenario;
  - Automatic safety systems (e.g., interlocks, cut outs or shutdowns);
  - Manual isolation systems;
  - Leak reduction (e.g., double block and bleed configurations, plugs);
  - Inventory reduction;
  - Specific codes or standards used to design equipment; and
  - Specific mechanical integrity practices (e.g., ultrasonic thickness gauging, infrared thermography, radiography of welds).

- Detection of the cause or consequences of a potential scenario;
  - Sensors or detectors with alarms and/or automatic shutdown; and
  - Process parameters (e.g., temperature, pressure) automated alarms and shutdown systems (e.g., high level alarm and high-high level shutdown).

- Mitigation of the consequences of a potential scenario;
  - Pressure relief systems (e.g., pressure relief valves, fire-dump systems);
  - Secondary containment (e.g., curbing, diking);
  - Neutralization (e.g., scrubbers);
  - Deluge systems;
  - Redundant equipment;
  - Fire suppression and extinguishing systems (e.g., sprinklers, foam systems); and,
  - Facility siting (e.g., placement and design of inhabited buildings).

The stationary source may elect to include the source(s) of each safeguard or grouped safeguards (e.g., completed PHA recommendation). The stationary source may also elect to include a description of any inherently safer design technologies. A description of inherently safer design is included in Appendix C.

Program 2 Prevention Programs

If you have both Program 2 and Program 3 covered processes at your stationary source and you apply Program 3 prevention program elements throughout your stationary source, you need only describe the Program 3 prevention program elements. You must also describe any discrepancies in applying your Program 3 prevention program elements to your Program 2 covered processes. If you have both Program 2 and Program 3 covered processes and you apply both Program 2 and Program 3 prevention program elements respectively, you must describe both. If you only have Program 2 covered processes, but have elected to apply Program 3

prevention program elements, you may either describe your programs according to the Program 3 prevention program element guidelines or describe how your programs satisfy the Program 2 prevention program elements below.

Safety Information: Safety information development, dissemination, and use are vital to the effective operation of your stationary source. Personnel use information regarding chemical hazards, equipment specifications, and operating limits in daily and strategic decision making. Accurate and complete information is therefore a basic component of the prevention program.

The purpose of compiling the following safety information is to enable personnel (e.g., owner, operator, employees involved in operating the process) to identify and understand the hazards posed by those processes involving regulated substances:

- Information pertaining to the hazards of the regulated substances in the process;
- Information pertaining to the processes; and
- Information pertaining to the equipment in the process.

The compiled safety information satisfies the regulatory requirements of Section 2755.1 of the CalARP regulations.

We recommend that you develop a brief, site-specific overview of the compiled safety information and safety information procedures or policies, including:

- Purpose, scope, and objectives of the safety information program:
  - explain how safety information at your stationary source is beneficial to release prevention; and
  - explain how your personnel use the safety information.

- Implementation and administrative requirements for the safety information and safety information procedure:
  - responsibilities and methodology for maintaining the safety information current and accurate;
  - responsibilities and methodology for ensuring that the process is designed in compliance with recognized and generally accepted good engineering practice;
  - record retention requirements for safety information; and
  - summarize the compiled safety information including: material safety data sheets (MSDS); maximum intended inventory; safe upper and lower temperatures, pressures, flows, and compositions; equipment specifications; codes and standards used to design, build, and operate the process.

Optionally, you may elect to include:

- Information regarding employee accessibility to the safety information;

- A list of codes and standards used to ensure that the process is designed in compliance with recognized and generally accepted good engineering practices; and
- Information regarding developing and maintaining process chemistry.

Hazard Review - By systematically examining each process and identifying hazards associated with the design and operation of a covered process, you can manage these hazards to secure the safety of your employees, the community, and the environment. The purpose of performing a hazard review is to identify hazards; determine if existing hazard safeguards are adequate; and, where existing safeguards are inadequate, identify recommendations/action items that can be taken to mitigate the hazard.

The compiled hazard review procedures satisfy the regulatory requirements of Section 2755.2 (a) of the CalARP regulations.

For this portion of the Executive Summary, we recommend that you develop a brief, site-specific overview of your hazard review process, including:

- A description of the approach used for conducting the hazard review, including;
  - applicable external events(1), including seismic events,
  - human errors,
  - equipment malfunctions;
- The rationale used in selecting the hazard review approach;
- The rationale used to select the individual or team members conducting the review, including skills and experience qualifications;
- A description of the revalidation and updating procedures; and
- A description of the method used to document and resolve recommendations/action items identified during the hazard review.

Additionally, we recommend the stationary source include the following information regarding the seismic assessment:

- A discussion of the possible effects should an event impact the source;
- A description of the method the source uses to identify general/specific seismic hazards that may affect the stationary source (refer to the reference list in Appendix B, Seismic Assessment Guidelines, p. B-5);
- A description of the performance objective(s) used for the review (e.g., primary containment, maintain position, etc.);
- A discussion of the site relative to known active faults as defined by the State Geologist, as well as a discussion of any site-specific seismic hazards considered

(1)Included as part of the hazard review is an analysis of external events associated with the process. The CalARP regulation requires sources to address and document the hazards of external events while performing hazard reviews. External events are those occurrences whose causes are outside of the scope of the process, but which may impact the process and, in some cases, may initiate a release of the regulated substance.

(e.g., liquefaction, fault rupture, etc.);
- A description of any design practices or standards used by the source to minimize the risk resulting from the identified seismic hazards; and
- A description of inspection and maintenance practices to maintain integrity of structural components.

CCCHSD recommends that you include a brief description of the process hazards, safeguards, and changes to the process associated with the hazard review and external events analyses. Refer to Exhibits 7.4 d-h of Appendix H for lists of these elements that are applicable to your hazard review. This information may be included in this section, in the data elements section, in a glossary, or where you feel it is appropriate.

Operating Procedures - Clearly written standard operating procedures ensure that both experienced and inexperienced employees (including contract employees) are given clear, consistent instructions for safely conducting activities involving a covered process. The purpose of the written operating procedures program is to ensure that written operating procedures containing the following information are developed, reviewed, implemented, and annually certified.

- Steps for each operating phase:
  - Initial startup;
  - Normal operations;
  - Temporary operations;
  - Emergency shutdown;
  - Emergency operations;
  - Normal shutdown; and,
  - Startup following a normal or emergency shutdown or a major change that requires a hazard review.

- Operating limits;
- Safety and health considerations; and
- Safety systems and their functions.

The operating procedures should address consequences of deviations and steps required to correct or avoid deviations. Operating procedures should also be developed addressing the steps required to conduct routine equipment inspections. The written operating procedures and administrative procedures satisfy the regulatory requirements of Section 2755.3 of the California Accidental Release Prevention (CalARP) regulation.

We recommend that you develop a brief, site-specific overview of the written operating procedures program, including:

- Purpose, scope, and objectives of the written operating procedures:

  - general description of the existing written operating procedures (e.g., emergency shutdown); and
  - a description of how operating procedures at your stationary source are beneficial to release prevention.

- Implementation and administrative controls for the written operating procedures program:
  - templates or procedures used for development of operating procedures;
  - identify source of the operating procedures if other than you or your personnel (e.g., equipment manufacturers, industry-specific organization, etc.);
  - employee involvement in the development/maintenance of operating procedures;
  - employee accessibility to operating procedures; and
  - updating existing operating procedures.

Optionally, you may elect to include the following:

- An example operating procedure to demonstrate content and format;
- A more specific list of operating procedures (e.g., table of contents);
- A specific description of initiation of emergency shutdown procedures (i.e., exceeding certain parameters results in operators initiating emergency shutdown); and
- A description of safe work practices and permits developed and implemented at the stationary source (hot work, confined space, lockout/tagout). Examples of a hot work permit, lockout/tagout permit, and pipeline breaking safety permit are included as Appendix G.

Training **-** Employees who clearly understand how to safely operate your process can significantly decrease the number and severity of incidents, and increase efficiency. Therefore, a thorough training program focused on specific procedures is a key element of an effective prevention program.

The purpose of an established training program is to provide your employees (those operating a process) with an understanding of the types and causes of potential incidents or deviations within the process, the proper and safe operation of the process, and the hazards associated with the process. This is achieved by developing and implementing the following programs:

- Initial employee training;
- Certification for employees operating the process before June 21, 1999;
- Refresher training; and
- Training in updated or new procedures.

The training program satisfies the requirements of Section 2755.4 of the CalARP

regulation.

We recommend that you develop a brief, site-specific overview of the established training program, including:

- Purpose, scope, and objectives of the training program:
  - explain how training at your stationary source is beneficial to the prevention program.

- Implementation and administrative requirements for the training program:
  - description of operator initial training;
  - methods of verifying competency;
  - methods for certifying employees operating the process before June 21, 1999;
  - description and frequency of operator refresher training; and
  - description of training conducted on updated or new procedures.

Optionally, you may elect to include a description of employee training documentation and record retention requirements.

Maintenance **-** A well established maintenance program ensures that equipment critical to process safety (e.g., pressure vessels, piping systems, relief and vent system, controls, pumps and compressors, and emergency shutdown systems) is maintained in a safe operating condition. It also allows employees to identify and correct equipment deficiencies to avoid associated incidents and down time. The maintenance program is comprised of the following programs and procedures:

- Written procedures are obtained or developed for maintaining the on-going integrity of the process equipment;
- Maintenance employees (including contract employees) are trained in the applicable hazards of the process, in how to avoid or correct unsafe conditions, and in the procedures applicable to the employee's job tasks; and
- Inspection and testing procedures are developed and implemented.

The maintenance program satisfies the requirements of Section 2755.5 of the CalARP regulation.

We recommend that you develop a brief, site-specific overview of the maintenance program, including

- Purpose, scope, and objectives of the maintenance program:
  - explain how the maintenance program is beneficial to accidental release prevention; and
  - description of the types of equipment included in the maintenance program.

- Implementation and existing administrative requirements for the maintenance

program:
- description of appropriate personnel training requirements (including contract employees if applicable);
- establishment and implementation of written procedures including general sources of any procedures obtained through vendors, federal or state regulations, or industry codes;
- description of equipment inspections and tests performed on equipment (including general sources of the procedures and frequencies);
- describe mechanism for keeping the written maintenance procedures current and accurate; and
- record retention requirements (e.g., maintenance personnel training records, documentation of inspections and tests performed on equipment).

Optionally, you may elect to include the following:

- Description of equipment deficiency correction procedures; and
- Description of quality assurance procedures (initial installation and fabrication requirements).

Compliance Audits - It is vital to the continuous improvement of the prevention program that you ensure that the prevention program elements are functioning properly (i.e., that they meet the regulatory intent and that they are properly implemented). Personnel perform internal compliance audits at least every three years to review and evaluate the written documentation/records and implementation of your prevention program. Potential deficiencies within the prevention program elements that are identified will be addressed to ensure an effective overall prevention program. The developed compliance audits program satisfies the regulatory requirements of Section 2755.6 of the California Accidental Release Prevention (CalARP) program regulation.

We recommend that you develop a brief, site-specific overview of the compliance audits program, including:

- Purpose, scope, and objectives of the compliance audits program;
  - describe how the compliance audits program will be beneficial to accidental release prevention.

- Implementation and administrative requirements for the compliance audits program:
  - qualifications for compliance auditors;
  - audit methodology (e.g., interviews conducted, records reviews);
  - existing procedures for addressing all recommendations;
  - existing procedures for tracking and documenting the disposition of recommendations from all risk management program compliance audits; and
  - compliance audits program record retention requirements.

Optionally, you may elect to elaborate on the following:

- Basis of the audit protocol (e.g., regulatory requirements, written clarifications, best industry practice) and sampling techniques;

- Training and qualifications for audit team leaders and audit team members;

- More specific discussion regarding the frequency and duration of the audit (i.e., "every three years an audit lasting approximately one week is conducted" versus "throughout the three years each element is audited");

- Coordination of stationary source-wide audits conducted to satisfy process safety management (PSM) regulation (for Program 3 covered processes) and the CalARP regulation (for all covered processes); and

- Compliance audit report content.

Incident Investigation **-** Incident investigation is vital to your prevention program. Incident investigations require personnel to compile the facts and identify contributing factors for each incident that resulted in, or could reasonably have resulted in a catastrophic release of a regulated substance. Personnel are then required to develop recommendations and implement corrective actions to prevent reoccurrence of the incident, or similar incidents.

The written incident investigation procedure satisfies the regulatory requirements of Section 2755.7 of the California Accidental Release Prevention (CalARP) regulation.

We recommend that you develop a brief, site-specific overview of the applicable requirements of the incident investigation procedure, including:

- Purpose, scope, and objectives of the incident investigation procedure:
  - describe how the incident investigation procedure at your stationary source is beneficial to release prevention.

- Implementation and administrative requirements for incident investigation procedure:
  - requirements or criteria for initiating an incident investigation;
  - reporting and documenting incidents that could have reasonably resulted in a catastrophic release;
  - incident investigation record retention requirements;
  - contents of incident investigation summary (e.g., date of incident, date investigation began);
  - requirements for formulation, addressing, and resolving recommendations; and

- communicating incident investigation report findings to affected employees (including contract) and other stationary sources as applicable.

Optionally, you may elect to elaborate on the following:

- Methodology or procedures used to identify underlying factors (e.g., causal factor analysis) during incident investigation;

- If your program exceeds the regulatory requirements, consider describing those aspects of the incident investigation procedures (e.g., investigating incidents that do not or could not reasonably result in a catastrophic incident or the performing of root cause analysis for serious events);

- Incident investigation team leader training and team member training;

- Incident investigation team leader responsibilities and team member responsibilities;

- Incident investigation team leader and members' qualifications and experience; and

- Optional contents of the incident investigation summary (e.g., chemicals released, duration of release, and how the release was detected).

An example Accident/Incident Investigation form is included in Appendix G.

Program 3 Prevention Program

Process Safety Information **-** Process safety information (PSI) development, dissemination, and use is vital to the effective operation of your stationary source. Personnel use information regarding chemical hazards, equipment specifications, and operating limits in daily and strategic decision making. Accurate and complete information that is readily accessible to personnel is therefore a basic component of the prevention program.

The purpose of compiling the following process safety information (PSI) is to enable personnel (e.g., owner, operator, employees involved in operating the process) to identify and understand the hazards posed by those processes involving regulated substances:

- Information pertaining to the hazards of the regulated substances in the process;
- Information pertaining to the technology of the process; and
- Information pertaining to the equipment in the process.

The compiled PSI satisfies the regulatory requirements of Section 2760.1 of the

CalARP regulations.

We recommend that you develop a brief, site-specific overview of the compiled PSI and written PSI procedures or policies, including:

- Purpose, scope, and objectives of the PSI program:
  - explain how PSI at your stationary source is beneficial to release prevention; and explain how your personnel use PSI.

- Implementation and administrative requirements for the process safety information and process safety information procedure:
  - responsibilities and requirements for original compilation;
  - responsibilities and methodology for maintaining PSI current and accurate;
  - responsibilities and methodology for ensuring that the process is designed in compliance with recognized and generally accepted good engineering practice;
  - availability and accessibility of information to employees during normal and non-normal hours;
  - summarize the type of information available regarding the hazards of the regulated substance in the process (e.g., toxicity information, permissible exposure limits, physical data, reactivity data, corrosivity data, thermal and chemical stability data, hazardous effects of inadvertent mixing of different materials that could foreseeably occur);
    NOTE: Stationary sources will be asked to provide much of this information in the Offsite Consequence Analysis section of the RMP
  - summarize the type of information available regarding the technology of the process (e.g., block flow diagram, process chemistry, safe upper and lower limits for operating parameters, an evaluation of the consequences of deviations);
  - summarize the type of information available regarding the equipment in the process (e.g., piping and instrumentation diagrams (P&IDs), relief system design and design basis, ventilation system design, design codes and standards employed, material and energy balances for processes built after June 21, 1999, safety systems, optionally describe any design codes and standards reviews that are conducted); and
  - record retention requirements for PSI.

Optionally you may elect to include:

- A list of codes and standards used to ensure that the process is designed in compliance with recognized and generally accepted good engineering practices; and
- Description of procedure to ensure that equipment is designed, maintained, inspected, tested, and operated in a safe manner even if the codes or standards are no longer in use.

Process Hazard Analysis - By identifying hazards associated with the design and operation of a covered process, you can manage these hazards to secure the safety of your employees, the community, and the environment. The purpose of performing a process hazard analysis (PHA) is to identify these hazards, determine if existing hazard safeguards are adequate, and where existing safeguards are inadequate, identify recommendations/action items that can be taken to mitigate the hazard. The compiled hazard review procedures satisfy the regulatory requirements of Section 2760.2 (a) of the CalARP regulations.

We recommend that you develop a brief, site-specific overview of your PHA process, including:

- A description of the approach used for conducting the PHA, including;
  - applicable external events(2), including seismic events;
  - human errors
  - equipment malfunctions
- The rationale used in selecting the PHA methodology;
- The rationale used to select the team conducting the PHA, including their qualifications;
- A description of the revalidation and updating procedures; and
- A description of the method used to document and resolve recommendations/action items identified during the PHA.

Additionally, we recommend the stationary source include the following information regarding the seismic assessment:

- A description of the method the source uses to identify general/specific seismic hazards that may affect the stationary source (refer to the reference list in Appendix B, Seismic Assessment Guidelines, p. B-5.);
- A description of the performance objective(s) used for the review (e.g., primary containment, maintain position, etc.);
- A discussion of the site relative to known active faults as defined by the State Geologist, as well as a discussion of any site-specific seismic hazards considered (e.g., liquefaction, fault rupture, etc.);
- A description of any design practices or standards used by the source to minimize the risk resulting from the identified seismic hazards; and
- A description of inspection and maintenance practices to maintain integrity of structural components.

The recommendations/action items resulting from the PHA and external events analyses are to be described in the “Planned Changes to Improve Safety” section of

(2)Included as part of the PHA is an analysis of external events associated with the process. The CalARP regulation requires sources to address and document the hazards of external events while performing PHAs. External events are those occurrences whose causes are outside of the scope of the process, but which may impact the process and, in some cases, may initiate a release of the regulated substance.

this document.

CCCHSD recommends that you include a brief description of the process hazards, safeguards, and changes to the process associated with the PHA and external events analyses. Refer to Exhibits 7.4 d-h of Appendix H for lists of these elements that are applicable to your PHA. This information may be included in this section, in the data elements section, in a glossary, or where you feel it is appropriate.

Operating Procedures - Clearly written standard operating procedures and safe work practices ensure that both experienced and inexperienced employees (including contract employees) will respond in a consistent and prescribed manner. The purpose of the written operating procedures program is to ensure that written operating procedures containing the following information are developed, reviewed, implemented, and annually certified.

- Steps for each operating phase:
  - Initial startup;
  - Normal operations;
  - Temporary operations;
  - Emergency shutdown;
  - Emergency operations;
  - Normal shutdown; and
  - Startup following a turnaround.
- Safe work (e.g., lockout/tagout, confined space entry);
- Operating limits;
- Safety and health considerations; and
- Safety systems and their functions.

The written operating procedures, written safe work practices, and administrative procedures satisfy the regulatory requirements of Section 2760.3 of the California Accidental Release Prevention (CalARP) regulation.

We recommend that you develop a brief, site-specific overview of the written operating procedures/safe work practices, including:

- Purpose, scope, and objectives of the written operating procedures and safe work practices:
  - general description of the existing written operating procedures and safe work practices (i.e., emergency shutdown, confined space entry); and
  - describe how operating procedures at your stationary source are beneficial to release prevention.

- Existing written operating procedures and safe work practices and the administrative controls for maintaining them current and accurate
  - templates or procedures used for development of operating procedures and

safe work practices;
- employee involvement in the development/maintenance of operating procedures;
- operating procedures and safe work practices format and content;
- employee accessibility to operating procedures;
- mechanisms for managing changes to the operating procedures and temporary operating procedures;
- review of existing operating procedures; and
- annual certification of the operating procedures.

Additionally, you may elect to include the following:

- An example operating procedure or safe work practice to demonstrate content and format;
- A more specific list of operating procedures and safe work practices (e.g., procedures list). Examples of a lockout/tagout permit and pipeline breaking permit are included in Appendix G; and
- A specific description of initiation of emergency shutdown procedures (i.e., exceeding certain parameters results in operators initiating emergency shutdown).

Training - Employees who clearly understand how to safely operate your process can significantly decrease the number and severity of incidents, and increase efficiency. Therefore, a thorough training program focused on specific procedures is a key element of an effective prevention program.

The purpose of an established training program is to provide your employees (those operating a process) with an understanding of the types and causes of potential incidents or deviations within the process, the proper and safe operation of the process, and the hazards associated with the process. This is achieved by developing and implementing the following programs:

- Initial employee training;
- Certification for employees operating the process before June 21, 1999;
- Refresher training; and
- Training in updated or new procedures.

The training program satisfies the requirements of Section 2755.4 of the CalARP regulation.

We recommend that you develop a brief, site-specific overview of the established training program, including:

- Purpose, scope, and objectives of the training program:
  - explain how training at your stationary source is beneficial to the prevention

program.

- Implementation and administrative requirements for the training program
  - description of operator initial training;
  - methods of verifying competency;
  - methods for certifying employees operating the process before June 21, 1999;
  - description and frequency of operator refresher training; and
  - description of training conducted on updated or new procedures.

Optionally, you may elect to include a description of employee training documentation and record retention requirements.

Mechanical Integrity- A well established mechanical integrity program ensures that equipment critical to process safety (e.g., pressure vessels, piping systems, relief and vent system, controls, pumps and compressors, and emergency shutdown systems) is fabricated from proper materials of construction, installed correctly, and maintained in a safe operating condition. It also allows employees to preemptively identify and correct equipment deficiencies to avoid associated incidents and down time. The mechanical integrity program is comprised of the following programs and procedures:

- Procedures are developed and implemented for ensuring quality assurance (e.g., proper fabrication and installation of new equipment);

- Written procedures are developed for maintaining the on-going integrity of the process equipment;

- Maintenance employees are trained in an overview of the process and its hazards and in the procedures applicable to the employee's job tasks;

- Inspection and testing procedures are developed and implemented; and

- Procedures are developed for correcting deficiencies in equipment outside of acceptable limits.

The mechanical integrity program satisfies the requirements of Section 2760.5 of the CalARP regulation.

We recommend that you develop a brief, site-specific overview of the mechanical integrity program, including:

- Purpose, scope, and objectives of the mechanical integrity program:
  - explain how the mechanical integrity program is beneficial to accidental release prevention; and

- description of the types of equipment included in the mechanical integrity program.

- Implementation and existing administrative requirements for the mechanical integrity program:
  - description of quality assurance procedures (e.g., proper fabrication and installation of new equipment);
  - description of appropriate personnel training requirements (including contract employees if applicable);
  - establishment and implementation of written procedures;
  - description of equipment inspections and tests performed on equipment (including frequencies);
  - description of equipment deficiency correction procedures;
  - description of preventive maintenance and non-scheduled maintenance procedures;
  - description of mechanism for keeping written maintenance procedures current and accurate; and
  - record retention requirements (e.g., maintenance personnel training records, documentation of inspections and tests performed on equipment,

Optionally, you may elect to include a table summarizing the inspection, testing, and preventive maintenance schedules and frequencies for each piece of equipment.

Management of Change **-** Changes within your stationary source are sometimes necessary to address safety, environmental, and operational concerns. A change made in one part of the process may have unintended effects on other parts of the process or other processes because your stationary source is an integrated system. These changes must therefore be appropriately scrutinized to avoid adverse effects to worker and public safety, and the environment.

The purpose of the written management of change (MOC) procedure is to ensure that all changes (except for replacement in kind) to the following are properly managed:

- Process chemicals (e.g., raw materials, intermediate products, solvents);
- Technology (e.g., operating parameters, catalyst, rates);
- Equipment (e.g., materials of construction, equipment specifications);
- Procedures (e.g., emergency response, preventive maintenance, operating); and
- Stationary sources that affect a covered process.

The written MOC procedure satisfies the regulatory requirements of Section 2760.6 of the California Accidental Release Prevention (CalARP) regulation.

We recommend that you develop a brief, site-specific overview of the MOC procedures and implementation, including:

- Purpose, scope, and objectives of the MOC program:
  - explain how the MOC program at your stationary source is beneficial to release prevention.

- Implementation and administrative requirements for the MOC procedure:
  - initiation of the MOC program;
  - identification of non "replacement-in-kind" changes;
  - restrictions associated with temporary or emergency changes;
  - description of the procedures used to assess the impact on safety and health of the change (e.g., a safety checklist for minor changes and a process hazard analysis (PHA) for major changes);
  - description of the procedures used to inform and train employees whose job tasks will be affected by the change (e.g., operating personnel, maintenance personnel, and contract personnel) prior to startup of the process or affected part of the process;
  - brief description of the procedures used to update the process safety information (PSI) as a result of a change;
  - brief description of the procedures used to update the operating procedures and practices as a result of the change requirements of the MOC element;
  - documentation and record retention requirements. Two examples of MOC forms or "Notification of Process Change Checklist" are included in Appendix G;
  - responsibilities and requirements for authorizing changes; and
  - responsibilities and requirements for addressing recommendations.

Pre-Startup Review - Your stationary source may be comprised of a variety of complex processes. Modifications in these processes are sometimes required to improve safety and operability. When these modifications require that the process safety information (PSI) be updated or if it is a new process, employees formally verify that all controls (engineering and administrative) are installed and implemented prior to startup. The specific purpose of the written pre-startup review (PSR) procedure is to confirm the following prior to the introduction of regulated substances:

- Construction and equipment is in accordance with design specifications;
- Safety, operating, maintenance and emergency procedures are in place and are adequate;
- For new stationary sources, a process hazard analysis (PHA) has been performed and recommendations have resolved or implemented before startup;
- For modified stationary sources, the requirements contained in the written management of change (MOC) program have been meet; and
- Training of each employee involved in operating a process has been completed.

The written procedure satisfies the regulatory requirements of Section 2760.7 of the CalARP regulations.

We recommend that you develop a brief, site-specific overview of the PSR procedures and implementation, including:

- Purpose, scope, and objectives of the PSR program:
  - explain how the PSR program at your stationary source is beneficial to release prevention.

- Implementation and administrative requirements for PSR procedure:
  - initiation of the PSR program;
  - description of the means used to ensure and verify that the P&ID's are updated before the new or modified stationary source is started;
  - description of the procedures used to verify that construction and equipment is in accordance with design specifications;
  - description of the procedures used to review and revise procedures and practices (e.g., safety, maintenance, operating, and emergency);
  - description of the procedures used to inform and train employees involved in operating the process;
  - documentation and record retention requirements (e.g., safety checklist, completed MOC (modified stationary sources), completed PHA (new stationary sources), updated procedures, training records, adherence to design specifications);
  - responsibilities and requirements for authorization of startup (e.g., authorization from operations, engineering, safety, maintenance); and
  - responsibilities and requirements for tracking and addressing recommendations.

Optionally you may elect to include the following:

- Description of any walk-throughs conducted prior to startup of your new or modified stationary source (e.g., documentation, responsibilities); and,
- Description of criteria for performing PSRs (e.g., capital projects include specifications for conducting PSRs, initiated through MOC).

Compliance Audits - It is vital to the continuous improvement of the prevention program that you ensure that the prevention program elements are functioning properly (i.e., that they meet the regulatory intent and that they are properly implemented). Personnel (including contract) perform internal compliance audits at least every three years to review and evaluate the written documentation/records and implementation of your prevention program. Potential deficiencies within the prevention program elements that are identified will be addressed to ensure an effective overall prevention program. The developed compliance audits program satisfies the regulatory requirements of Section 2760.8 of the California Accidental Release Prevention (CalARP) Program regulation.

We recommend that you develop a brief, site-specific overview of the compliance

audits program, including:

- Purpose, scope, and objectives of the compliance audits program:
  - describe how the compliance audits program will be beneficial to accidental release prevention.

- Implementation and administrative requirements for the compliance audits program:
  - training and qualifications for audit team leaders and audit team members;
  - audit methodology (e.g., interviews conducted, records reviews);
  - existing procedures for addressing and resolving all recommendations;
  - existing procedures for tracking and documenting the disposition of recommendations from all risk management program compliance audits; and
  - compliance audits program record retention requirements.

Optionally, you may elect to elaborate on the following:

- Basis of the audit protocol (e.g., regulatory requirements, written clarifications, best industry practice) and sampling techniques;

- More specific discussion regarding the frequency and duration of the audit (e.g., "every three years an audit lasting approximately one week is conducted" versus "throughout the three years each element is audited");

- Coordination of audits conducted to satisfy process safety management (PSM) regulation and the CalARP regulation; and

- Compliance audit report content.

Incident Investigation **-** Incident investigation is vital to your prevention program. Incident investigations require personnel to compile the facts and identify contributing factors for each incident that resulted in, or could reasonably have resulted in a catastrophic release of a regulated substance. Personnel are then required to develop recommendations and implement corrective actions to prevent reoccurrence of the incident, or similar incidents.

The written incident investigation procedure satisfies the regulatory requirements of Section 2760.9 of the California Accidental Release Prevention (CalARP) Program regulation.

We recommend that you develop a brief, site-specific overview of the applicable requirements of the incident investigation procedure, including:

- Purpose, scope, and objectives of the incident investigation procedure:

- describe how the incident investigation procedure at your stationary source is beneficial to release prevention.

- Implementation and administrative requirements for incident investigation procedure:
  - requirements or criteria for initiating an incident investigation;
  - reporting and documenting incidents that could have reasonably resulted in a catastrophic release;
  - incident investigation team leader and members' qualifications and experience;
  - incident investigation team leader training and team member training;
  - incident investigation team leader responsibilities and team member responsibilities;
  - incident investigation record retention requirements. An example Incident/Accident Investigation form is included in Appendix G;
  - contents of incident investigation report (e.g., date of incident, date investigation began);
  - requirements for formulation, addressing, resolving, and tracking recommendations; and
  - communicating incident investigation report findings to employees (including contract), CCCHSD, the public, and other stationary sources as applicable.

Optionally, you may elect to elaborate on the following:

- Methodology or procedures used to identify underlying factors (e.g., root cause analysis) during incident investigation; and

- If your program exceeds the regulatory requirements, consider describing those aspects of the incident investigation procedures (e.g., investigating incidents that do not or could not reasonably result in a catastrophic incident or performing root cause analysis for serious events).

Employee Participation **-** You rely on the expertise of your employees at all levels and disciplines to optimize operations and safety. This is achieved by consulting with employees to ensure consideration of their knowledge and experience in all applicable areas of the prevention program prior to implementation. The purpose of the written employee participation action plan is to involve employees in the CalARP program at a fundamental level by ensuring that you:

- Consult[(3)] with employees and their representatives on the conduct and

(3) Cal/OSHA, in Part 4 (Questions and Answers) of T8 CCR 5189 publication , defined consult as exchanging information with, and soliciting input and participation from the employees and their representatives. It requires more than simply informing employees.

development of process hazard analyses (PHAs) performed in accordance with Section 2760.2 of the CalARP regulation;
- Consult with employees and their representatives on the development of all other prevention program elements within the CalARP program; and
- Provide employees and their representatives access to PHA's and to all other information required to be developed under the CalARP regulation.

The employee participation program satisfies the requirements of Section 2760.1 of the CalARP regulation.

We recommend that you develop a brief, site-specific overview of the written employee participation action plan, including:

- Purpose, scope, and objectives of the employee participation plan:
  - description of how the employee participation plan is beneficial to the overall prevention program; and
  - description of employees included in the program (i.e., hourly and contractors versus members of management or salaried personnel).

- Implementation and administrative requirements for the employee participation program:
  - description of the consultation with employees on the conduct and development of PHAs and other elements of the prevention program;
  - description of access by employees and their representatives to PHAs and all other information developed as part of the CalARP Program regulation;
  - examples of active employee participation; and
  - description of documentation maintained to demonstrate employee participation.

Optionally, you may elect to include a definition or description of consultation with employees.

Hot Work Permit - Controlling ignition sources is vital to your release prevention program. It is critical that pertinent personnel are notified when hot work (i.e., any spark-producing operation including grinding, burning, welding, brazing) is to be performed in a unit and that appropriate safety precautions are taken prior to initiation of the work. You have developed a program requiring that a hot work permit be completed to certify that the applicable portions of the fire prevention and protection requirements are implemented prior to beginning hot work operations.

The applicable portions of the fire prevention and protection requirements are contained in the fire prevention and suppression procedure and hot work permit, Title 8 California Code of Regulations (T8 CCR) §4848 and §6777 respectively. The hot work permit program satisfies Section 2760.11 of the CalARP regulation.

We recommend that you develop a brief, site-specific overview of the applicable portions of the fire prevention and protection procedure that are covered by a hot work permit, including:

- Purpose, scope, and objectives of the fire prevention and suppression procedure and hot work permit:
  - describe how the applicable portions of the fire prevention and protection requirements contained in the fire prevention and suppression procedure and the hot work permit are beneficial to accidental release prevention.

- Implementation and administrative requirements for the fire prevention and suppression procedure and hot work permit:
  - summarize the applicable portions of the stationary source's fire prevention and suppression procedure (e.g., proper cutting and welding procedures, preventing ignition of combustibles during cutting or welding) documented on the hot work permit;
  - authorization requirements for the hot work permit. An example hot-work permit is included in Appendix G;
  - format and content of the hot work permit (e.g., indication of the dates authorized for hot work, the object on which hot work is to be performed);
  - conditions requiring termination of the hot work;
  - record retention requirements for hot work permits; and
  - responsibilities and authority of fire watch personnel

Optionally, you may elect to include the following:

- A description of additional existing programs that prevent ignition sources (e.g., housekeeping policies to control combustibles and the build up of static electricity);
- A description of training for and responsibilities of fire watchers, supervisors of hot work operations, and employees who authorize hot work permits (including contract);
- A description of the relationship between hot work permits and other safe work permits; and
- A description of "field verifications" performed to assess implementation of the hot work permit program.

Contractors **-** Contractors may be used frequently or infrequently at your stationary source to perform operations, maintenance, or construction. You and the contract owner are jointly responsible for safety and must ensure that contractors are trained in and understand the following:

- Work practices necessary to perform his or her job;
- Hazards associated with a process;

- Applicable sections of the emergency response procedure; and,
- Applicable safe work practices.

It is also critical for contractors to inform you of any hazards that they introduce while conducting their work.

The contractors program satisfies the requirements of Section 2760.12 of the CalARP regulation.

We recommend that you develop a brief, site-specific overview of the contractors program including:

- Purpose, scope, and objectives
  - explain how the contractors program at you stationary source is beneficial to release prevention

- Implementation and administrative requirements for the contractors program:
  - description of criteria used as part of the contractor selection process;
  - description of how the stationary source informs contractors of hazards and applicable emergency procedures (e.g., during contractor orientation program);
  - description of safe work practices to control contractor access, presence, and egress;
  - description of periodic evaluations/monitoring of the contract owner or operator, including what is reviewed and what documentation is maintained;
  - description of contract owner responsibilities; and
  - records (e.g., contractor selection submittals, contractor safety training) retention requirements.

THE FIVE-YEAR ACCIDENT HISTORY

You are required to compile a five-year accident history for all accidental releases (including regulated substances and other extremely hazardous substances) from covered processes that resulted in deaths, injuries, or significant property damage on site, or known offsite deaths, injuries, evacuations, sheltering in place, property damage, or environmental damage. The five-year accident history allows you to explain to the community the factors causing or contributing to accidental releases, the onsite and offsite impacts of accidental releases, and the procedural and technological changes made to minimize the likelihood that these accidental releases will reoccur. The intent of this information exchange is to create an informed community while also documenting that accidental releases are investigated and concrete changes are made to protect against reoccurrence. 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.

The five-year accident history compiled by the stationary source satisfies the requirements of Section 2750.9 of the CalARP regulation

We recommend that you develop a brief summary of the accidental releases that have occurred over the past five years that meet the criteria of Section 2750.9, including the following information:

- Number of accidental releases and the chemicals released;
- Offsite impacts:
  - activation of the community warning system (CWS);
  - evacuations;
  - shelter in place; and
  - injuries or fatalities.
- Onsite injuries or deaths; and
- General types of changes (procedural and technological) made to prevent reoccurrence and how these changes were tracked to ensure completion.

Optionally, CCCHSD strongly recommends that you include accidental releases that did not meet the reporting criteria but that received substantial community attention. Additionally, the stationary source may elect to include:

- Reaction and degradation products and byproducts released to the extent known; and
- Near misses of averting a catastrophic release as defined in the CalARP regulation.

THE EMERGENCY RESPONSE PROGRAM

The overall safety of your stationary source is governed not only by your ability to prevent accidental releases of regulated substances from occurring, but also by your ability to respond to and mitigate any accidental releases of regulated substances. You must therefore develop emergency response programs to minimize the effects of accidental releases of regulated substances to employees, the public, and the environment. You may choose not to have direct employee response to accidental releases of regulated substances. If you are not going to respond to accidental releases, you must ensure the following:

- You are included in the emergency response area plan if you maintain any regulated toxic substance above the threshold quantity;
- You have coordinated response actions with the local fire department if you maintain regulated flammable substances above the threshold quantity; and
- You have developed a mechanism to notify emergency responders when there is a need for a response.

If you choose to respond to accidental releases of regulated substances, the

emergency response program should include the following elements:

- An emergency response plan complying with the state and federal integrated contingency plans (ICPs) or other contingency plan and coordinated with the emergency response area plan, including: notification of and coordination with the public and local emergency response agencies; documentation of first aid and emergency medical treatment; emergency response procedures following an accidental release of a regulated substance;
- Procedures for emergency response equipment use, inspection, testing, and maintenance;
- Training for all employees on the relevant procedures and relevant aspects of the incident command system (ICS);
- Procedures to review and update the emergency response plan to reflect changes at your stationary source and to ensure that employees are informed of the changes;
- You have determined the capabilities and limitations of local emergency responders and either expanded their own abilities or established mutual aid agreements to manage those situations for which they lack appropriate training or equipment; and
- Procedures for informing and interfacing with the public and local emergency response agencies about accidental releases, emergency planning and emergency response as described in Section 2765.2(a)(1)(A).

The emergency response program satisfies the requirements of Section 2765.2 and Section 2735.4(d)(3) of the CalARP regulation.

We recommend that non-responding stationary sources develop a brief, site-specific overview of the emergency response program, including:

- Description of notification procedures for local emergency responders and the public (e.g., notification of the fire/health services departments, initiation of the community warning system (CWS) including the process for sounding the sirens);
- Description of coordination practices with local emergency responders and the public (e.g., scheduling and conducting drills);
- Description of coordination with, or inclusion in, the emergency response area plan; and
- Description of procedures for reviewing and updating the emergency response plan.

We recommend that responding stationary sources develop a brief, site-specific overview of the emergency response program, including:

- Description of notification procedures for local emergency responders and the public (e.g., notification of the fire/health services departments, initiation of the

community warning system (CWS) including the process for sounding the sirens);
- Description of coordination practices with local emergency responders and the public (e.g., scheduling and conducting drills);
- Description of coordination with, or inclusion in, the emergency response area plan;
- Description of procedures for reviewing and updating the emergency response plan;
- Description of internal notification procedures and practices;
- Summary of emergency response personnel initial and refresher training if applicable (e.g., HAZWOPER - T8 CCR §5192, fire brigade);
- Examples of chemical-specific mitigation equipment or practices (e.g. deluge systems, scrubbers); and
- Description of mutual aid participation.

Optionally, you (responding and non-responding stationary sources) may elect to include the following information regarding the emergency response program:

- Summary of emergency action plan procedures and training (e.g., evacuation, headcounting procedures);
- Description of coordination activities in identifying Community Alert Network (CAN) zones;
- A map showing the CAN zones (if identified). This information may be included on the maps in the offsite consequence analysis;
- Identification of emergency response equipment and controls (e.g., fire extinguishers, air-purifying respirators, secondary containment, water sprays) and a description of the use, testing, inspection, and maintenance of each;
- Summary of internal and perimeter monitoring and community sampling performed during an accidental release of a regulated substance; and
- Summary of method used to notify hospitals and ambulance services of chemical hazards and suggested treatment for individuals exposed to regulated and non-regulated substances.

PLANNED CHANGES TO IMPROVE SAFETY

Studies associated with prevention program elements such as PHAs (including external events analysis and seismic analysis), incident investigation, management of change, and compliance audits are regularly conducted to verify designs and to identify potential hazards. Recommendations may be developed as a result of these studies and as a result of equipment inspections, safety meetings, review of industry experience, technology improvements, and employee suggestions. Once formulated, recommendations are reviewed and corresponding action items or planned activities are developed to implement each recommendation that is accepted. Communication of these action items or planned activities informs the public of measurable

improvements for safety that are being incorporated at the stationary source.

This section satisfies the regulatory requirements of Section 2745.3 of the California Accidental Release Prevention (CalARP) regulation.

We recommend that you include a site-specific summary of action items or planned activities to enhance safety that meet the following selection criteria:

- All action items or planned activities from technical studies that have not been implemented (e.g., hazard reviews and/or PHAs, seismic analyses, and other external event analysis) from Program 2 or Program 3 covered processes that are expected to reduce the risk (severity or likelihood) of an incident which could have reasonably resulted in an offsite consequence as defined in the CalARP regulation (exceeding the toxic endpoints for toxic substances or exceeding the overpressure or thermal radiation limits for flammables); and
- Examples of action items or planned activities from sources other than technical studies (e.g., compliance audits, incident investigations, review of industry experience) that are expected to reduce the risk of releases with potential offsite consequences as defined above.

Appropriate communication of these action items or planned activities will include:

- Summary of the source(s) of specific or summarized action items or planned activities (e.g., PHAs, compliance audits, internal inspections, safety meetings, incident investigations);
- Description of the criteria applied or methodology used to select the action items or planned activities from the initial lists and any assumptions or interpretations made in applying the selection criteria;
- Summarize action items or planned activities, grouping similar action items or planned activities (e.g. line and valve labeling can be presented as one entry) and specific action items or planned activities made to achieve one purpose (e.g., 10 specific action items or planned activities made to upgrade the flare system can be presented as one entry). Optionally, the stationary source may find it beneficial to use the following categories, taken from the CalARP Data Elements, to structure the grouping of action items or planned activities:
  - **Relief systems** - vents, relief valves, flares, scrubber, and rupture disks;
  - **Flow Restriction** - excess flow device, check valves, and fire valves;
  - **Shut-down Systems** - manual shutoffs, automatic shutoffs, interlocks, and alarms and procedures;
  - **Emergency Backup** - emergency utilities, backup equipment;
  - **Misc. Prevention Systems** - grounding equipment, inhibitor addition, quench systems, and purge systems;
  - **Post-Release Mitigation** - sprinkler, dikes, fire or blast walls, deluge systems, water curtain, enclosure, neutralization;
  - **Monitoring/Detection** - process area detectors, perimeter monitors;
  - **Administrative/Procedural;** and

- **Other.**

- Description of the purpose of specific or summarized action items or planned activities (e.g., high level, pressure, and temperature alarms alert personnel to deviations above the desired upper operating limits and require that appropriate steps be taken to correct the deviation); and
- Means to demonstrate the progress and timely closure of each listed action item or planned activity during the five-year RMP update:

  - the inclusion of a projected completion date of each action item or planned activity is recommended. This date will reflect the projected completion date of the specific action items or planned activities at the time of the RMP compilation (NOTE: if 10 recommendations are summarized in one entry, the latest completion date or a range of completion dates could be included);

  - the inclusion of a statistical summary, overall or per category or grouping, of all action items or planned activities from technical studies meeting the selection criteria and the status of each (e.g., 20 recommendations meeting the selection criteria were identified, 10 are complete, 5 are scheduled for completion prior to the identified due dates, and 5 are overdue) is also recommended; and

  - inclusion of a brief description of the statistical summary if the stationary source identifies any information that is not clear or could be misinterpreted is also recommended. (The 5 overdue recommendations have been revised or replaced as a result of a detailed engineering analysis and will be implemented during the next scheduled turnaround, September 2000).

NOTE: You must consult with CCCHSD prior to submittal of the RMP regarding interpretation of the selection criteria, application of additional or alternative selection criteria, appropriate grouping of action items or planned activities, and the means used to demonstrate the progress and timely completion of all action items or planned activities if a method other than including due dates is used.

Optionally, you may elect to include the following information:

- Description of the process for reviewing, revising, replacing, and rejecting recommendations;
- Description of how recommendations from various sources are coordinated, maintained, addressed, updated, and tracked;
- Statistical summary of all action items or planned activities generated during technical studies;
- Statistical summary of action items or planned activities from sources other than technical studies, where appropriate (e.g., recommendations formulated during compliance audits may be readily summarized statistically, while recommendations from safety meetings and industry-wide experience may not be

readily summarized);
- Description of action items or planned activities generated in response to incidents that received significant community attention but do not meet the selection criteria;
- Specific examples of completed action items or planned activities; and
- Specific action items or planned activities within the discussion of each applicable prevention program (e.g., compliance audits results, incident investigation results, PHA or hazard review results, management of change review results), reserving this section for a very general overview.

The stationary source may also elect to include a description of any planned changes which represent inherently safer design technologies. A description of inherently safer design is included in Appendix C.

9.3.2 OFF-SITE CONSEQUENCE ANALYSIS

Well-documented offsite consequence analyses (OCAs) are essential for adequate communication to the public of potential hazards at the stationary source. Offsite consequence analysis is also a tool used by the stationary source to assist the CCCHSD Incident Response Team in emergency response planning. The purpose of this section of the RMP is to describe the results of the Worst-Case Scenarios (WCSs) and Alternative Release Scenarios (ARSs) for Program 2 or Program 3 covered processes.

CCCHSD recommends, therefore, the ARS for regulated substances be the worst credible release scenario modeled with conservative meteorological conditions that occasionally exist in the county. The hazard assessment results will then represent a reasonable "outer bound" for your stationary source's emergency response planning and for explaining the potential hazards of your operations to the community. An ARS represents a more credible release than the WCS, and should result in concentrations, overpressures, or radiant heat levels that reach the endpoints specified for these effects beyond the fenceline of your stationary source, unless no such scenario exists.

For stationary sources that previously submitted RMPP documents, the worst-credible release scenarios in your RMPP should be sufficient for the ARSs.

CCCHSD recommends that you include a description of all regulated substances included in your OCA. This description should include, but is not limited to, all pertinent physical and chemical properties, as well as potential health effects and hazards. It is also recommended that you include the toxic/flammable endpoints and definitions used in your OCA.

CCCHSD recommends you also include a description and explanation of the scenario selection process/criteria used for all scenarios in your OCA.

For the WCS, CCCHSD recommends you develop brief descriptions of the results of your offsite consequence analyses, including:

- Selection Criteria and Scenario Description (for each flammable and toxic scenario):
  - OCA method used (e.g., dispersion model type, EPA's *RMP Offsite Consequence Guidelines*, etc.);
  - Description of the scenario (e.g., failure of a vessel containing 30,000 pounds of chemical X released over a ten-minute period);
  - Method for selection of scenario;
  - Mitigation measures considered in each scenario; and
  - Modeling input data (including an explanation of key parameters/input);

- Results Summary:
  - Tabular form of WCS results;
  - Graphical representation of results on a map of the area, showing the affected areas of concern Your maps should:
    - Include vulnerability zones with orientation of your stationary source to true north (i.e., with an arrow, latitude/longitude grid, etc.);
    - Include either the plume (if using a dispersion model) or an arrow in the direction of the prevailing wind;
    - Be consistent for ease of use (i.e., one chemical release scenario per single page, size 8½" X 11" or 11" X 17"), and include a scale of the map (e.g., one inch equals 2,400 feet); and
  - Estimate of the residential population affected by the release, including the method used to calculate it.

For your ARS, CCCHSD recommends you develop brief descriptions of the results of your offsite consequence analyses, including:

- Selection Criteria and Scenario Description (for each flammable and toxic scenario):
  - OCA method used (e.g., dispersion model type, EPA's *RMP Offsite Consequence Guidelines*, etc.);
  - Description of the scenario (e.g., failure of a vessel containing 1,000 pounds of chemical X released over a thirty-minute period);
  - Method for selection of scenario;
  - Mitigation measures considered in each scenario; and
  - Modeling input data (including an explanation of key parameters);

- Rationale for selecting the ARS; and

- Results Summary:
  - Tabular form of the ARS results;
  - Graphical representation of results on a map of the area, showing the affected areas of concern for both flammable and toxic release scenarios (Note: For modeling toxic substances for your ARS, you should use both ERPG-2 and ERPG-3 toxic endpoints, if ERPG values are available.) Your maps should:
    - Include vulnerability zones with orientation of your stationary source to true north (i.e., with an arrow, latitude/longitude grid, etc.);
    - Include either the plume (if using a dispersion model) or an arrow in the direction of the prevailing wind;
    - Be consistent for ease of use (i.e., one chemical release scenario per single page, size 8½" X 11" or 11" X 17"), and include a scale of the map (e.g., one inch equals 2,400 feet);
  - Estimate of the residential population affected by the release (estimated to two significant digits), including the method used to calculate it; and
  - A table listing the schools, general acute care hospitals, long-term health care facilities, and child day care facilities within the vulnerability zone (a radius of one mile or distance to the toxic or flammable endpoint, whichever is greater). This table should include the facility name, address, and contact phone number. Optional data to include in the table is distance of the facility from your fenceline, and reference to their location on your map.

Additionally, stationary sources may want to consider developing and submitting additional scenarios that may provide useful emergency response or risk communication information (such as other meteorological conditions, mitigation effectiveness, past actual events, etc.).

Note: ARSs you submit to the EPA may be different than ARSs you submit to CCCHSD for emergency response planning. If this is the case, you may elect to include your EPA ARS in your RMP to CCCHSD to communicate the range of different release scenarios to the community.

9.3.3 COVERED PROCESSES DATA SHEETS

We recommend that you use the federal EPA "Covered Processes Data Sheets", available through RMP*Submit and included in Appendix H, to submit the required information. Note that there are CalARP regulatory requirements and CCCHSD expectations that are discussed below but are not included in the federal EPA "Covered Processes Data Sheets" (e.g., a discussion on the external events considered during the PHA or hazard review is required by CalARP and additional information is requested by CCCHSD in the five-year accident data sheet information). Amended or additional "Covered Processes Data Sheets" will need to be created by the stationary source and submitted to CCCHSD.

The following sections identify any discrepancies between the information requested in the Covered Process Data sheets, and both the CalARP requirements and CCCHSD expectations. The following sections also provide the California legislation and regulations corresponding to the federal legislation and regulations included in the Covered Process Data sheets.

REGISTRATION

Note: in California the EPCRA Tier I or II reports are more commonly known as AB2185 Business Plan Tier I or II reports.

CCCHSD requested CalARP registration in December of 1997 along with the AB2185 Business Plan submittal. Section 2740.2 of the CalARP regulation allows the Administering Agencies to request early submittal of the registration information. The registration information described in the following section is being used by CCCHSD to establish a procedure for assigning fees for implementation of the CalARP program, for ranking stationary sources according to a risk ranking scheme, and for scheduling personnel.

OFFSITE CONSEQUENCE ANALYSIS

CCCHSD requests that you maintain documentation of the worst case analyses, in accordance with Section 2775.1 of the CalARP regulations, for CCCHSD review and program verification.

FIVE-YEAR ACCIDENT HISTORY

The primary discrepancy between the five-year accident history information requested in Appendix H and the CCCHSD expectation is the definition of accidental release. Federal EPA has limited the definition "an unanticipated emission of a regulated substance or other extremely hazardous substance into the ambient air from a stationary source" to listed substances only held above a threshold quantity. CCCHSD interprets the definition to include regulated substances and other extremely hazardous substances, regardless of amount held, as defined in the Clean Air Act amendments and described in Chapter 3.

Additional narrative on specific data elements will improve communication with the public and ensure that members of the community are adequately informed regarding the releases and the concrete changes made to prevent reoccurrence. In addition to expanding on the following data elements, CCCHSD strongly recommends that you include the location of each accidental release and how each accidental release was discovered. Providing the location of each accidental release allows you and CCCHSD to identify any units or operations repeatedly involved in accidental releases. This is beneficial in focusing risk reduction activities and in identifying contributing factors which may otherwise go undetected. Providing information

regarding how releases were detected allows you and CCCHSD to review onsite and offsite detection methods.

We recommend that you develop a brief, narrative description of the following data elements:

- Include the name of the unit or operation where the accidental release occurred;

- Data element 6.9 Onsite impacts – Include information regarding the types of injuries (e.g., very minor requiring simple first aid, very serious requiring hospitalization) and the equipment or units involved in the property damage;

- Data element 6.10 Known offsite impacts – Include information regarding the types of offsite injuries and medical treatment provided and whether evacuations and shelter in place were initiated (perhaps through the Community Warning System). The discussion should also include the property that was damaged and a description of any environmental damage that occurred;

- Data element 6.11 Initiating event – Include a description of the initiating event, rather than simply noting equipment failure, human error, or weather condition. The initiating event may be a combination of these (e.g., piping failure due to installation of pipe with incorrect metallurgy is an equipment failure as a result of a human error). The stationary source may elect to also include the root cause if known (i.e., the CalARP regulation does not require a root cause analysis);

- Data element 6.12 Contributing factors – Include a description of the contributing factors;

- Data element 6.13 Offsite responders notified – Include information regarding how the accidental release was discovered and how (and by whom) the offsite responders and various agencies were first contacted; and,

- Data element 6.14 Changes introduced as a result of the accident – Include specific information regarding the changes, including the status of implementation.

PREVENTION PROGRAMS

The only discrepancies between the Covered Process Data Sheets and the CalARP regulatory requirements and CCCHSD expectations are in the information provided for Process Hazard Analysis, Hazard Review, and External events.

Process Hazard Analysis. You must provide the following information for the process hazard analysis (PHA) section of the RMP:

- The date you completed or updated your most recent PHA;

- Whether you used any or all of the following methodologies to evaluate the hazards of your process (see Chapter 7 for a brief description of these techniques):

  - **What If**
  - **Checklist**
  - **What If/Checklist**
  - **HAZOP**
  - **Failure Mode and Effects Analysis**
  - **Fault Tree Analysis**
  - **Other**

- The date you expect to complete any changes recommended by the PHA. Note that not all recommendations will result in changes. Record the date of expected final implementation of any changes that will be made as a result of PHA recommendations. Further clarification of the specified date may be made in the "Planned Changes to Improve Safety", or as an attachment to the data elements.

- Any major hazards that were identified for the Program 3 process as a result of the PHA. Major hazards are described in Exhibit 7.4d of Appendix H.

- All of the process controls used on the Program 3 process. Process controls are equipment and associated procedures used to prevent or limit releases. (Note: Reference to a more detailed explanation of process controls contained in the "Chemical Specific Prevention Steps" may also be made here.) Process controls are described in Exhibit 7.4e of Appendix H.

- All of the mitigation systems you have in place to control a release from the Program 3 process. (Note: Reference to a more detailed explanation of mitigation systems contained in the "Chemical Specific Prevention Steps" may also be made here.) Mitigation systems are described in Exhibit 7.4f of Appendix H.

- All of the monitoring and detection systems you have installed to detect a release of a regulated substance from the Program 3 process. (Note: Reference to

a more detailed explanation of monitoring and detection systems contained in the "Chemical Specific Prevention Steps" may also be made here.) Monitoring and detection systems are described in Exhibit 7.4g of Appendix H.

- All of the changes made to the Program 3 process since the last PHA. Changes resulting from the PHA are described in Exhibit 7.4h of Appendix H.

External Events: If you are using the federal data elements sheets to document this information, you will need to create an addendum to document the following (i.e. the federal data element sheets do not require that the following external events information be included)

For each external event considered likely, including seismic events, you must submit the following information:

- The type of natural- and human-caused external events considered.

- The estimated magnitude or scope of external events which were considered. If not known, you shall work closely with CCCHSD to determine what is required. If seismic events are applicable, the parameters used in the consideration of the seismic assessment and which edition of the Uniform Building Code (UBC)was used when the process was designed.)

  (Note: If your internal standards are more stringent than the UBC, you may cite this.)

- The date of the most recent field verification that equipment is installed and maintained as designed.

- For each external event that has a potential to create a release of a regulated substance that will reach an endpoint offsite, you must submit the following:

  – The expected date of completion of any changes.

  – All major hazards that were identified for the Program 3 process. Major hazards are described in Exhibit 7.4d of Appendix H.

  – All of the process controls on this Program 3 process used to prevent or limit releases. (Note: Reference to a more detailed explanation of process controls contained in the "Chemical Specific Prevention Steps" may also be made here.) Process controls are described in Exhibit 7.4e of Appendix H.

  – All of the mitigation systems you have in place to control a release

should one occur from this Program 3 process. (Note: Reference to a more detailed explanation of mitigation systems contained in the "Chemical Specific Prevention Steps" may also be made here.) Mitigation systems are described in Exhibit 7.4f of Appendix H.

– All of the monitoring and detection systems installed to detect a release of a regulated substance from the Program 3 process. (Note: Reference to a more detailed explanation of monitoring and detection systems contained in the "Chemical Specific Prevention Steps" may also be made here.) Monitoring and detection systems are described in Exhibit 7.4g of Appendix H.

Hazard Review - For the Hazard Review part of the RMP, you must indicate the following:

- The date of completion of the most recent hazard review or update for the process.

- The expected date of completion of any changes resulting from the hazard review.

- All major hazards that were identified for the Program 2 process at your facility as a result of the hazard review Major hazards are described in Exhibit 7.4d of Appendix H.

- All of the process controls used on this Program 2 process. Process controls are equipment and associated procedures used to prevent or limit releases. (Note: Reference to a more detailed explanation of process controls contained in the "Chemical Specific Prevention Steps" may also be made here.) Process controls are described in Exhibit 7.4e of Appendix H.

- All of the mitigation systems you have in place to control a release should one occur from this Program 2 process. (Note: Reference to a more detailed explanation of mitigation systems contained in the "Chemical Specific Prevention Steps" may also be made here.) Mitigation systems are described in Exhibit 7.4f of Appendix H.

- All of the monitoring and detection systems installed to detect a release of a regulated substance from the Program 2 process. (Note: Reference to a more detailed explanation monitoring and detection systems contained in the "Chemical Specific Prevention Steps" may also be made here.) Monitoring and detection systems are described in Exhibit 7.4g of Appendix H.

- All of the changes made to the process since the last hazard review. Hazard review changes are described in Exhibit 7.4h of Appendix H.

External Events - If you are using the federal data elements sheets to document this information, you will need to create an addendum to document the following (i.e. the federal data element sheets do not require that the following external events information be included)

For each external event considered likely, including seismic events, you must submit the following information:

- The types of natural- and human-caused external event considered in hazard review.

- The estimated magnitude or scope of the external events which were considered. If not known, you shall work closely with CCCHSD to determine what is required. If seismic events are applicable, the parameters used in the consideration of the seismic analysis and which edition of the Uniform Building Code (UBC) was used when the process was designed.

(Note: If your internal standards are more stringent than the UBC, you may cite this.)

- The date of the most recent field verification that equipment is installed and maintained as designed.

- For each external event that has a potential to create a release of a regulated substance that will reach an endpoint offsite, you must submit the following:

  - The expected date of completion of any changes.

  - All major hazards that were identified for the Program 2 process. Major hazards are described in Exhibit 7.4d of Appendix H.

  - All of the process controls on this Program 2 process used to prevent or limit releases. (Note: Reference to a more detailed explanation of process controls contained in the "Chemical Specific Prevention Steps" may also be made here.) Process controls are described in Exhibit 7.4e of Appendix H.

  - All of the mitigation systems you have in place to control a release should one occur from this Program 2 process. (Note: Reference to a more detailed explanation of mitigation systems contained in the "Chemical Specific Prevention Steps" may also be made here.) Mitigation systems are described in Exhibit 7.4f of Appendix H.

- All of the monitoring and detection systems installed to detect a release of a regulated substance from the Program 2 process. (Note: Reference to a more

detailed explanation of monitoring and detection systems contained in the "Chemical Specific Prevention Steps" may also be made here.) Monitoring and detection systems are described in Exhibit 7.4g of Appendix H.

– All of the changes made to the process since the last review. (Note: Reference to a more detailed explanation of changes made to the process contained in the "Planned Changes to Improve Safety" may also be made here.) Changes are described in Exhibit 7.4h of Appendix H.

EMERGENCY RESPONSE PROGRAM

Note the following regulatory reference changes for California stationary sources:

- §68.95 in the federal RMP rule is the same as §2765.2 in the CalARP regulations.

- OSHA 1910.38 is comparable to Cal/OSHA's T8 CCR§3220 Emergency Action Plan.

- OSHA 1910.120 is comparable to Cal/OSHA's T8 CCR§5192 Hazardous Waste Operations and Emergency Response (HAZWOPER) Plan.

- Clean Water Act Regulations (40 CFR 112)are EPA's oil Spill Prevention Control and Countermeasures (SPCC) Plan as required by the Clean Water Act. It was adopted by California via Health & Safety Code, Section 25270.5

- RCRA Regulations (40 CFR 264, 265, 279.52) (California - T22 CCR 66265) are EPA's permitting requirements for solid waste under the Resource Conservation and Recovery Act (RCRA). They are comparable to California T22 CCR§66265.

- OPA 90 Regulations (40 CFR 112; 33 CFR 154; 49 CFR 194; and 30 CFR 254) (California – T14 CCR 817) are EPA, U.S. Coast Guard, Department of Transportation, and Department of the Interior facility response plan requirements as required by the Oil Pollution Act of 1990 (OPA 90).

- State EPCRA Rules or Laws are the state emergency planning and community right-to-know (EPCRA) laws requiring that AB2185 Business Plans be submitted.

9.3.4 CERTIFICATION

The owner or operator or a senior official with management responsibility for the person or persons who have completed the RMP must sign the certification statement, irrespective of what program level the processes are.

For Program 2 and Program 3 processes (see Chapter 2 for guidance on determining the program level of your processes), the owner or operator or a senior official with management responsibility for your site must date and sign the certification statement in your RMP that reads "The undersigned certifies that, to the best of my knowledge, information and belief, formed after reasonable inquiry, the information submitted is true, accurate, and complete." This means that you are certifying that all of the information in your RMP is accurate and complete.

9.4 ISSUES PERTAINING TO ACCESS AND CLASSIFIED INFORMATION

9.4.1 ACCESS AND USE BY THE PUBLIC

CCCHSD believes that an informed public is a key contributor to chemical emergency prevention, preparedness, and response and that the best way to inform the public is to provide an RMP that will help them focus on information directly or immediately useful to local level prevention, preparedness, and response. You are not required to provide the public with access to other documentation developed under this rule. If the public requests access to the other documentation, you must decide whether and how to provide it. We suggest that you work with the public to find a way to meet reasonable community needs.

WHAT SHOULD I DO ABOUT CLASSIFIED INFORMATION?

CCCHSD urges you not to submit any information as part of your RMP that may be considered classified information. All information regarding trade secret as defined in Section 6254.7 of Subdivision (d) of the Government Code and Section 1060 of the Evidence Code will be handled pursuant to Section 25538 of the Health & Safety Code.

9.5 RESUBMISSION AND UPDATES

When you are required to update and resubmit your RMP is based on what changes occur at your stationary source. These changes can be those meeting the update criteria in Section 2745.10, Updates, and/or those meeting the update criteria in Section 2745.11, Covered Process Modifications. Please refer to the following chart and note that you are required to update and resubmit your RMP on the **earliest** of the dates of Section 2745.10 and 2745.11 that apply to your stationary source:

CHANGE THAT OCCURS AT YOUR STATIONARY SOURCE	DATE BY WHICH YOU MUST UPDATE AND SUBMIT YOUR RMP
A covered process modification under §2745.11 that CCCHSD determines is a significant increase in either the amount of regulated substance handled or the risk of handling a regulated substance. †	Not later than 60 days from the date of the covered process modification.
No changes occur	Within 5 years of initial submission
A newly regulated substance is first listed by EPA or OES.	Within 3 years of the EPA or OES listing date of the newly regulated substance
A regulated substance is first present above its threshold quantity in: - a process already covered; or - a new process.	On or before the date the quantity of the regulated substance exceeds the threshold in the process.
A change occurs that requires a revised PHA or hazard review	Within 6 months of the change
A change occurs that requires a revised offsite consequence analysis	Within 6 months of the change
+	Within 6 months of the change
A change occurs that makes the stationary source no longer subject to the submission of a Risk Management Plan	Submit a revised registration (indicating that the RMP is no longer required) to EPA within 6 months of the change

† Section 2745.11 of the CalARP regulation requires that CCCHSD be notified in writing of modifications to covered processes which may result in either a significant increase in the amount of regulated substance handled (compared to the amount reported in the RMP) or the reported risk of handling the regulated substance (compared to the risk reported in the RMP). Significant increase is relative to the stationary source as a whole, not the individual covered process modified. The stationary source must consult with CCCHSD to determine whether the RMP should be reviewed and revised. If an RMP revision is required, the stationary source shall

do so expeditiously, but no later than 60 days from the date of the modification per Section 2545.11 or the date specified by Section 2745.10, whichever is earlier. Refer to the CCCHSD modification policy for guidance regarding the definition of significant.

WHAT CHANGES MIGHT REQUIRE A REVISED PHA OR HAZARD REVIEW?

The PHA or hazard review must be updated at least every five years. Also, major changes may occur at your stationary source at intervals of less than five years. See Chapters 6 and 7 for a definition of a change and for information on the need for revisions to the PHA or hazard review.

WHEN DOES THE OFFSITE CONSEQUENCE ANALYSIS NEED TO BE REVISED?

You'll need to revise your OCA when a change at your stationary source leads to the distance to an endpoint from a worst-case release rising or falling by at least a factor of two. For example, if you increase your inventory substantially or install passive mitigation to limit the potential release rate, you should re-estimate the distance to an endpoint. If the distance is doubled or halved (or more) you must revise the RMP. For most substances, the quantity that would be released would have to increase by more than a factor of five to double the distance to an endpoint.

How Do I De-REGISTER?

If your stationary source is no longer covered by this rule, you must submit a revised registration within six months that indicates that you are no longer covered by the risk management program rule.