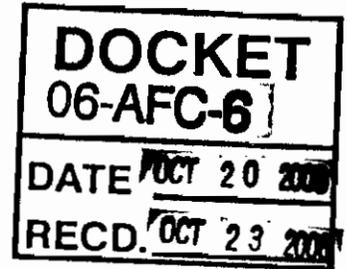




CITY OF
HAYWARD
HEART OF THE BAY

October 20, 2006

Roger E. Johnson, Manager
Energy Facilities Siting and Compliance Office
California Energy Commission
1516 Ninth Street
Sacramento, CA 95814-5512



Subject: Request for Agency Participation in the Review of the
Application for Certification of the
Eastshore Energy Center at 25101 Clawiter Road, Hayward

Dear Mr. Johnson:

Thank you for your letter and the CD copy of the Application for Certification (AFC) for the subject Eastshore Energy Center. My staff and I have reviewed the AFC. We have come up with numerous questions and corrections on the AFC as well as on the project itself. Attached is a summary-list of our comments, categorized as Areas Identified as "Not Data Adequate", Local Regulatory Concerns, Additional Information Requested and Corrections.

To help us find the AFC "data adequate," I would like to set up a meeting with your staff, the applicant, and some key members of City Staff from the Fire Department and the Building, Planning and Water Pollution Source Control Divisions. This meeting can be scheduled with the Fire Marshal, John Berg. I have enclosed a copy of our standard information sheet for "Code Assistance Meetings" for projects such as the one being proposed.

If you have any questions, please contact John Berg, Fire Marshal at (510) 583-4900.

Sincerely,

Larry Arfsten
Fire Chief

cc: Dean Montevago, Support Services Deputy Chief
Paul Valencia, Operations Deputy Chief
John Berg, Fire Marshal
Phil Simon, Assistant Fire Marshal
Robert Arteaga, Assistant Fire Marshal
Hugh Murphy, Hazardous Materials Program Coordinator
Danilo Galang, Environmental Specialist
Steve Buscovich, Hazardous Materials Investigator
Susan Daluddung, Director of Community and Economic Development
David Rizk, Planning Manager
Margret Elliot, Building Official
Lorne C. Prescott, Project Manager, California Energy Commission

FIRE DEPARTMENT - FIRE PREVENTION OFFICE

777 B STREET, HAYWARD, CA 94541-5007
TEL: 510/583-4900 • FAX: 510/583-3641 • TDD: 510/247-3340

CITY OF HAYWARD FIRE DEPARTMENT
LIST OF COMMENTS ON THE APPLICATION FOR CERTIFICATION (AFC)
EASTSHORE ENERGY CENTER, 25101 CLAWITER ROAD, HAYWARD

I. AREAS IDENTIFIED AS “NOT DATA ADEQUATE”

1. Explain how the AFC process coordinates with the standard CEQA process; in particular, how the City of Hayward can impose conditions of approval on the project; Confirm that in this process, the City of Hayward Fire Department is the authority having jurisdiction (AHJ) and will be the lead agency on all fire-related issues and as a Certified Unified Program Agency, will also be the lead on all hazardous materials issues; Confirm that the normal City of Hayward permit, plan check, and inspection processes and fee schedules are applicable and enforceable on this project;
2. Provide a list of existing similar facilities; include the location and the Fire Department with jurisdiction over each facility listed;
3. A mailing address for billing the project proponent for costs and staff time incurred when the AFC is reviewed by Fire Department staff;
4. Provide off-site consequence analyses for aqueous ammonia at the facility, for a most likely scenario and for a worst-case scenario;
5. How aqueous ammonia is stored and distributed throughout the facility;
6. Any on-site emergency response team for hazardous materials incidents, including aqueous ammonia spills;
7. A completed chemical inventory on the prescribed City of Hayward worksheets;
8. A scaled map of the facility identifying all structures, and indicating the building occupancy classification for each; and
9. Identify the State agency that will review a health-based risk assessment for any contamination found in soil and/or groundwater at the project site.

II LOCAL REGULATORY CONCERNS

1. Section 2.2.12 Fire Protection
When a fire sprinkler system is required in a building, FM-200 will not be allowed as a stand-alone fire suppression system. It may be allowed if all standard life safety precautions are employed and a standard fire sprinkler system is installed.
2. Section 8.1.1.10
Separate Fire Permits may be required for alarm systems or fire protection systems.
3. Section 8.4.2.3.1 General Plans and Zoning Ordinance
Under the Zoning Ordinance for the Industrial District, an “Administrative” or a “Conditional” land use permit is required based on the type and quantity of hazardous materials proposed to be used or stored at the facility.

4. Section 8.8.3.6.3 Emergency Response
The Hayward Fire Department does not have a hazardous materials incident team (HIT). When responding to a hazardous materials incident, HFD calls on the Alameda County Fire Department HIT team if deemed necessary. This section is inconsistent with Section 8.12.8.2.2 - Other Hazardous Materials.
5. 8.12.4.2 Operation Phase
Provide a map of secondary containment areas with detailed description of materials stored. Secondary containment capacities may be required to be increased by 10% if each tank has its own secondary containment.
6. Table 8.11 Section F Architectural Design Standards
Parapet walls used to screen mechanical equipment should have access for fire protection.
7. Table 8.12-2 Use and Location of Hazardous Materials
Aboveground storage tanks for flammable and combustible liquids (e.g. gasoline, diesel fuel, and lubrication oil) larger than 60 gallons are prohibited in the City of Hayward unless expressly approved by the Fire Marshal.
8. Table 8.12-7 Permits Required and Permit Schedule for Eastshore Hazardous Materials Handling
In the application, "Alternative for Alternative Storage Method" should be "Alternative Materials and Methods Request." This request should be directed to the Fire Marshal, John Berg. Additionally the lead times and timing are optimistic and should be adjusted as follows:
 - a. Risk Management Plan (RMP) – this will be required to be completed prior to start up. The RMP is a highly technical document and its review is labor intensive to staff. The City of Hayward Fire Department will require a third- party consultant to also review the RMP. The cost of this consultant will be paid for by the applicant from funds advanced to and administered by the Hayward Fire Department. There is also a separate public notification process and a public review period of 45 days required in the RMP process.
 - b. Alternative Materials and Methods Request – this is required prior to a Building Permit being issued.

III ADDITIONAL INFORMATION REQUIRED

1. Section 5.5.2.5 Communications (Radio or Communication) Interference
Provide information regarding electrical interference with the City of Hayward emergency and non-emergency communication systems from the Eastshore Energy Center facility and power transmission lines;
2. Section 8.1.2.3 Ancillary Equipment
Provide details on the fuel tank for the diesel generator.
3. Section 8.3.6.4 Emergency Discovery
Include emergency procedures to follow upon discovery of abandoned hazardous materials, hazardous waste including containers, and contamination;
4. 8.12.4.1 Construction Phase
Provide a map of the area involved in the construction phase, including any storage conditions. This section also discusses on-site fueling. Will an on-site tank be provided or will mobile fuel trucks be stationed on site?

5. Provide consistency with LORS
(e.g. Section 8.13.2.4 Codes & Section 10.5.1 General LORS)
Our list includes, but is not limited to, the following:
 - a. 2001 California Fire Code with local amendments
 - b. 2001 California Building Code with local amendments
 - c. NFPA Standards
 - d. Hazardous Materials Storage Ordinance
 - e. California Code of Regulations
 - f. California Health and Safety Code

6. Appendix 8.13A Phase I Environmental Site Assessment
The report is not stamped by a registered professional. There are known groundwater contamination plumes in the vicinity that are not discussed in this report.

7. Appendix 8.13B Report of Findings Limited Subsurface Investigation
The report is not stamped by a registered professional. Will there be further record reviews and soil and groundwater investigation on the site, given the results of this report and its recommendations?

IV CORRECTIONS

1. Section 8.1.1.10
Typographical error on bullet 13 in the section: “Using water...” for “Using ater...”

2. Section 8.6.5.2 Required Permits and Schedule
This section states, “Only a CalARP plan will be required to be completed and approved prior to bringing ammonia on site.” This is incorrect. A Hazardous Materials Business Plan and a Unified Program Consolidated Permit are also required.

3. Section 8.8.4.3.7 & 8.8.4.7 Impacts on Public Safety and Facilities
Fire Marshal, John Berg was misquoted. There are impacts to Public Safety personnel during construction, especially among plan review and inspection staff in the Support Services Division. Additionally, it is unclear what the impacts would be to emergency response and support staff personnel once the facility is operational.

4. Appendix 8.8 B
Per Section 8.8.4.7, the discussion with Fire Marshal John Berg is not recorded separately but is referenced in the communication with Paul Valencia and Danilo Galang. Additional items in this appendix that are incorrect include the following:
 - a. Fire Marshal John Berg was misquoted on impacts to service levels. See #3 above; Section 8.8.4.3.7 & 8.8.4.7 Impacts on Public Safety and Facilities.
 - b. Paul Valencia’s title is “Deputy Chief of Operations.”
 - c. Danilo Galang is not John Berg’s supervisor. The Fire Marshal, John Berg, is Hugh Murphy’s Supervisor; and Hugh Murphy, the Hazardous Materials Program Coordinator is Danilo Galang’s Supervisor.
 - d. Mr. Galang’s first name is spelled “Danilo” not “Danilio” and his title is “Environmental Specialist.” Check also spelling in Section 8.8.10 References.

- e. The address of Fire Station No.6 is 1401 West Winton Avenue not “1401 West Winston Ave.”
- f. Typo: “pertinent” instead of “pertinient”
- g. To clarify, Fire Marshal John Berg recommended that the applicant may want to take advantage of one of two types of meetings where the applicant can get feedback on their project from various City departments: a “Pre-Application Meeting” coordinated by the Planning Division of the Community and Economic Development Department; or a “Code Assistance Meeting” coordinated by the Hayward Fire Department’s Hazardous Materials Office.
- h. Mr. Galang was misquoted regarding the response capabilities of the Hayward Fire Department. Although the Hayward Fire Department does not have a hazardous materials incident team (HIT), it calls on the Alameda County Fire Department HIT team, if deemed necessary, for response related to a hazardous materials incident.
- i. There are more than two hazardous materials of concern for this project.

5. 8.11.7.1 Introduction

In addition to CEC Project Manager, Chief Building Official include Fire Marshal.

Section 8.12.2.1.3 CERCLA

The Hayward Fire Department has a “Hazardous Materials Office” instead of a “Hazardous Materials Division (HMD)”

6. John Berg is the City of Hayward Fire Marshal.

In several locations in the document (Sections 8.7.7 References, 8.12.11 References, Table 10.6-1 Local Agency Contacts), he is misidentified as “John Burke, Fire Chief.” In Section 8.8.10 References, “Fire Marshal” should read “Fire Marshal.”

7. Table 8.13-5 Agency Contacts For City of Hayward Project

Waste Management – Dick Pantages is no longer the Chief for Solid Waste Management in Alameda County Environmental Health. The current Supervisor for Solid and Medical Waste is Karen Moroz at (510) 567-6757.

HAYWARD FIRE DEPARTMENT

CHEMICAL INVENTORY WORKSHEET

To prepare a chemical inventory based on the Hayward Fire Code, you are required to report the quantities of chemicals found in the facility, separated by Hazard Category, and by location. You are also to classify the chemicals as to storage and manner of use. Handling and storage requirements are determined by these factors: the nature of the chemical or its hazard; the location; the manner of use or storage; and the quantity involved in each particular manner of use or storage.

A Control Area is a building, a portion of the building, or an outside area where chemicals are allowed to be stored, dispensed, used or handled subject to certain conditions and requirements.

This packet consists of the following lists and the Chemical Inventory Worksheet form:

1. Hazardous Materials Hazard Categories. This is the list printed on goldenrod paper. Based on the Uniform Fire Code, this is the classification of chemicals by hazard categories. The different hazard categories are defined and examples are provided for each. Most chemicals exhibit more than one hazard, and all hazards should be considered when preparing your chemical inventory.
2. Tables of Regulated Substances Under the CalARP Program. Printed on pink paper, these are the lists of flammable and toxic substances that, if present at or above certain threshold quantities, will require the preparation of a Risk Management Plan
3. Federal List of Extremely Hazardous Substances. This list is printed on blue paper. These are the substances that the federal government classifies as extremely hazardous substances.

The Hayward Fire Department has included "CalARP-Listed or EHS-Listed Chemicals" as a separate Hazard Category. *If you report a Cal-ARP-listed chemical, at or in excess of the threshold quantity given in the lists, complete the attached Program Registration for the CalARP Program and submit it with your inventory to the Fire department.*

4. Chemical Inventory Worksheet for a Hazard Category. For each Control Area, use one form for each Hazard Category of chemicals found in this location. Make copies of the form so that you will have enough for the number of categories and the number of Control Areas you have. Refer to the goldenrod list for the HAZARD CATEGORY. Where possible, the Hazard Category should be specified down to the Class level. For example, Flammable Liquids should be reported as Class I-A, Class I-B, or Class I-C in separate worksheets. Write the Hazard Category and the Control Area on the space provided.

For each chemical in a specified Hazard Category in a Control Area, enter the information required under each column. These are the following:

- a. Chemical Name – use chemical name, if known, or the common name. Common name is usually the trade name or the name by which the chemical is known in industry.

- b. State – indicate if the chemical is solid, liquid, or gas at normal temperature and pressure. If found on site in various states, separate by listing each state in a separate row.
 - c. Container Size – give the capacity of each type of container used to hold the chemical, whether in storage or when in use. Use “Pound” for solids, “Gallon” for liquids, and “cubic foot” for gases.
 - d. Inside Building / Outside Building – enter the maximum quantities of the chemical that may be found inside any or all of the buildings on site, outside any or all of the buildings on site, and the total of these quantities.
 - e. Used Open / Used Closed / Stored – Further specify the maximum quantities into “Use” or “Storage.” A chemical is in “use” if the container is opened or connected to any equipment while on site. A chemical may be in used in an “Open System” or a “Closed System.” The Open/Closed system of use refers to the ability of gas, liquid, vapor or dust to escape from the container into the atmosphere during normal operations. “Stored” means that the material is held (in storage) without being used up or without going through any process or process equipment. When in storage, a container is not opened or connected to any equipment and the chemical is not dispensed in any way.
 - f. Total On-Site – add up the quantities used and stored, inside and outside buildings.
 - g. Haz Waste Generated? – Indicate by writing “yes” or “no” under this column if the chemical becomes or becomes a part of any hazardous waste generated by the facility.
 - h. TOTAL – Add the quantities listed under each column, separating solids, liquids, and gases. Note that units should be consistent: pounds for solids; gallons for liquids; and cubic feet for gases.
5. Chemical Inventory Summary By Control Area. Summarize the quantities per Hazard Category, by storage and manner of use for solids, liquids, and gases in each Control Area. The number of rows presented in the summary for the Control Area should equal the number of Chemical Inventory Worksheets (one worksheet for each Hazard Category) for that Control Area. Make copies of the summary form.
6. Chemical Inventory Summary For The Entire Facility. Report the total quantities per Hazard Category, by storage and manner of use for solids, liquids, and gases in all the Control Areas. This Chemical Inventory Summary For The Entire Facility lists all the Hazard Categories as contained in the attached goldenrod list.

When you complete your inventory, expect some chemicals to be listed in different worksheets and control area summary sheets because of their multiple hazards and their multiple locations.

If you have any questions on the Chemical Inventory Worksheet and how it is completed, please call the Fire Marshal’s Office at (510) 583-4910.

This packet and the Chemical Inventory Worksheet forms is also available online at the City of Hayward’s website - <http://www.hayward-ca.gov/>

HAZARDOUS MATERIALS HAZARD CATEGORIES

(Based on the 2001 California Fire Code)

Note: *Permitting and reporting quantities vary with the material's characterization. Some materials have multiple hazards. In these cases, the most restrictive quantities apply in permitting requirements but all hazards should be considered in handling and storage requirements. The following should not be used as the sole means of classifying hazardous materials. "Permit" quantities listed means that a permit from the Fire Department is required if this class of material is handled at or above the specified quantity. "Report" means that the material should be reported in the Hazardous Materials Business Plan (HMBP) for the facility if it is at or above the specified quantity.*

**FOR YOUR INITIAL CHEMICAL INVENTORY, REPORT ALL CHEMICALS
REGARDLESS OF QUANTITY TO PROPERLY DETERMINE ALL REQUIREMENTS!**

A. Physical Hazards

1. Explosives, Blasting Agents, and Detonators (Permit = Any Amount; Report = Any Amount)

Explosive is a material that causes sudden, almost instantaneous release of pressure, gas, and heat when subjected to sudden shock, pressure, or high temperatures. Blasting agent is a material or mixture consisting of a fuel and an oxidizer, not otherwise classified as explosive. Detonator is a component in an explosive train that is capable of initiating detonation in a subsequent high explosive component.

- (a) **High explosives.** Can be detonated by means of blasting caps when unconfined. Examples: dynamite, TNT, nitroglycerine, C-3, C-4.
- (b) **Low explosives.** Can be deflagrated when confined. Examples: black powder, smokeless powder, propellant explosives, display fireworks.
- (c) **Blasting agents.** Oxidizer and liquid fuel slurry mixtures. Examples: ammonium nitrate combined with fuel oil.

2. Compressed Gases

Compressed gas is a material or mixture which is a gas at 68°F or less at one atmosphere of pressure (14.7 psia) AND has a boiling point of 68°F or less at 14.7 psia, which is either liquefied, nonliquefied, or in solution. Exception: Gases which have no other health or physical hazard properties are not considered "compressed" until the pressure in the packaging exceeds 41 psia at 68°F.

- (a) **Flammable Gas.** Examples: acetylene, carbon monoxide, ethane, ethylene, hydrogen, methane. (Ammonia will ignite and burn, although its flammable range is too narrow for it to fit the definition of a flammable gas.)
(Permit = 200 cu ft at STP; Report = 200 cu ft at STP)

Note: *STP refers to standard temperature and pressure, defined as 0°C (32°F) and 1 atmosphere (14.7 psi) pressure*

- (b) **Oxidizing.** Examples: oxygen, ozone, oxides of nitrogen, chlorine, fluorine. Chlorine and fluorine do not contain oxygen, but react with flammable materials in a manner similar to oxygen.
(Permit = 500 cu ft at STP; Report = 200 cu ft at STP)
- (c) **Corrosive.** Examples: ammonia, hydrogen chloride, fluorine.
(Permit = 200 cu ft at STP; Report = 200 cu ft at STP)

- (d) **Highly toxic.** Examples: arsine, cyanogen, fluorine, germane, hydrogen cyanide, hydrogen selenide, nitric oxide, phosphine, stibene.
(Permit = Any Amount; Report = Any Amount)
- (e) **Toxic.** Examples: chlorine, hydrogen fluoride, hydrogen sulfide, silicon tetrafluoride, phosgene.
(Permit = Any Amount; Report = Any Amount)
- (f) **Inert (chemically unreactive).** Examples: argon, helium, krypton, neon, nitrogen, xenon.
(Permit = 6,000 cu ft at STP; Report = 200 cu ft at STP)
- (g) **Pyrophoric.** Examples: diborane, dichloroborane, phosphine, silane.
(Permit = Any Amount; Report = Any Amount)
- (h) **Unstable (reactive).** Examples: butadiene (unstabilized), ethylene oxide, vinyl chloride.
(Permit = Any Amount; Report = Any Amount)

3. Flammable and Combustible Liquids

- (a) **Flammable liquids:**
(Permit = 5 gal; Report = 55 gal)

CLASS I-A liquids have flash points below 73°F and boiling points below 100°F.

CLASS I-B liquids have flash points below 73°F and boiling points at or above 100°F.

CLASS I-C liquids have flash points at or above 73°F but below 100°F.

- (b) **Combustible liquids:**

CLASS II liquids have flash points at or above 100°F but below 140°F.
Example: diesel fuel, kerosene
(Permit = 25 gal; Report = 55 gal)

CLASS III-A liquids have flash points at or above 140°F but below 200°F.
Example: phenol, creosote oils
(Permit = 25 gal; Report = 55 gal)

CLASS III-B liquids have flash points at or above 200°F.
Example: motor oil, ethylene glycol
(Permit = 55 gal; Report = 55 gal)

4. Flammable Solids

(Permit = 100 lbs; Report = 500 lbs)

Flammable solid is a solid substance that is not defined as explosive or blasting agent, is liable to cause fire through friction or as a result of retained heat from manufacture, has an ignition temperature lower than 212°F, or burns so vigorously and persistently when ignited that it creates serious hazards.

- (a) **Organic solids.** Examples: camphor, cellulose nitrate, naphthalene.
- (b) **Inorganic solids.** Examples: decaborane, lithium amide, phosphorous heptasulfide, phosphorous sesquisulfide, potassium sulfide, anhydrous sodium sulfide, sulfur.
- (c) **Combustible metals (except dusts and powders).** Examples: cesium, magnesium, zirconium.

- (d) **Combustible dusts and powders (including metals).** Finely divided flammable solids which may be dispersed in air as a dust cloud. Examples: wood sawdust, plastics, coal, flour, powdered metals (few exceptions).

5. Oxidizers

Oxidizer is a material - other than a blasting agent or explosive - that initiates or promotes combustion in other materials, thereby causing fire either of itself or through the release of oxygen or other gases.

- (a) **Gases.** Examples: oxygen, ozone, fluorine, chlorine (see Compressed Gases, Oxidizing).
(Permit = 500 cu ft at STP; Report = 200 cu ft at STP)
- (b) **Liquids.** Examples: bromine, hydrogen peroxide, nitric acid, perchloric acid, sulfuric acid.
(See more detailed classification below.)
- (c) **Solids.** Examples: chlorates, chromates, chromic acid, iodine, nitrates, nitrites, perchlorates, peroxides. (The following gives a more detailed classification.)

Classifications of liquid and solid oxidizers according to hazard:

CLASS 4: An oxidizing material that can undergo an explosive reaction when catalyzed or exposed to heat, shock, or friction. Examples: ammonium perchlorate, ammonium permanganate, guanidine nitrate, hydrogen peroxide solutions more than 91% by weight, perchloric acid solutions more than 72.5 % by weight, potassium superoxide, and tetranitromethane.
(Permit = Any Amount; Report = Any Amount)

CLASS 3: An oxidizing material that will cause a severe increase in the burning rate of combustible material with which it comes in contact. Examples: ammonium dichromate, bromine pentafluoride, bromine trifluoride, hydrogen peroxide 52% to not more than 91% concentration by weight, calcium hypochlorite over 50% by weight, potassium bromate, potassium chlorate, potassium chlorite over 40% by weight, perchloric acid solutions 60% to 72.5% by weight, potassium dichloro-s-triazinetrione (potassium dichloroisocyanurate), sodium chlorate, sodium chlorite over 40% by weight and sodium dichloro-s-triazinetrione (sodium dichloroisocyanurate).
(Permit = 1 gal liquid or 10 lbs solid; Report = 55 gal liquid or 500 lbs solid)

CLASS 2: An oxidizing material that will moderately increase the burning rate or which may cause spontaneous ignition of combustible material with which it comes in contact. Examples: barium bromate, barium chlorate, barium hypochlorite, barium perchlorate, barium permanganate, 1-bromo-3-chloro-5, 5-dimethylhydantoin, calcium chlorate, calcium chlorite, calcium hypochlorite (50 percent or less by weight), calcium perchlorate, calcium permanganate, chromium trioxide (chromic acid), copper chlorate, halene (1, 3-dichloro-5, 5-dimethylhydantoin), hydrogen peroxide (greater than 27.5 percent up to 52 percent), lead perchlorate, lithium chlorate, lithium hypochlorite (more than 39 percent available chlorine), lithium perchlorate, magnesium bromate, magnesium chlorate, magnesium perchlorate, mercurous chlorate, nitric acid (more than 40 percent not less than 86 percent), perchloric acid solutions (more than 50 percent but less than 60 percent), potassium perchlorate, potassium permanganate, potassium peroxide, potassium superoxide, silver peroxide, sodium chlorite (40 percent or less by weight), sodium perchlorate, sodium perchlorate monohydrate, sodium permanganate, sodium peroxide, strontium chlorate, strontium perchlorate, thallium chlorate, trichloro-s-triazinetrione (trichloroisocyanuric acid), urea hydrogen peroxide, zinc bromate, zinc chlorate and zinc permanganate.
(Permit = 10 gal liquid or 100 lbs solid; Report = 55 gal liquid or 500 lbs solid)

CLASS 1: An oxidizing material whose primary hazard is that it may increase the burning rate of combustible material with which it comes in contact. Examples: all inorganic nitrates (unless otherwise classified), all inorganic nitrites (unless otherwise classified), ammonium persulfate, barium

peroxide, hydrogen peroxide solutions (greater than 8 percent up to 27.5 percent), lead dioxide, lithium hypochlorite (39 percent or less available chlorine), lithium peroxide, magnesium peroxide, manganese dioxide, nitric acid (40 percent concentration or less), perchloric acid solutions (less than 50 percent by weight), potassium dichromate, potassium percarbonate, potassium persulfate, sodium carbonate peroxide, sodium dichloro-s-triazinetriene dihydrate, sodium dichromate, sodium perborate (anhydrous), sodium perborate monohydrate, sodium perborate tetrahydrate, sodium percarbonate, sodium persulfate, strontium peroxide and zinc peroxide.
(Permit = 55 gal liquid or 500 lbs solid; Report = 55 gal liquid or 500 lbs solid)

Note: Examples are based on NFPA Standard No. 43-A.

6. Organic Peroxides

Organic peroxide is a flammable compound which contains the double oxygen or peroxy (-O-O-) group and is subject to explosive decomposition. Organic peroxides may be liquids, pastes, or solids (usually finely divided powders).

The following gives a more detailed classification of organic peroxides.

Classifications of organic peroxides according to hazard:

UNCLASSIFIED: An "unclassified" peroxide is capable of detonation. This peroxide presents an extremely high explosion hazard through rapid explosive decomposition and is regulated, in accordance with Article 77, as Class A explosives.
(Permit = Any Amount; Report = Any Amount)

CLASS I: A Class I peroxide is capable of deflagration, but not detonation. This peroxide presents a high explosion hazard through rapid decomposition. Examples: acetyl cyclohexane sulfonyl 60-65% concentration by weight, fulfonyl peroxide, benzoyl peroxide over 98% concentration, t-butyl hydroperoxide 90%, t-butyl peroxyacetate 75%, t-butyl peroxyisopropylcarbonate 92%, diisopropyl peroxydicarbonate 100%, di-n-propyl peroxydicarbonate 98%, di-n-propyl peroxydi-carbonate 85%.
(Permit = Any Amount; Report = Any Amount)

CLASS II: A Class II peroxide burns very rapidly and presents a severe reactivity hazard. Examples: acetyl peroxide, 25%, t-butyl hydroperoxide 70%, t-butyl peroxybenzoate 98%, t-butyl peroxy-2-ethyl -hex-anoate 97%, t-butyl peroxyisobutyrate 75% t-butyl peroxyisopropyl-carbonate 75%, t-butyl peroxy- pivalate 75%, dybenz-oyl peroxydicarbonate 85%, di-sec-butyl peroxydicar- bonate 98%, di-sec-butyl peroxydicarbonate 75%, 1,1-di-(t-butylperoxy)-3,5,5-trimethyecyclohex- ane 95%, di-(2-ethyhexyl) peroxydicarbonate 97%, 2,5-dimethyl-2-5 di (benzoylperoxy) hexane 92%, peroxyacetic acid 43%.
(Permit = Any Amount; Report = Any Amount)

CLASS III: A Class III peroxide burns rapidly and presents a moderate reactivity hazard. Examples: acetyl cyclohexane sulfonyl peroxide 29%, benzoyl peroxide 78%, benzoyl peroxide paste 55%, benzoyl peroxide paste 50%, cumene hydroperoxide 86%, di-(4-butylcyclohexyl) peroxydicarbonate 98%, t-butyl peroxy-2-ethyhexanoate 97%, t-butyl peroxyneodecanoate 75%, methyl ethyl ketone peroxide 9% active oxygen diluted in dimethyl phthalate.
(Permit = 10 lbs liquid or solid; Report = 500 lbs liquid or solid)

CLASS IV: A Class IV peroxide burns in the same manner as ordinary combustibles and presents a minimum reactivity hazard. Examples: benzoyl peroxide 70%, benzoyl peroxide paste 50%, benzoyl peroxide slurry 40%, benzoyl peroxide powder 35%, methyl ethyl ketone peroxide 9% active oxygen diluted in water and glycols.
(Permit = 20 lbs liquid or solid; Report = 500 lbs liquid or solid)

CLASS V: A Class V peroxide does not burn or present a decomposition hazard. Examples: benzoyl peroxide 35%, 1,1-di-t-butyl peroxy 3,5,5-trimethylcyclohexane 40%, 2,5-di-(t-butyl peroxy) hexane 47%, 2,4-pentanedione peroxide 4% active oxygen.
(*Permit = N/A; Report = N/A*)

7. Pyrophoric Materials (*Permit = Any Amount; Report = Any Amount*)

A pyrophoric materials will spontaneously ignite in air at or below 130°F

- (a) **Gases.** Examples: diborane, phosphine, silane.
- (b) **Liquids.** Examples: diethyl aluminum chloride, diethyl beryllium, diethyl phosphine, diethyl zinc, dimethyl arsine, triethyl aluminum etherate, triethyl bismuthine, triethyl boron, trimethyl aluminum, trimethyl gallium.
- (c) **Solids.** Examples: cesium, hafnium, lithium, white or yellow phosphorus, plutonium, potassium, rubidium, sodium, thorium.

8. Unstable (Reactive) Materials

This is a material, other than an explosive, which in the pure state or as commercially produced will vigorously polymerize, decompose, condense or become self-reactive and undergo other violent chemical changes, including explosion, when exposed to heat, friction or shock, or in the absence of an inhibitor or in the presence of contaminants or in contact with noncompatible materials.

CLASS 4: A material which in itself is readily capable of detonation or of explosive decomposition or explosive reaction at normal temperatures and pressures. This class includes materials which are sensitive to mechanical or localized thermal shock at normal temperatures and pressures. Examples: acetyl peroxide, dibutyl peroxide, dinitrobenzene, ethyl nitrate, peroxyacetic acid, picric acid (dry) trinitrobenzene.
(*Permit = Any Amount; Report = Any Amount*)

CLASS 3: A material which in itself is capable of detonation or of explosive decomposition or explosive reaction but which requires a strong initiating source or which must be heated under confinement before initiation. This class includes materials which are sensitive to thermal or mechanical shock at elevated temperatures and pressures. Examples: hydrogen peroxide (greater than 52%), hydroxylamine, nitromethane, paranitroaniline, perchloric acid, tetrafluoroethylene monomer.
(*Permit = Any Amount; Report = Any Amount*)

CLASS 2: A material which in itself is normally unstable and readily undergoes violent chemical change but does not detonate. This class includes materials which can undergo chemical change with rapid release of energy at normal temperatures and pressures and which can undergo violent chemical change at elevated temperatures and pressures. Examples: acrolein, acrylic acid, hydrazine, methacrylic acid, sodium perchlorate, styrene, vinyl acetate.
(*Permit = 5 gal liquid or 50 lbs solid; Report = 55 gal liquid or 500 lbs solid*)

CLASS 1: A material which in itself is normally stable but which can become unstable at elevated temperatures and pressures. Examples: acetic acid, hydrogen peroxide 35% to 52%, paraldehyde, and tetrahydrofuran.
(*Permit = 10 gal liquid or 100 lbs solid; Report = 55 gal liquid or 500 lbs solid*)

9. Water-reactive Materials

A materials which, upon exposure to water or moisture, explodes, violently reacts, produces flammable, toxic or other hazardous gases, or evolves enough heat to cause self-ignition or ignition of nearby combustibles.

CLASS 3: A material which reacts explosively with water without requiring heat or confinement. Examples: aluminum alkyls such as triethylaluminum, isobutylaluminum and trimethylaluminum; bromine pentafluoride, bromine trifluoride, chlorodiethylaluminum, diethylzinc.
(Permit = Any Amount; Report = Any Amount)

CLASS 2: A material which may form potentially explosive mixtures with water. Examples: calcium carbide, calcium metal, cyanogen bromide, lithium hydride, methyldichlorosilane, potassium metal, potassium peroxide, sodium metal, sodium peroxide, sulfuric acid, trichlorosilane.
(Permit = 5 gal liquid or 50 lbs solid; Report = 55 gal liquid or 500 lbs solid)

CLASS 1: A material which may react with water with some release of energy but not violently. Examples: acetic anhydride, sodium hydroxide, sulfur monochloride, titanium tetrachloride.
(Permit = 10 gal liquid or 100 lbs solid; Report = 55 gal liquid or 500 lbs solid)

10. Cryogenic Fluids

A material that has a normal boiling point below -150°F (-101.1 °C)

- (a) **Flammable.** Examples: carbon monoxide, deuterium, ethylene, hydrogen, methane.
(Permit = 1 gal; Report = 55 gal)
- (b) **Oxidizing.** Examples: fluorine, nitric oxide, oxygen.
(Permit = 10 gal; Report = 55 gal)
- (c) **Corrosive.** Examples: fluorine, nitric oxide.
(Permit = 1 gal; Report = 55 gal)
- (d) **Inert (chemically unreactive).** Examples: argon, helium, krypton, neon, nitrogen, xenon.
(Permit = 60 gal; Report = 55 gal)
- (e) **Highly toxic.** Examples: fluorine, nitric oxide.
(Permit = Any Amount; Report = Any Amount)

Note: All of the cryogenics listed will exist as compressed gases when they are stored at ambient temperatures.

B. Health Hazards

1. Highly Toxic and Toxic Materials

- (a) **Highly toxic materials.** A highly toxic material produces a lethal dose or lethal concentration which falls within any of the following categories:
 - 1. A chemical that has a median lethal dose (LD₅₀) of 50 milligrams or less per kilogram of body weight when administered orally to albino rats weighing between 200 and 300 grams each.
 - 2. A chemical that has a median lethal dose (LD₅₀) of 200 milligrams or less per kilogram of body weight when administered by continuous contact for 24 hours, or less if death occurs within 24 hours, with the bare skin of albino rabbits weighing between 2 and 3 kilograms each.

3. A chemical that has a median lethal concentration (LC₅₀) in air of 200 parts per million or less by volume of gas or vapor, or 2 milligrams per liter or less of mist, fume or dust, when administered by continuous inhalation for one hour, or less if death occurs within one hour, to albino rats weighing between 200 and 300 grams each.

Mixtures of these materials with ordinary materials such as water might not warrant classification as highly toxic. While this system is basically simple in application, any hazard evaluation, which is required for the precise categorization of this type of material, shall be performed by experienced, technically competent persons.

(Permit = Any Amount; Report = Any Amount)

Gases - arsine, chlorine trifluoride, cyanogen, diborane, fluorine, germane, hydrogen cyanide, nitric oxide, nitrogen dioxide, ozone, phosphine, hydrogen selenide, stibene.

Liquids - acrolein, acrylic acid, 2-chloroethanol (ethylene chlorohydrin), hydrazine, hydrocyanic acid, 2-methylaziridine (propylenimine), 2-methylfalconitrile (acetone cyanohydrin), methyl ester isocyanic acid (methyl isocyanate), nicotine, tetranitromethane, tetraethylstannane (tetraethyltin).

Solids - (acetato) phenylmercury (phenyl mercuric acetate), 4-aminopyridine, arsenic pentoxide, arsenic trioxide, calcium cyanide, 2-chloroacetophenone, aflatoxin B, decaborane (14), mercury (II) bromide (mercuric bromide), mercury (II) chloride (corrosive mercury chloride), pentachlorophenol, methyl parathion, phosphorus (white), sodium azide.

- (b) **Toxic materials.** A toxic material produces a lethal dose or a lethal concentration which falls within any of the following categories:

1. A chemical or substance that has a median lethal dose (LD₅₀) of more than 50 milligrams per kilogram but not more than 500 milligrams per kilogram of body weight when administered orally to albino rats weighing between 200 and 300 grams each.
2. A chemical or substance that has a median lethal dose (LD₅₀) of more than 200 milligrams per kilogram but not more than 1,000 milligrams per kilogram of body weight when administered by continuous contact for 24 hours, or less if death occurs within 24 hours, with the bare skin of albino rabbits weighing between 2 and 3 kilograms each.
3. A chemical or substance that has a median lethal concentration (LC₅₀) in air of more than 200 parts per million but not more than 2,000 parts per million by volume of gas or vapor, or more than 2 milligrams per liter but not more than 20 milligrams per liter of mist, fume or dust, when administered by continuous inhalation for one hour, or less if death occurs within one hour, to albino rats weighing between 200 and 300 grams each.

Gases - boron trichloride, boron trifluoride, chlorine, hydrogen fluoride, hydrogen sulfide, phosgene, silicon tetrafluoride.

(Permit = Any Amount; Report = Any Amount)

Liquids - acrylonitrile, allyl alcohol, alpha-chlorotoluene, aniline, 1-chloro-2, 3-epoxypropane, chloroformic acid (allyl ester), 3-chloropropene (allyl chloride), o-cresol, crotonaldehyde, dibromomethane, diisopropylamine, diethyl ester sulfuric acid, dimethyl ester sulfuric acid, 2-furaldehyde (furfural), furfuryl alcohol, phosphorus chloride, phosphoryl chloride (phosphorus oxychloride), thionyl chloride.

(Permit = 10 gal; Report = 55 gal)

Solids - acrylamide, barium chloride, barium (II) nitrate, benzidine, p-benzoquinone, beryllium chloride, cadmium chloride, cadmium oxide, chloroacetic acid, chlorophenylmercury (phenyl mercuric chloride), chromium (VI) oxide (chromic acid, solid), 2,4-dinitrotoluene, hydroquinone, mercury chloride (calomel), mercury (II) sulfate (mercuric sulfate), osmium tetroxide, oxalic acid, phenol, P-phenylenediamine, phenylhydrazine, 4-phenylmorpholine,

phosphorus sulfide, potassium fluoride, potassium hydroxide, selenium (IV) disulfide, sodium fluoride.

(Permit = 100 lbs; Report = 500 lbs)

2. Radioactive Materials

A radioactive material spontaneously emits ionizing radiation.

(Permit = Any Amount; Report = Any Amount)

- (a) **Common radiation-source materials.** More than 100 radioisotopes are in common usage in various medical and industrial tests and measuring protocols. Most emit beta and gamma radiation. Some emit alpha radiation also while others emit beta or gamma radiation exclusively.

Examples of alpha, beta, gamma emitters: americium-241, bismuth-210, polonium-210, radium-226, uranium-238. These are the heavier isotopes as indicated by high atomic weights.

Examples of beta emitters: calcium-45, carbon-14, hydrogen-3, nickel-63, sulfur-35, tungsten-185, zinc-65.

Examples of gamma emitters: beryllium-7, germanium-71, iron-55, palladium-113, praseodymium-143, promethium-147, tin-113.

- (b) **Fissile materials.** Fissile materials may undergo a fission reaction, and are usually found only at reactor sites, or as part of a nuclear weapon. Fissile materials may emit alpha, beta, gamma, and neutron radiation. Examples: plutonium-238, plutonium-239, plutonium-241, uranium-233, uranium-235.

Note: Uranium (and certain other radioactive metals) are chemically toxic as well as combustible in solid and finely divided form. When radioactive materials burn, the products of combustion (other than heat) will be radioactive as well.

3. Corrosives

A corrosive material causes visible destruction of, or irreversible alterations in, living tissue by chemical action at the site of contact.

(Permit = 55 gal liquid or 500 lbs solid; Report = 55 gal liquid or 500 lbs solid)

- (a) **Acids.** Examples: chromic, formic, hydrochloric (muriatic greater than 15 percent), hydrofluoric, nitric (greater than 6 percent), perchloric, sulfuric (4 percent or more).
- (b) **Bases (alkalis).** Examples: hydroxides - ammonium (greater than 10%), calcium, potassium (greater than 1%), sodium (greater than 1%), and certain carbonates - potassium.
- (c) **Other corrosives.** Examples: gases such as bromine, chlorine, fluorine, iodine, and ammonia.

Note: Corrosives which are oxidizers, e.g., nitric acid, chlorine, fluorine; or are compressed gases, e.g., ammonia, chlorine, fluorine; or are water-reactive, e.g., concentrated sulfuric acid, sodium hydroxide, are physical hazards in addition to being health hazards.

4. Carcinogens, Irritants, Sensitizers and Other Health Hazards

(Refer to published reportable quantities, unless otherwise indicated.)

(a) **Carcinogens or suspect carcinogens.** Substances which produce or are suspected of producing or inciting cancer. Examples: asbestos, benzene, beryllium, carbon tetrachloride, chloroform, diazomethane, P-dioxane, ethylene dichloride, polychlorinated biphenyls (PCBs), vinyl chloride..
(Permit = 1 gal liquid or 10 lbs solid; Report = 55 gal liquid or 500 lbs solid)

(b) **Other health hazards.** Substances which cause damage to particular organs or systems.
(Permit = 55 gal liquid or 500 lbs solid; Report = 55 gal liquid or 500 lbs solid)

Hepatotoxin (chemicals which produce liver damage): carbon tetrachloride, nitrosamines.

Nephrotoxins (chemicals which produce kidney damage): halogenated hydrocarbons, uranium.

Neurotoxin (chemicals which produce their primary toxic effects on the nervous system): mercury, carbon disulfide.

Blood or hematopoietic system toxins (chemicals which decrease hemoglobin function, deprive the body tissues of oxygen): carbon monoxide, cyanide.

Pulmonary damage agents (chemicals which irritate or damage the lungs): silica, asbestos.

Reproductive toxins (chemicals which affect the reproductive capabilities, including chromosomal damage [mutations] and effects on fetuses [tertiogenesis]): lead, DBCP.

(c) **Irritants.** Substances other than corrosive materials which cause a reversible inflammatory effect on living tissue by chemical action at the site of contact: Examples: diphenylaminechloroarsine, xylyl bromide, chloracetophene.
(Permit = 55 gal liquid or 500 lbs solid; Report = 55 gal liquid or 500 lbs solid)

(d) **Sensitizers.** Substances which cause an allergic reaction in normal tissue after repeated exposure.
(Permit = 55 gal liquid or 500 lbs solid; Report = 55 gal liquid or 500 lbs solid)

5. CalARP-Listed or EHS-Listed Chemicals

This category is not found in the Uniform Fire Code or the California Fire Code. For the purpose of reporting under the HMBP program, chemicals listed under either the CalARP program or the federal EHS List should be noted. Any listed chemical stored in a quantity equal to or greater than its defined threshold planning quantity (TPQ) should be reported, registered and permitted. *Complete the attached CalARP Program registration Form.*

TABLES OF REGULATED SUBSTANCES CALIFORNIA ACCIDENTAL RELEASE PREVENTION (CALARP) PROGRAM

Risk Management Plan (RMP)

The federal Accidental Release Prevention Program (40CFR68, 1996) with certain additions specific to the State, has become the California Accidental Release Prevention Program (CalARP). The City of Hayward, as the Certified Unified Program Agency (CUPA) in incorporated Hayward, has given the Fire Department the responsibility for implementing the CalARP within its jurisdiction.

CalARP requires that an owner or operator of a facility located in Hayward and handling a regulated substance in excess of its threshold quantity shall submit information to the Fire Department AND to the Governor's Office of Emergency Services (OES) using the prescribed OES and/or federal (USEPA) forms. The Fire Department will then review the information submitted and determine if the facility is required to submit a Risk Management Plan (RMP).

The following three tables list the substances regulated under the CalARP program with their **chemical names**, Chemical Abstract Service numbers (**CAS No.**), and their respective threshold quantities (**TQ**) in pounds (**lbs**). Tables 1 and 2, respectively, are those regulated 77 toxic and 63 flammable substances listed under the federal program. Table 3 lists 275 regulated substances under the California Health and Safety Code (Sec. 25531 and following). Note that Table 3 contains 70 of the chemicals listed in Table 1, but with lower TQ's. (The attached tables were downloaded from the website of the Office of Emergency Services. Hence, the page numbers. For the complete CalARP Regulations, log on to <http://www.oes.ca.gov> and navigate to "Hazardous Materials" and on to the "CalARP Program.")

EXPLOSIVES that are listed by the Department of Transportation (DOT) as Division 1.1 in 49CFR172.101 are covered and named as a "Class." The threshold quantity for explosives is 5,000 pounds.

Enclosed with this packet is a blank CalARP Program Registration form.

Every owner or operator of a facility handling a regulated substance at an amount equal to or greater than its threshold quantity shall comply with the appropriate requirements of the CalARP program. The following statutes and regulations should be consulted regarding specific CalARP program requirements: Health and Safety Code, Chapter 6.95, Article 8; CFR, Title 40, Part 68 (1996); and CCR, Title 19, Division 2, Chapter 4.5. These regulations are available on the Internet at <http://www.oes.ca.gov>. Or call the Office of Emergency Services at (916) 464-3230.

**Table 1. Federal Regulated Substances List and Threshold Quantities
for Accidental Release Prevention**

Chemical Name	Also on Table 3 ^f	CAS Number	Threshold quantity (lbs)	Basis for listing
Acrolein [2-Propenal]	yes	107-02-8	5,000	b
Acrylonitrile [2-Propenenitrile]	yes	107-13-1	20,000	b
Acrylyl chloride [2-Propenoyl chloride]	yes	814-68-6	5,000	b
Allyl alcohol [2-Propen-1-ol]	yes	107-18-6	15,000	b
Allylamine [2-Propen-1-amine]	yes	107-11-9	10,000	b
Ammonia (anhydrous)	yes	7664-41-7	10,000	a,b
Ammonia (conc 20% or greater)	yes	7664-41-7	20,000	a,b
Arsenous trichloride	yes	7784-34-1	15,000	b
Arsine	yes	7784-42-1	1,000	b
Boron trichloride [Borane, trichloro-]	yes	10294-34-5	5,000	b
Boron trifluoride [Borane, trifluoro-]	yes	7637-07-2	5,000	b
Boron trifluoride compound with methyl ether (1:1) [Boron, trifluoro [oxybis[metane]]]-, T-4-	yes	353-42-4	15,000	b
Bromine	yes	7726-95-6	10,000	a,b
Carbon disulfide	yes	75-15-0	20,000	b
Chlorine	yes	7782-50-5	2,500	a,b
Chlorine dioxide [Chlorine oxide (ClO ₂)]	no	10049-04-4	1,000	c
Chloroform [Methane, trichloro-]	yes	67-66-3	20,000	b
Chloromethyl ether [Methane, oxybis[chloro-]]	yes	542-88-1	1,000	b
Chloromethyl methyl ether [Methane, chloromethoxy-]	yes	107-30-2	5,000	b
Crotonaldehyde [2-Butenal]	yes	4170-30-3	20,000	b
Crotonaldehyde, (E)- [2-Butenal, (E)-]	yes	123-73-9	20,000	b
Cyanogen chloride	no	506-77-4	10,000	c
Cyclohexylamine [Cyclohexanamine]	yes	108-91-8	15,000	b
Diborane	yes	19287-45-7	2,500	b
Dimethyldichlorosilane [Silane, dichlorodimethyl-]	yes	75-78-5	5,000	b
1,1-Dimethylhydrazine [Hydrazine, 1,1-dimethyl-]	yes	57-14-7	15,000	b
Epichlorohydrin [Oxirane, (chloromethyl)-]	yes	106-89-8	20,000	b
Ethylenediamine [1,2-Ethanediamine]	yes	107-15-3	20,000	b
Ethyleneimine [Aziridine]	yes	151-56-4	10,000	b
Ethylene oxide [Oxirane]	yes	75-21-8	10,000	a,b
Fluorine	yes	7782-41-4	1,000	b
Formaldehyde (solution)	yes	50-00-0	15,000	b
Furan	yes	110-00-9	5,000	b
Hydrazine	yes	302-01-2	15,000	b
Hydrochloric acid (conc 37% or greater)	no	7647-01-0	15,000	d
Hydrocyanic acid	yes	74-90-8	2,500	a,b
Hydrogen chloride (anhydrous) [Hydrochloric acid]	yes	7647-01-0	5,000	a
Hydrogen fluoride/Hydrofluoric acid (conc 50% or greater) [Hydrofluoric acid]	yes	7664-39-3	1,000	a,b
Hydrogen selenide	yes	7783-07-5	500	b
Hydrogen sulfide	yes	7783-06-4	10,000	a,b
Iron, pentacarbonyl- [Iron carbonyl (Fe(CO) ₅), (TB-5-11)-]	yes	13463-40-6	2,500	b
Isobutyronitrile [Propanenitrile, 2-methyl-]	yes	78-82-0	20,000	b
Isopropyl chloroformate [Carbonochloridic acid, 1-methylethyl ester]	yes	108-23-6	15,000	b
Methacrylonitrile [2-Propenenitrile, 2-methyl-]	yes	126-98-7	10,000	b
Methyl chloride [Methane, chloro-]	no	74-87-3	10,000	a

**Table 1. Federal Regulated Substances List and Threshold Quantities
for Accidental Release Prevention
(Continued)**

Chemical Name	Also on Table 3 ^f	CAS Number	Threshold quantity (lbs)	Basis for listing
Methyl chloroformate [Carbonochloridic acid, methylester]	yes	79-22-1	5,000	b
Methyl hydrazine [Hydrazine, methyl-]	yes	60-34-4	15,000	b
Methyl isocyanate [Methane, isocyanato-]	yes	624-83-9	10,000	a,b
Methyl mercaptan [Methanethiol]	yes	74-93-1	10,000	b
Methyl thiocyanate [Thiocyanic acid, methyl ester]	yes	556-64-9	20,000	b
Methyltrichlorosilane [Silane, trichloromethyl-]	yes	75-79-6	5,000	b
Nickel carbonyl	yes	13463-39-3	1,000	b
Nitric acid (conc 80% or greater)	yes	7697-37-2	15,000	b
Nitric oxide [Nitrogen oxide (NO)]	yes	10102-43-9	10,000	b
Oleum (Fuming Sulfuric acid) [Sulfuric acid, mixture with sulfur trioxide] ¹	no	8014-95-7	10,000	e
Peracetic acid [Ethaneperoxyic acid]	yes	79-21-0	10,000	b
Perchloromethylmercaptan [Methanesulfenyl chloride, trichloro-]	yes	594-42-3	10,000	b
Phosgene [Carbonic dichloride]	yes	75-44-5	500	a,b
Phosphine	yes	7803-51-2	5,000	b
Phosphorus oxychloride [Phosphoryl chloride]	yes	10025-87-3	5,000	b
Phosphorus trichloride [Phosphorous trichloride]	yes	7719-12-2	15,000	b
Piperidine	yes	110-89-4	15,000	b
Propionitrile [Propanenitrile]	yes	107-12-0	10,000	b
Propyl chloroformate [Carbonochloridic acid, propylester]	yes	109-61-5	15,000	b
Propyleneimine [Aziridine, 2-methyl-]	yes	75-55-8	10,000	b
Propylene oxide [Oxirane, methyl-]	yes	75-56-9	10,000	b
Sulfur dioxide (anhydrous)	yes	7446-09-5	5,000	a,b
Sulfur tetrafluoride [Sulfur fluoride (SF ₄), (T-4)-]	yes	7783-60-0	2,500	b
Sulfur trioxide	yes	7446-11-9	10,000	a,b
Tetramethyllead [Plumbane, tetramethyl-]	yes	75-74-1	10,000	b
Tetranitromethane [Methane, tetranitro-]	yes	509-14-8	10,000	b
Titanium tetrachloride [Titanium chloride (TiCl ₄) (T-4)-]	yes	7550-45-0	2,500	b
Toluene 2,4-diisocyanate [Benzene, 2,4-diisocyanato-1-methyl-] ¹	yes	584-84-9	10,000	a
Toluene 2,6-diisocyanate [Benzene, 1,3-diisocyanato-2-methyl-] ¹	yes	91-08-7	10,000	a
Toluene diisocyanate (unspecified isomer) [Benzene, 1,3-diisocyanatomethyl-] ¹	no	26471-62-5	10,000	a
Trimethylchlorosilane [Silane, chlorotrimethyl-]	yes	75-77-4	10,000	b
Vinyl acetate monomer [Acetic acid ethenyl ester]	yes	108-05-4	15,000	b

¹ The exemption in Section 2770.2(b)(1)(B) regarding portions of a process where this regulated substance is handled at partial pressures below 10 mm Hg does not apply to this substance.

Note - Basis for Listing:

- a Mandated for listing by Congress.
- b On EHS list, vapor pressure 10 mmHg or greater.
- c Toxic gas.
- d Toxicity of hydrogen chloride, potential to release hydrogen chloride, and history of accidents.
- e Toxicity of sulfur trioxide and sulfuric acid, potential to release sulfur trioxide, and history of accidents.
- f This column identifies substances which may appear on Table 3. Table 3 may not have concentration limitations.

Table 2. Federal Regulated Flammable Substances List ¹ and Threshold Quantities for Accidental Release Prevention

Chemical Name	CAS Numbers	Threshold quantity (lbs)	Basis for listing
Acetaldehyde	75-07-0	10,000	g
Acetylene [Ethyne]	74-86-2	10,000	f
Bromotrifluorethylene [Ethene, bromotrifluoro-]	598-73-2	10,000	f
1,3-Butadiene	106-99-0	10,000	f
Butane	106-97-8	10,000	f
1-Butene	106-98-9	10,000	f
2-Butene	107-01-7	10,000	f
Butene	25167-67-3	10,000	f
2-Butene-cis	590-18-1	10,000	f
2-Butene-trans [2-Butene, (E)]	624-64-6	10,000	f
Carbon oxysulfide [Carbon oxide sulfide (COS)]	463-58-1	10,000	f
Chlorine monoxide [Chlorine oxide]	7791-21-1	10,000	f
2-Chloropropylene [1-Propene, 2-chloro-]	557-98-2	10,000	g
1-Chloropropylene [1-Propene, 1-chloro-]	590-21-6	10,000	g
Cyanogen [Ethanedinitrile]	460-19-5	10,000	f
Cyclopropane	75-19-4	10,000	f
Dichlorosilane [Silane, dichloro-]	4109-96-0	10,000	f
Difluoroethane [Ethane, 1,1-difluoro-]	75-37-6	10,000	f
Dimethylamine [Methanamine, N-methyl-]	124-40-3	10,000	f
2,2-Dimethylpropane [Propane, 2,2-dimethyl-]	463-82-1	10,000	f
Ethane	74-84-0	10,000	f
Ethyl acetylene [1-Butyne]	107-00-6	10,000	f
Ethylamine [Ethanamine]	75-04-7	10,000	f
Ethyl chloride [Ethane, chloro-]	75-00-3	10,000	f
Ethylene [Ethene]	74-85-1	10,000	f
Ethyl ether [Ethane, 1,1'-oxybis-]	60-29-7	10,000	g
Ethyl mercaptan [Ethanethiol]	75-08-1	10,000	g
Ethyl nitrite [Nitrous acid, ethyl ester]	109-95-5	10,000	f
Hydrogen	1333-74-0	10,000	f
Isobutane [Propane, 2-methyl]	75-28-5	10,000	f
Isopentane [Butane, 2-methyl-]	78-78-4	10,000	g
Isoprene [1,3-Butadiene, 2-methyl-]	78-79-5	10,000	g
Isopropylamine [2-Propanamine]	75-31-0	10,000	g
Isopropyl chloride [Propane, 2-chloro-]	75-29-6	10,000	g
Methane	74-82-8	10,000	f
Methylamine [Methanamine]	74-89-5	10,000	f
3-Methyl-1-butene	563-45-1	10,000	f
2-Methyl-1-butene	563-46-2	10,000	g
Methyl ether [Methane, oxybis-]	115-10-6	10,000	f
Methyl formate [Formic acid, methyl ester]	107-31-3	10,000	g
2-Methylpropene [1-Propene, 2-methyl-]	115-11-7	10,000	f
1,3-Pentadiene	504-60-9	10,000	f
Pentane	109-66-0	10,000	g
1-Pentene	109-67-1	10,000	g
2-Pentene, (E)-	646-04-8	10,000	g
2-Pentene, (Z)-	627-20-3	10,000	g

Table 2. Federal Regulated Flammable Substances List ¹ and Threshold Quantities for Accidental Release Prevention
(Continued)

Chemical Name	CAS Numbers	Threshold quantity (lbs)	Basis for listing
Propadiene [1,2-Propadiene]	463-49-0	10,000	f
Propane	74-98-6	10,000	f
Propylene [1-Propene]	115-07-1	10,000	f
Propyne [1-Propyne]	74-99-7	10,000	f
Silane	7803-62-5	10,000	f
Tetrafluoroethylene [Ethene, tetrafluoro-]	116-14-3	10,000	f
Tetramethylsilane [Silane, tetramethyl-]	75-76-3	10,000	g
Trichlorosilane [Silane, trichloro-]	10025-78-2	10,000	g
Trifluorochloroethylene [Ethene, chlorotrifluoro-]	79-38-9	10,000	f
Trimethylamine [Methanamine, N,N-dimethyl-]	75-50-3	10,000	f
Vinyl acetylene [1-Buten-3-yne]	689-97-4	10,000	f
Vinyl chloride [Ethene, chloro-]	75-01-4	10,000	a,f
Vinyl ethyl ether [Ethene, ethoxy-]	109-92-2	10,000	g
Vinyl fluoride [Ethene, fluoro-]	75-02-5	10,000	f
Vinylidene chloride [Ethene, 1,1-dichloro-]	75-35-4	10,000	g
Vinylidene fluoride [Ethene, 1,1-difluoro-]	75-38-7	10,000	f
Vinyl methyl ether [Ethene, methoxy-]	107-25-5	10,000	f

¹ A flammable substance when used as a fuel or held for sale as a fuel at a retail facility is excluded from all provisions of this chapter (see Section 2770.4.1).

Note - Basis for Listing:

- a Mandated for listing by Congress.
- f Flammable gas.
- g Volatile flammable liquid.

**Table 3. State Regulated Substances List and Threshold Quantities
for Accidental Release Prevention**

Chemical Name	Also on Table 1 ¹	CAS Number	State Threshold Quantity (lbs)
Acetone Cyanohydrin ²	no	75-86-5	1,000
Acetone Thiosemicarbazide	no	1752-30-3	1,000/10,000 ³
Acrolein	yes	107-02-8	500
Acrylamide	no	79-06-1	1,000/10,000 ³
Acrylonitrile	yes	107-13-1	10,000
Acrylyl Chloride	yes	814-68-6	100
Aldicarb	no	116-06-3	100/10,000 ³
Aldrin	no	309-00-2	500/10,000 ³
Allyl Alcohol	yes	107-18-6	1,000
Allylamine	yes	107-11-9	500
Aluminum Phosphide ⁴	no	20859-73-8	500
Aminopterin	no	54-62-6	500/10,000 ³
Amiton Oxalate	no	3734-97-2	100/10,000 ³
Ammonia ⁵	yes	7664-41-7	500
Aniline ²	no	62-53-3	1,000
Antimycin A	no	1397-94-0	1,000/10,000 ³
ANTU	no	86-88-4	500/10,000 ³
Arsenic Pentoxide	no	1303-28-2	100/10,000 ³
Arsenous Oxide	no	1327-53-3	100/10,000 ³
Arsenous Trichloride	yes	7784-34-1	500
Arsine	yes	7784-42-1	100
Azinphos-Ethyl	no	2642-71-9	100/10,000 ³
Azinphos-Methyl	no	86-50-0	10/10,000 ³
Benzene, 1-(Chloromethyl)-4-Nitro-	no	100-14-1	500/10,000 ³
Benzeneazonic Acid	no	98-05-5	10/10,000 ³
Benzimidazole, 4,5-Dichloro-2-(Trifluoromethyl)-	no	3615-21-2	500/10,000 ³
Benzotrichloride ²	no	98-07-7	100
Bicyclo[2.2.1] Heptane-2-Carbonitrile, 5-Chloro- 6-(((Methylamino) Carbonyl)Oxy)lmino)-, (1s-(1-alpha, 2-beta, 4-alpha, 5-alpha, 6E))-.	no	15271-41-7	500/10,000 ³
Bis(Chloromethyl) Ketone	no	534-07-6	10/10,000 ³
Bitoscanate	no	4044-65-9	500/10,000 ³
Boron Trichloride	yes	10294-34-5	500
Boron Trifluoride	yes	7637-07-2	500
Boron Trifluoride Compound w/ Methyl Ether (1:1)	yes	353-42-4	1,000
Bromadiolone	no	28772-56-7	100/10,000 ³
Bromine	yes	7726-95-6	500
Cadmium Oxide	no	1306-19-0	100/10,000 ³
Cadmium Stearate	no	2223-93-0	1,000/10,000 ³
Calcium Arsenate	no	7778-44-1	500/10,000 ³
Camphechlor	no	8001-35-2	500/10,000 ³
Cantharidin	no	56-25-7	100/10,000 ³

**Table 3. State Regulated Substances List and Threshold Quantities
for Accidental Release Prevention
(Continued)**

Chemical Name	Also on Table 1 ¹	CAS Number	State Threshold Quantity (lbs)
Carbachol Chloride	no	51-83-2	500/10,000 ³
Carbamic Acid, Methyl-,o-((2,4-Dimethyl-1, 3-Dithiolan-2-yl)Methylene Amino)-.	no	26419-73-8	100/10,000 ³
Carbofuran	no	1563-66-2	10/10,000 ³
Carbon Disulfide	yes	75-15-0	10,000
Chlorine	yes	7782-50-5	100
Chlormequat Chloride	no	999-81-5	100/10,000 ³
Chloroacetic Acid	no	79-11-8	100/10,000 ³
Chloroform	yes	67-66-3	10,000
Chloromethyl Ether	yes	542-88-1	100
Chloromethyl Methyl Ether	yes	107-30-2	100
Chlorophacinone	no	3691-35-8	100/10,000 ³
Chloroxuron	no	1982-47-4	500/10,000 ³
Chromic Chloride	no	10025-73-7	1/10,000 ³
Cobalt Carbonyl	no	10210-68-1	10/10,000 ³
Cobalt, ((2,2'-(1,2-Ethanediy)bis (Nitrilomethylidyne)) Bis(6-Fluorophenolato))(2--N,N',O,O')-.	no	62207-76-5	100/10,000 ³
Colchicine	no	64-86-8	10/10,000 ³
Coumaphos	no	56-72-4	100/10,000 ³
Coumatetralyl	no	5836-29-3	500/10,000 ³
Cresol, o-	no	95-48-7	1,000/10,000 ³
Crimidine	no	535-89-7	100/10,000 ³
Crotonaldehyde	yes	4170-30-3	1,000
Crotonaldehyde, (E)-	yes	123-73-9	1,000
Cyanogen Bromide	no	506-68-3	500/10,000 ³
Cyanogen Iodide	no	506-78-5	1,000/10,000 ³
Cyanuric Fluoride	no	675-14-9	100
Cycloheximide	no	66-81-9	100/10,000 ³
Cyclohexylamine	yes	108-91-8	10,000
Decaborane(14)	no	17702-41-9	500/10,000 ³
Dialifor	no	10311-84-9	100/10,000 ³
Diborane	yes	19287-45-7	100
Diepoxybutane ²	no	1464-53-5	500
Digitoxin	no	71-63-6	100/10,000 ³
Digoxin	no	20830-75-5	10/10,000 ³
Dimethoate	no	60-51-5	500/10,000 ³
Dimethyldichlorosilane	yes	75-78-5	500
Dimethylhydrazine	yes	57-14-7	1,000
Dimethyl-p-Phenylenediamine	no	99-98-9	10/10,000 ³
Dimethyl Sulfate ²	no	77-78-1	500
Dimetilan	no	644-64-4	500/10,000 ³

**Table 3. State Regulated Substances List and Threshold Quantities
for Accidental Release Prevention
(Continued)**

Chemical Name	Also on Table 1 ¹	CAS Number	State Threshold Quantity (lbs)
Dinitroresol	no	534-52-1	10/10,000 ³
Dinoseb	no	88-85-7	100/10,000 ³
Dinoterb	no	1420-07-1	500/10,000 ³
Diphacinone	no	82-66-6	10/10,000 ³
Disulfoton ²	no	298-04-4	500
Dithiazanine Iodide	no	514-73-8	500/10,000 ³
Dithiobiuret	no	541-53-7	100/10,000 ³
Emetine, Dihydrochloride	no	316-42-7	1/10,000 ³
Endosulfan	no	115-29-7	10/10,000 ³
Endothion	no	2778-04-3	500/10,000 ³
Endrin	no	72-20-8	500/10,000 ³
Epichlorohydrin	yes	106-89-8	1,000
EPN	no	2104-64-5	100/10,000 ³
Ergocalciferol	no	50-14-6	1,000/10,000 ³
Ergotamine Tartrate	no	379-79-3	500/10,000 ³
Ethylenediamine	yes	107-15-3	10,000
Ethylene Fluorohydrin	no	371-62-0	10
Ethyleneimine	yes	151-56-4	500
Ethylene Oxide	yes	75-21-8	1,000
Fenamiphos	no	22224-92-6	10/10,000 ³
Fluometil	no	4301-50-2	100/10,000 ³
Fluorine	yes	7782-41-4	500
Fluoroacetamide	no	640-19-7	100/10,000 ³
Fluoroacetic Acid	no	144-49-0	10/10,000 ³
Fluoroacetyl Chloride	no	359-06-8	10
Fluorouracil	no	51-21-8	500/10,000 ³
Formaldehyde ⁵	yes	50-00-0	500
Formetanate Hydrochloride	no	23422-53-9	500/10,000 ³
Formparanate	no	17702-57-7	100/10,000 ³
Fuberidazole	no	3878-19-1	100/10,000 ³
Furan	yes	110-00-9	500
Gallium Trichloride	no	13450-90-3	500/10,000 ³
Hydrazine	yes	302-01-2	1,000
Hydrocyanic Acid	yes	74-90-8	100
Hydrogen Chloride (gas only)	yes	7647-01-0	500
Hydrogen Fluoride	yes	7664-39-3	100
Hydrogen Selenide	yes	7783-07-5	10
Hydrogen Sulfide	yes	7783-06-4	500
Hydroquinone ⁶	no	123-31-9	500/10,000 ³
Iron, Pentacarbonyl-	yes	13463-40-6	100
Isobenzan	no	297-78-9	100/10,000 ³
Isobutyronitrile	yes	78-82-0	1,000

**Table 3. State Regulated Substances List and Threshold Quantities
for Accidental Release Prevention
(Continued)**

Chemical Name	Also on Table 1 ¹	CAS Number	State Threshold Quantity (lbs)
Isocyanic Acid, 3,4-Dichlorophenyl Ester	no	102-36-3	500/10,000 ³
Isodrin	no	465-73-6	100/10,000 ³
Isophorone Diisocyanate	no	4098-71-9	100
Isopropyl Chloroformate	yes	108-23-6	1,000
Leptophos	no	21609-90-5	500/10,000 ³
Lewisite ²	no	541-25-3	10
Lindane	no	58-89-9	1,000/10,000 ³
Lithium Hydride ⁴	no	7580-67-8	100
Malononitrile	no	109-77-3	500/10,000 ³
Manganese, Tricarbonyl Methylcyclopentadienyl ²	no	12108-13-3	100
Mechlorethamine ²	no	51-75-2	10
Mercuric Acetate	no	1600-27-7	500/10,000 ³
Mercuric Chloride	no	7487-94-7	500/10,000 ³
Mercuric Oxide	no	21908-53-2	500/10,000 ³
Methacrylonitrile	yes	126-98-7	500
Methacryloyl Chloride	no	920-46-7	100
Methacryloyloxyethyl Isocyanate	no	30674-80-7	100
Methamidophos	no	10265-92-6	100/10,000 ³
Methanesulfonyl Fluoride	no	558-25-8	1,000
Methidathion	no	950-37-8	500/10,000 ³
Methiocarb	no	2032-65-7	500/10,000 ³
Methomyl	no	16752-77-5	500/10,000 ³
Methoxyethylmercuric Acetate	no	151-38-2	500/10,000 ³
Methyl Bromide	no	74-83-9	1,000
Methyl 2-Chloroacrylate	no	80-63-7	500
Methyl Chloroformate	yes	79-22-1	500
Methyl Hydrazine	yes	60-34-4	500
Methyl Isocyanate	yes	624-83-9	500
Methyl Isothiocyanate ⁴	no	556-61-6	500
Methyl Mercaptan	yes	74-93-1	500
Methylmercuric Dicyanamide	no	502-39-6	500/10,000 ³
Methyl Phosphonic Dichloride ⁴	no	676-97-1	100
Methyl Thiocyanate	yes	556-64-9	10,000
Methyltrichlorosilane	yes	75-79-6	500
Methyl Vinyl Ketone	no	78-94-4	10
Metolcarb	no	1129-41-5	100/10,000 ³
Mexacarbate	no	315-18-4	500/10,000 ³
Mitomycin C	no	50-07-7	500/10,000 ³
Monocrotophos	no	6923-22-4	10/10,000 ³
Muscimol	no	2763-96-4	500/10,000 ³
Mustard Gas ²	no	505-60-2	500
Nickel Carbonyl	yes	13463-39-3	1

**Table 3. State Regulated Substances List and Threshold Quantities
for Accidental Release Prevention
(Continued)**

Chemical Name	Also on Table 1 ¹	CAS Number	State Threshold Quantity (lbs) ³
Nicotine Sulfate	no	65-30-5	100/10,000 ³
Nitric Acid	yes	7697-37-2	1,000
Nitric Oxide	yes	10102-43-9	100
Nitrobenzene ²	no	98-95-3	10,000
Nitrogen Dioxide	no	10102-44-0	100
Norbormide	no	991-42-4	100/10,000 ³
Organorhodium Complex (PMN-82-147)	no	MIXTURE	10/10,000 ³
Ouabain	no	630-60-4	100/10,000 ³
Oxamyl	no	23135-22-0	100/10,000 ³
Ozone	no	10028-15-6	100
Paraquat Dichloride	no	1910-42-5	10/10,000 ³
Paraquat Methosulfate	no	2074-50-2	10/10,000 ³
Parathion-Methyl	no	298-00-0	100/10,000 ³
Paris Green	no	12002-03-8	500/10,000 ³
Pentaborane	no	19624-22-7	500
Pentadecylamine	no	2570-26-5	100/10,000 ³
Peracetic Acid	yes	79-21-0	500
Perchloromethylmercaptan	yes	594-42-3	500
Phenol	no	108-95-2	500/10,000 ³
Phenol, 2,2'-Thiobis(4-Chloro-6-Methyl)-	no	4418-66-0	100/10,000 ³
Phenol, 3-(1-Methylethyl)-, Methylcarbamate	no	64-00-6	500/10,000 ³
Phenoxarsine, 10,10'-Oxydi-	no	58-36-6	500/10,000 ³
Phenyl Dichloroarsine ²	no	696-28-6	500
Phenylhydrazine Hydrochloride	no	59-88-1	1,000/10,000 ³
Phenylmercury Acetate	no	62-38-4	500/10,000 ³
Phenylsilatrane	no	2097-19-0	100/10,000 ³
Phenylthiourea	no	103-85-5	100/10,000 ³
Phorate ²	no	298-02-2	10
Phosacetim	no	4104-14-7	100/10,000 ³
Phosfolan	no	947-02-4	100/10,000 ³
Phosgene	yes	75-44-5	10
Phosmet	no	732-11-6	10/10,000 ³
Phosphine	yes	7803-51-2	500
Phosphonothioic Acid, Methyl-, S-(2-(Bis(1-Methylethyl)Amino)Ethyl) O-Ethyl Ester. ²	no	50782-69-9	100
Phosphorus ⁴	no	7723-14-0	100
Phosphorus Oxychloride	yes	10025-87-3	500
Phosphorus Pentachloride ⁴	no	10026-13-8	500
Phosphorus Trichloride	yes	7719-12-2	1,000
Physostigmine	no	57-47-6	100/10,000 ³
Physostigmine, Salicylate (1:1)	no	57-64-7	100/10,000 ³

**Table 3. State Regulated Substances List and Threshold Quantities
for Accidental Release Prevention
(Continued)**

Chemical Name	Also on Table 1 ¹	CAS Number	State Threshold Quantity (lbs)
Picrotoxin	no	124-87-8	500/10,000 ³
Piperidine	yes	110-89-4	1,000
Potassium Arsenite	no	10124-50-2	500/10,000 ³
Potassium Cyanide ⁴	no	151-50-8	100
Potassium Silver Cyanide ⁴	no	506-61-6	500
Promecarb	no	2631-37-0	500/10,000 ³
Propargyl Bromide	no	106-96-7	10
Propiolactone, Beta- ²	no	57-57-8	500
Propionitrile	yes	107-12-0	500
Propiophenone, 4-Amino-	no	70-69-9	100/10,000 ³
Propyl Chloroformate	yes	109-61-5	500
Propylene Oxide	yes	75-56-9	10,000
Propyleneimine	yes	75-55-8	10,000
Prothoate	no	2275-18-5	100/10,000 ³
Pyrene	no	129-00-0	1,000/10,000 ³
Pyridine, 4-Amino-	no	504-24-5	500/10,000 ³
Pyridine, 4-Nitro-, 1-Oxide	no	1124-33-0	500/10,000 ³
Pyriminil	no	53558-25-1	100/10,000 ³
Salcomine	no	14167-18-1	500/10,000 ³
Sarin ²	no	107-44-8	10
Selenious Acid	no	7783-00-8	1,000/10,000 ³
Semicarbazide Hydrochloride	no	563-41-7	1,000/10,000 ³
Sodium Arsenate	no	7631-89-2	1,000/10,000 ³
Sodium Arsenite	no	7784-46-5	500/10,000 ³
Sodium Azide (Na (N3)) ⁴	no	26628-22-8	500
Sodium Cacodylate	no	124-65-2	100/10,000 ³
Sodium Cyanide (Na (CN)) ⁴	no	143-33-9	100
Sodium Fluoroacetate	no	62-74-8	10/10,000 ³
Sodium Selenate	no	13410-01-0	100/10,000 ³
Sodium Selenite	no	10102-18-8	100/10,000 ³
Sodium Tellurite	no	10102-20-2	500/10,000 ³
Stannane, Acetoxytriphenyl-	no	900-95-8	500/10,000 ³
Strychnine	no	57-24-9	100/10,000 ³
Strychnine Sulfate	no	60-41-3	100/10,000 ³
Sulfur Dioxide	yes	7446-09-5	500
Sulfuric Acid ⁷	no	7664-93-9	1,000
Sulfur Tetrafluoride	yes	7783-60-0	100
Sulfur Trioxide ⁴	yes	7446-11-9	100
Tabun ²	no	77-81-6	10
Tellurium Hexafluoride	no	7783-80-4	100

**Table 3. State Regulated Substances List and Threshold Quantities
for Accidental Release Prevention
(Continued)**

Chemical Name	Also on Table 1 ¹	CAS Number	State Threshold Quantity (lbs)
Tetramethyllead	yes	75-74-1	100
Tetranitromethane	yes	509-14-8	500
Thallium Sulfate	no	10031-59-1	100/10,000 ³
Thallos Carbonate	no	6533-73-9	100/10,000 ³
Thallos Chloride	no	7791-12-0	100/10,000 ³
Thallos Malonate	no	2757-18-8	100/10,000 ³
Thallos Sulfate	no	7446-18-6	100/10,000 ³
Thiocarbazide	no	2231-57-4	1,000/10,000 ³
Thiofanox	no	39196-18-4	100/10,000 ³
Thiosemicarbazide	no	79-19-6	100/10,000 ³
Thiourea, (2-Chlorophenyl)-	no	5344-82-1	100/10,000 ³
Thiourea, (2-Methylphenyl)-	no	614-78-8	500/10,000 ³
Titanium Tetrachloride	yes	7550-45-0	100
Toluene-2,4-Diisocyanate ⁸	yes	584-84-9	500
Toluene-2,6-Diisocyanate ⁸	yes	91-08-7	100
Triamphos	no	1031-47-6	500/10,000 ³
Trichloro(Chloromethyl)Silane	no	1558-25-4	100
Trichloro(Dichlorophenyl)Silane	no	27137-85-5	500
Triethoxysilane	no	998-30-1	500
Trimethylchlorosilane	yes	75-77-4	1,000
Trimethylolpropane Phosphite	no	824-11-3	100/10,000 ³
Trimethyltin Chloride	no	1066-45-1	500/10,000 ³
Triphenyltin Chloride	no	639-58-7	500/10,000 ³
Tris(2-Chloroethyl)Amine ²	no	555-77-1	100
Valinomycin	no	2001-95-8	1,000/10,000 ³
Vanadium Pentoxide	no	1314-62-1	100/10,000 ³
Vinyl Acetate Monomer	yes	108-05-4	1,000
Warfarin	no	81-81-2	500/10,000 ³
Warfarin Sodium	no	129-06-6	100/10,000 ³
Xylylene Dichloride	no	28347-13-9	100/10,000 ³
Zinc, Dichloro(4,4-Dimethyl-5((((Methylamino) Carbonyl)Oxy)Imino) Pentanenitrile)-, (T-4)-.	no	58270-08-9	100/10,000 ³
Zinc Phosphide ⁴	no	1314-84-7	500

1 This column identifies substances which may appear on Table 1. Table 1 may have concentration limitations.

2 Substances that failed the evaluation pursuant to Section 25532(g)(2) of the HSC but remain listed pursuant to potential health impacts. The exemption in Section 2770.2(b)(1)(B) regarding portions of a process where these regulated substances are handled at partial pressures below 10 mm Hg does not apply to these substances.

3 These extremely hazardous substances are solids. The lesser quantity listed applies only if in powdered form and with a particle size of less than 100 microns; or if handled in solution or in molten form; or the substance has an NFPA rating for reactivity of 2, 3, or 4. Otherwise, a 10,000 pound threshold applies. The exemption in Section 2770.2(b)(1)(B) regarding portions of a process where these regulated substances are handled at partial pressures below 10 mm Hg does not apply to these substances.

**Table 3. State Regulated Substances List and Threshold Quantities
for Accidental Release Prevention
(Continued)**

- 4 These extremely hazardous substances are reactive solids. The exemption in Section 2770.2(b)(1)(B) regarding portions of a process where these regulated substances are handled at partial pressures below 10 mm Hg does not apply to these substances.
 - 5 Appropriate synonyms or mixtures of extremely hazardous substances with the same CAS number are also regulated, e.g., formalin. The listing of ammonia includes anhydrous and aqueous forms of ammonia pursuant to Section 25532(g)(2).
 - 6 Hydroquinone is exempt in crystalline form.
 - 7 Sulfuric acid fails the evaluation pursuant to Section 25532(g)(2) of the HSC but remains listed as a Regulated Substance only under the following conditions:
 - a. If concentrated with greater than 100 pounds of sulfur trioxide or the acid meets the definition of oleum. (The Table 3 threshold for sulfur trioxide is 100 pounds.) (The Table 1 threshold for oleum is 10,000 pounds.)
 - b. If in a container with flammable hydrocarbons (flash point < 73° F).
 - 8 The exemption in Section 2770.2(b)(1)(B) regarding portions of a process where these regulated substances are handled at partial pressures below 10 mm Hg does not apply to these substances.
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FEDERAL LIST OF EXTREMELY HAZARDOUS SUBSTANCES (EHS) AND THEIR THRESHOLD PLANNING QUANTITIES (TPQ)

Appendix A to 40 CFR Part 355

CAS No.	Chemical Name	Notes	Reportable Quantity* (pounds)	Threshold Planning Quantity (pounds)
75-86-5	Acetone Cyanohydrin		10	1,000
1752-30-3	Acetone Thiosemicarbazide		1,000	1,000/10,000
107-02-8	Acrolein		1	500
79-06-1	Acrylamide	l	5,000	1,000/10,000
107-13-1	Acrylonitrile	l	100	10,000
814-68-6	Acrylyl Chloride	h	100	100
111-69-3	Adiponitrile	l	1,000	1,000
116-06-3	Aldicarb	c	1	100/10,000
309-00-2	Aldrin		1	500/10,000
107-18-6	Allyl Alcohol		100	1,000
107-11-9	Allylamine		500	500
20859-73-8	Aluminum Phosphide	b	100	500
54-62-6	Aminopterin		500	500/10,000
78-53-5	Amiton		500	500
3734-97-2	Amiton Oxalate		100	100/10,000
7664-41-7	Ammonia	l	100	500
300-62-9	Amphetamine		1,000	1,000
62-53-3	Aniline	l	5,000	1,000
88-05-1	Aniline, 2,4,6-Trimethyl-		500	500
7783-70-2	Antimony Pentafluoride		500	500
1397-94-0	Antimycin A	c	1,000	1,000/10,000
86-88-4	ANTU		100	500/10,000
1303-28-2	Arsenic Pentoxide		1	100/10,000
1327-53-3	Arsenous Oxide	h	1	100/10,000
7784-34-1	Arsenous Trichloride		1	500
7784-42-1	Arsine		100	100
2642-71-9	Azinphos-Ethyl		100	100/10,000
86-50-0	Azinphos-Methyl		1	10/10,000
98-87-3	Benzal Chloride		5,000	500
98-16-8	Benzenamine, 3-(Trifluoromethyl)-		500	500
100-14-1	Benzene, 1-(Chloromethyl)-4- Nitro-		500	500/10,000
98-05-5	Benzeneearsonic Acid		10	10-10,000
3615-21-2	Benzimidazole, 4,5-Dichloro-2-(Trifluoromethyl)	g	500	500/10,000
98-07-7	Benzotrichloride		10	100
100-44-7	Benzyl Chloride		100	500
140-29-4	Benzyl Cyanide	h	500	500
15271-41-7	Bicyclo[2.2.1]Heptane-2-Carbonitrile, 5-Chloro-6-(((Methylamino)Carbonyl)Oxy)Imino)-, (1s-(1-alpha, 2-beta, 4-alpha, 5-alpha, 6E))-		500	500/10,000
534-07-6	Bis(Chloromethyl) Ketone		10	10/10,000
4044-65-9	Bitoscanate		500	500/10,000
10294-34-5	Boron Trichloride		500	500
7637-07-2	Boron Trifluoride		500	500
353-42-4	Boron Trifluoride Compound With Methyl Ether (1:1)		1,000	1,000
28772-56-7	Bromadiolone		100	100/10,000
7726-95-6	Bromine	l	500	500

CAS No.	Chemical Name	Notes	Reportable Quantity* (pounds)	Threshold Planning Quantity (pounds)
1306-19-0	Cadmium Oxide		100	100/10,000
2223-93-0	Cadmium Stearate	c	1,000	1,000/10,000
7778-44-1	Calcium Arsenate		1	500/10,000
8001-35-2	Camphoclor		1	500/10,000
56-25-7	Cantharidin		100	100/10,000
51-83-2	Carbachol Chloride		500	500/10,000
26419-73-8	Carbamic Acid, Methyl-,O-(((2,4-Dimethyl-1,3-Dithiolan-2-yl)Methylene)Amino)-	d	1	100/10,000
1563-66-2	Carbofuran		10	10/10,000
75-15-0	Carbon Disulfide	l	100	10,000
786-19-6	Carbophenothion		500	500
57-74-9	Chlordane		1	1,000
470-90-6	Chlorfenvinfos		500	500
7782-50-5	Chlorine		10	100
24934-91-6	Chlormephos		500	500
999-81-5	Chlormequat Chloride	h	100	100/10,000
79-11-8	Chloroacetic Acid		100	100/10,000
107-07-3	Chloroethanol		500	500
627-11-2	Chloroethyl		1,000	1,000
67-66-3	Chloroform	l	10	10,000
542-88-1	Chloromethyl Ether	h	10	100
107-30-2	Chloromethyl Methyl Ether	c	10	100
3691-35-8	Chlorophacinone		100	100/10,000
1982-47-4	Chloroxuron		500	500/10,000
21923-23-9	Chlorthiophos	h	500	500
10025-73-7	Chromic Chloride		1	1/10,000
62207-76-5	Cobalt ((2,2'-(1,2-Ethanediy)lbis (Nitrilomethylidyne)) Bis(6-Fluorophenolato))(2-)-N,N',0,0')-		100	100/10,000
10210-68-1	Cobalt Carbonyl	h	10	10/10,000
64-86-8	Colchicine	h	10	10/10,000
56-72-4	Coumaphos		10	100/10,000
5836-29-3	Coumatetralyl		500	500/10,000
95-48-7	Cresol, o-		100	1,000/10,000
535-89-7	Crimidine		100	100/10,000
4170-30-3	Crotonaldehyde		100	1,000
123-73-9	Crotonaldehyde,(E)-		100	1,000
506-68-3	Cyanogen Bromide		1,000	500/10,000
506-78-5	Cyanogen Iodide		1,000	1,000/10,000
2636-26-2	Cyanophos		1,000	1,000
675-14-9	Cyanuric Fluoride		100	100
66-81-9	Cyclohexylamine	l	10,000	10,000
108-91-8	Cyclohexylamine	l	10,000	10,000
17702-41-9	Decaborane(14)		500	500/10,000
8065-48-3	Demeton		500	500
919-86-8	Demeton-S-Methyl		500	500
10311-84-9	Dialifor		100	100/10,000
19287-45-7	Diborane		100	100
111-44-4	Dichloroethyl ether		10	10,000
149-74-6	Dichloromethylphenylsilane		1,000	1,000
62-73-7	Dichlorvos		10	1,000
141-66-2	Dicrotophos		100	100

CAS No.	Chemical Name	Notes	Reportable Quantity* (pounds)	Threshold Planning Quantity (pounds)
1464-53-5	Diepoxybutane		10	500
814-49-3	Diethyl Chlorophosphate	h	500	500
71-63-6	Digitoxin	c	100	100/10,000
2238-07-5	Diglycidyl Ether		1,000	1,000
20830-75-5	Digoxin	h	10	10/10,000
115-26-4	Dimefox		500	500
60-51-5	Dimethoate		10	500/10,000
2524-03-0	Dimethyl Phosphorochloridothioate		500	500
77-78-1	Dimethyl sulfate		100	500
75-78-5	Dimethyldichlorosilane	h	500	500
57-14-7	Dimethylhydrazine		10	1,000
99-98-9	Dimethyl-p-Phenylenediamine		10	10/10,000
644-64-4	Dimetilan	d	1	500/10,000
534-52-1	Dinitrocresol		10	10/10,000
88-85-7	Dinoseb		1,000	100/10,000
1420-07-1	Dinoterb		500	500/10,000
78-34-2	Dioxathion		500	500
82-66-6	Diphacinone		10	10/10,000
152-16-9	Diphosphoramidate, Octamethyl-		100	100
298-04-4	Disulfoton		1	500
514-73-8	Dithiazanine Iodide		500	500/10,000
541-53-7	Dithiobiuret		100	100/10,000
316-42-7	Emetine, Dihydrochloride	h	1	1/10,000
115-29-7	Endosulfan		1	10/10,000
2778-04-3	Endothion		500	500/10,000
72-20-8	Endrin		1	500/10,000
106-89-8	Epichlorohydrin	l	100	100/10,000
2104-64-5	EPN		100	100/1,000
50-14-6	Ergocalciferol	c	1,000	1,000/10,000
379-79-3	Ergotamine Tartrate		500	500/10,000
1622-32-8	Ethanesulfonyl Chloride, 2- Chloro-		500	500
10140-87-1	Ethanol, 1,2- Dichloro-, Acetate		1,000	1,000
563-12-2	Ethion		10	1,000
13194-48-4	Ethoprophos		1,000	1,000
538-07-8	Ethylbis(2- Chloroethyl)Amine	h	500	500
371-62-0	Ethylene Fluorohydrin	c,h	10	10
75-21-8	Ethylene Oxide	l	10	1,000
107-15-3	Ethylenediamine		5,000	10,000
151-56-4	Ethyleneimine		1	500
542-90-5	Ethylthiocyanate		10,000	10,000
22224-92-6	Fenamiphos		10	10/10,000
115-90-2	Fensulfothion	h	500	500
4301-50-2	Fluometil		100	100/10,000
7782-41-4	Fluorine	k	10	500
640-19-7	Fluoroacetamide	j	100	100/10,000
144-49-0	Fluoroacetic Acid		10	10/10,000
359-06-8	Fluoroacetyl Chloride	c	10	10
51-21-8	Fluorouracil		500	500/10,000
944-22-9	Fonofos		500	500
50-00-0	Formaldehyde	l	100	500
107-16-4	Formaldehyde Cyanohydrin	h	1,000	1,000

CAS No.	Chemical Name	Notes	Reportable Quantity* (pounds)	Threshold Planning Quantity (pounds)
23422-53-9	Formetanate Hydrochloride	d, h	1	500/10,000
2540-82-1	Formothion		100	100
17702-57-7	Formparanate	d	1	100/10,000
21548-32-3	Fosthietan		500	500
3878-19-1	Fuberidazole		100	100/10,000
110-00-9	Furan		100	500
13450-90-3	Gallium Trichloride		500	500/10,000
77-47-4	Hexachlorocyclopentadiene	h	10	100
4835-11-4	Hexamethylenediamine, N,N'-Dibutyl-		500	500
302-01-2	Hydrazine		1	1,000
74-90-8	Hydrocyanic Acid		10	100
7647-01-0	Hydrogen Chloride (gas only)		5,000	500
7664-39-3	Hydrogen Fluoride		100	100
7722-84-1	Hydrogen Peroxide (Conc > 52%)	l	1,000	1,000
7783-07-5	Hydrogen Selenide		10	10
7783-06-4	Hydrogen Sulfide	l	100	500
123-31-9	Hydroquinone	l	100	500/10,000
13463-40-6	Iron, Pentacarbonyl-		100	100
297-78-9	Isobenzan		100	100/10,000
78-82-0	Isobutyronitrile	h	1,000	1,000
102-36-3	Isocyanic Acid,3,4- Dichlorophenyl Ester		500	500/10,000
465-73-6	Isodrin		1	100/10,000
55-91-4	Isofluorophate	c	100	100
4098-71-9	Isophorone Diisocyanate		100	100
108-23-6	Isopropyl Chloroformate		1,000	1,000
119-38-0	Isopropylmethylpyrazolyl Dimethylcarbamate	d	1	500
78-97-7	Lactonitrile		1,000	1,000
21609-90-5	Leptophos		500	500/10,000
541-25-3	Lewisite	c, h	10	10
58-89-9	Lindane		1	1,000/10,000
7580-67-8	Lithium Hydride	b	100	100
109-77-3	Malononitrile		1,000	500/10,000
12108-13-3	Manganese, Tricarbonyl Methylcyclopentadienyl	h	100	100
51-75-2	Mechlorethamine	c		C
950-10-7	Mephosfolan		500	500
1600-27-7	Mercuric Acetate		500	500/10,000
7487-94-7	Mercuric Chloride		500	500/10,000
21908-53-2	Mercuric Oxide		500	500/10,000
10476-95-6	Methacrolein Diacetate		1,000	1,000
760-93-0	Methacrylic Anhydride		500	500
126-98-7	Methacrylonitrile. H		1,000	500
920-46-7	Methacryloyl Chloride		100	100
30674-80-7	Methacryloyloxyethyl Isocyanate	h	100	100
10265-92-6	Methamidophos		100	100/10,000
558-25-8	Methanesulfonyl Fluoride		1,000	1,000
950-37-8	Methidathion		500	500/10,000
2032-65-7	Methiocarb		10	500/10,000
16752-77-5	Methomyl	h	100	500/10,000
151-38-2	Methoxyethylmercuric Acetate		500	500/10,000
80-63-7	Methyl 2- Chloroacrylate		500	500
74-83-9	Methyl Bromide	l	1,000	1,000

CAS No.	Chemical Name	Notes	Reportable Quantity* (pounds)	Threshold Planning Quantity (pounds)
79-22-1	Methyl Chloroformate	h	1,000	500
60-34-4	Methyl Hydrazine		10	500
624-83-9	Methyl Isocyanate		10	500
556-61-6	Methyl Isothiocyanate	b	500	500
74-93-1	Methyl Mercaptan	l	100	500
3735-23-7	Methyl Phenkapton		500	500
676-97-1	Methyl Phosphonic Dichloride	b	100	100
556-64-9	Methyl Thiocyanate		10,000	10,000
78-94-4	Methyl Vinyl Ketone		10	10
502-39-6	Methylmercuric Dicyanamide		500	500/10,000
75-79-6	Methyltrichlorosilane	h	500	500
1129-41-5	Metolcarb	d	1	100/10,000
7786-34-7	Mevinphos		10	500
315-18-4	Mexacarbate		1,000	500/10,000
50-07-7	Mitomycin C		10	500/10,000
6923-22-4	Monocrotophos		10	10/10,000
2763-96-4	Muscimol		1,000	500/10,000
505-60-2	Mustard Gas	h	500	500
13463-39-3	Nickel Carbonyl		10	1
54-11-5	Nicotine	c	100	100
65-30-5	Nicotine Sulfate		100	100/10,000
7697-37-2	Nitric Acid		1,000	1,000
10102-43-9	Nitric Oxide	c	10	100
98-95-3	Nitrobenzene	l	1,000	10,000
1122-60-7	Nitrocyclohexane		500	500
10102-44-0	Nitrogen Dioxide		10	100
62-75-9	Nitrosodimethylamine	h	10	1,000
991-42-4	Norbormide		100	100/10,000
0	Organorhodium Complex (PMN-82-147)		10	10/10,000
630-60-4	Ouabain	c	100	100/10,000
23135-22-0	Oxamyl	d	1	1
78-71-7	Oxetane, 3,3- Bis(Chloromethyl)-		500	500
2497-07-6	Oxydisulfoton	h	500	500
10028-15-6	Ozone		100	100
1910-42-5	Paraquat Dichloride		10	10/10,000
2074-50-2	Paraquat Methosulfate		10	10/10,000
56-38-2	Parathion	c	10	100
298-00-0....	Parathion-Methyl	c	100	100/10,000
12002-03-8	Paris Green		1	500/10,000
19624-22-7	Pentaborane		500	500
2570-26-5	Pentadecylamine		100	100/10,000
79-21-0	Peracetic Acid		500	500
594-42-3	Perchloromethylmercaptan		100	500
108-95-2	Phenol		1,000	500/10,000
4418-66-0	Phenol, 2,2'- Thiobis(4-Chloro-6-Methyl)-		100	100/10,000
64-00-6	Phenol, 3-(1-Methylethyl)-, Methylcarbamate	d	1	500/10,000
58-36-6	Phenoxarsine, 10,10'-Oxydi-		500	500/10,000
696-28-6	Phenyl Dichloroarsine	h	1	500
59-88-1	Phenylhydrazine Hydrochloride		1,000	1,000/10,000
62-38-4	Phenylmercury Acetate		100	500/10,000

CAS No.	Chemical Name	Notes	Reportable Quantity* (pounds)	Threshold Planning Quantity (pounds)
2097-19-0	Phenylsilatrane	h	100	100/10,000
103-85-5	Phenylthiourea		100	100/10,000
298-02-2	Phorate		10	10
4104-14-7	Phosacetim		100	100/10,000
947-02-4	Phosfolan		100	100/10,000
75-44-5	Phosgene	l	10	10
732-11-6	Phosmet		10	10/10,000
13171-21-6	Phosphamidon		100	100
7803-51-2	Phosphine		100	500
2703-13-1	Phosphonothioic Acid, Methyl-, O- Ethyl O-(4-(Methylthio) Phenyl) Ester		500	500
50782-69-9	Phosphonothioic Acid, Methyl-, S-(2-(Bis(1Methylethyl)Amino)Ethyl) O- Ethyl Ester		100	100
2665-30-7	Phosphonothioic Acid, Methyl-, O-(4-Nitrophenyl) O- Phenyl Ester		500	500
3254-63-5	Phosphoric Acid, Dimethyl 4-(Methylthio)Phenyl Ester		500	500
2587-90-8	Phosphorothioic Acid, O,O- Dimethyl-S-(2- Methylthio) Ethyl Ester	c, g	500	500
7723-14-0	Phosphorus	b, h	1	100
10025-87-3	Phosphorus Oxychloride		1,000	500
10026-13-8	Phosphorus Pentachloride	b	500	500
7719-12-2	Phosphorus Trichloride		1,000	1,000
57-47-6	Physostigmine	d	1	100/10,000
57-64-7	Physostigmine, Salicylate (1:1)	d	1	100/10,000
124-87-8	Picrotoxin		500	500/10,000
110-89-4	Piperidine		1,000	1,000
23505-41-1	Pirimifos-Ethyl		1,000	1,000
10124-50-2	Potassium Arsenite		1	500/10,000
151-50-8	Potassium Cyanide	b	10	10
506-61-6	Potassium Silver Cyanide	b	1	500
2631-37-0	Promecarb	d, h	1	500/10,000
106-96-7	Propargyl Bromide		10	10
57-57-8	Propiolactone, Beta-		10	500
107-12-0	Propionitrile		10	500
542-76-7	Propionitrile, 3- Chloro-		1,000	1,000
70-69-9	Propiophenone, 4- Amino-	g	100	100/10,000
109-61-5	Propyl Chloroformate		500	500
75-56-9	Propylene Oxide	l	100	10,000
75-55-8	Propyleneimine		1	10,000
2275-18-5	Prothoate		100	100/10,000
129-00-0	Pyrene	c	5,000	1,000/10,000
140-76-1	Pyridine, 2-Methyl-5-Vinyl-		500	500
504-24-5	Pyridine, 4-Amino-	h	1,000	500/10,000
1124-33-0	Pyridine, 4-Nitro-,l-Oxide		500	500/10,000
53558-25-1	Pyriminil	h	100	100/10,000
14167-18-1	Salcomine		500	500/10,000
107-44-8	Sarin	h	10	10
7783-00-8	Selenious Acid		10	1,000/10,000
7791-23-3	Selenium Oxychloride		500	500
563-41-7	Semicarbazide Hydrochloride		1,000	1,000/10,000
3037-72-7	Silane, (4- xymethyl-		1,000	1,000

CAS No.	Chemical Name	Notes	Reportable Quantity* (pounds)	Threshold Planning Quantity (pounds)
7631-89-2	Sodium Arsenate		1	1,000/10,000
7784-46-5	Sodium Arsenite		1	500/10,000
26628-22-8	Sodium Azide(Na(N<INF>3))	b	1,000	500
124-65-2	Sodium Cacodylate		100	100/10,000
143-33-9	Sodium Cyanide(Na(CN))	b	10	100
62-74-8	Sodium Fluoroacetate		10	10/10,000
13410-01-0	Sodium Selenate		100	100/10,000
10102-18-8	Sodium Selenite	h	100	100/10,000
10102-20-2	Sodium Tellurite		500	500/10,000
900-95-8	Stannane, Acetoxytriphenyl-	g	500	500/10,000
57-24-9	Strychnine	c	10	100/10,000
60-41-3	Strychnine Sulfate		10	100/10,000
3689-24-5	Sulfotep		100	500
3569-57-1	Sulfoxide, 3- Chloropropyl Octyl		500	500
7446-09-5	Sulfur Dioxide	l	500	500
7783-60-0	Sulfur Tetrafluoride		100	100
7446-11-9	Sulfur Trioxide	b	100	100
7664-93-9	Sulfuric Acid		1,000	1,000
77-81-6	Tabun	c, h	10	10
7783-80-4	Tellurium Hexafluoride	k	100	100
107-49-3	TEPP		10	100
13071-79-9	Terbufos	h	100	100
78-00-2	Tetraethyllead	c	10	100
597-64-8	Tetraethyltin	c	100	100
75-74-1	Tetramethyllead	c, l	100	100
509-14-8	Tetranitromethane		10	500
10031-59-1	Thallium Sulfate	h	100	100/10,000
6533-73-9	Thalious Carbonate	c, h	100	100/10,000
7791-12-0	Thalious Chloride	c, h	100	100/10,000
2757-18-8	Thalious Malonate	c, h	100	100/10,000
7446-18-6	Thalious Sulfate		100	100/10,000
2231-57-4	Thiocarbazide		1,000	1,000/10,000
39196-18-4	Thiofanox		100	100/10,000
297-97-2	Thionazin		100	500
108-98-5	Thiophenol		100	500
79-19-6	Thiosemicarbazide		100	100/10,000
5344-82-1	Thiourea, (2- Chlorophenyl)-		100	100/10,000
614-78-8	Thiourea, (2- Methylphenyl)-		500	500/10,000
7550-45-0	Titanium Tetrachloride		1,000	100
584-84-9	Toluene 2,4- Diisocyanate		100	500
91-08-7	Toluene 2,6- Diisocyanate		100	100
110-57-6	Trans-1,4- Dichlorobutene		500	500
1031-47-6	Triamiphos		500	500/10,000
24017-47-8	Triazofos		500	500
76-02-8	Trichloroacetyl Chloride		500	500
115-21-9	Trichloroethylsilane	h	500	500
327-98-0	Trichloronate	k	500	500
98-13-5	Trichlorophenylsilane	h	500	500
1558-25-4	Trichloro(Chloromethyl)Silane		100	100
27137-85-5	Trichloro(Dichlorophenyl) Silane		500	500
998-30-1	Triethoxysilane		500	500

CAS No.	Chemical Name	Notes	Reportable Quantity* (pounds)	Threshold Planning Quantity (pounds)
75-77-4	Trimethylchlorosilane		1,000	1,000
824-11-3	Trimethylopropane Phosphite	h	100	100/10,000
1066-45-1	Trimethyltin Chloride		500	500/10,000
639-58-7	Triphenyltin Chloride		500	500/10,000
555-77-1	Tris(2-Chloroethyl)Amine	h	100	100
2001-95-8	Valinomycin	c	1,000	1,000/10,000
1314-62-1	Vanadium Pentoxide		1,000	100/10,000
108-05-4	Vinyl Acetate Monomer	1	5,000	1,000
81-81-2	Warfarin		100	500/10,000
129-06-6	Warfarin Sodium	h	100	100/10,000
28347-13-9	Xylylene Dichloride		100	100/10,000
58270-08-9	Zinc, Dichloro(4,4-Dimethyl-5((((Methylamino) Carbonyl) Oxy)Imino)Pentane nitrile)-, (T-4)-		100	100/10,000
1314-84-7	Zinc Phosphide	b	100	500

*Only the statutory or final RQ is shown. For more information, see 40 CFR Table 302.4.

Notes:

- a This chemical does not meet acute toxicity criteria. Its TPQ is set at 10,000 pounds.
- b This material is a reactive solid. The TPQ does not default to 10,000 pounds for non-powder, non-molten, nonsolution form.
- c The calculated TPQ changed after technical review as described in the technical support document.
- d Indicates that the RQ is subject to change when the assessment of potential carcinogenicity and/or other toxicity is completed.
- e Statutory reportable quantity for purposes of notification under SARA Sec. 304(a)(2).
- f [Reserved]
- g New chemicals added that were not part of the original list of 402 substances.
- h Revised TPQ based on new or re-evaluated toxicity data.
- j TPQ is revised to its calculated value and does not change due to technical review as in proposed rule.
- k The TPQ was revised after proposal due to calculation error.
- 1 Chemicals on the original list that do not meet toxicity criteria but because of their high production volume and recognized toxicity are considered chemicals of concern ("Other chemicals").

Chemical Inventory Summary for the Entire Facility

Project Address: _____

Hazard Category	Hazard Class	Solids (pounds)			Liquids (gallons)			Gases (cu. ft. @ NTP)	
		Stored	Used Open	Used Closed	Stored	Used Open	Used Closed	Stored	Used Closed
Explosives, Blasting Agents, and Detonators	High Expl								
	Low Expl								
	Blasting Agents								
Compressed Gases	Flammable								
	Oxidizing								
	Corrosive								
	Highly Tox								
	Toxic								
	Inert								
	Pyrophoric								
Unstable (Reactive)									
Flammable Liquids	Class I-A								
	Class I-B								
	Class I-C								
Combustible Liquids	Class II								
	Class III-A								
	Class III-B								
Flammable Solids	Organic								
	Inorganic								
	Metals								
	Dusts & Powders								
Oxidizers	Class 4								
	Class 3								
	Class 2								
	Class 1								

(Continued Next Page)

Hayward Fire Department

California Accidental Release Prevention (CalARP) Program

Program Registration

Please read carefully before completing Registration Form.

GENERAL INFORMATION

This registration form is to be completed by an owner or operator of a stationary source that handles one or more regulated substances in a process in excess of the threshold quantity (see definition below). To complete this form, the registrant should refer to the CalARP program regulations. These are codified in the California Code of Regulations (CCR), Title 19, Division 2, Chapter 4.5, Sections 2735.1 through 2785.1. The list of regulated substances and threshold quantities are in section 2770.5. Information on the CalARP program and the regulations are located on the Governor's Office of Emergency Services' (OES) Internet home page at <http://www.oes.ca.gov>. In Hayward, the completed registration form must be submitted to the Hayward Fire Department, a certified unified program agency (CUPA).

The following definitions of terms should assist the registrant in completing this form:

Process means any activity involving a regulated substance including any use, storage, manufacturing, handling, or on-site movement of such substances, or combination of these activities. For the purpose of this definition, any group of vessels that are interconnected, or separate vessels that are located such that a regulated substance could be involved in a potential release, shall be considered a single process.

Regulated substance means any substance, unless otherwise indicated, listed in CCR Title 19, section 2770.5.

Stationary source means any buildings, structures, equipment, installations, or substance-emitting stationary activities which belong to the same industrial group, which are located on one or more contiguous properties, which are under the control of the same person (or persons under common control), and from which an accidental release may occur. A stationary source includes transportation containers that are no longer under active shipping papers and transportation containers that are connected to equipment at the stationary source for the purposes of temporary storage, loading, or unloading. The term stationary source does not apply to transportation, including storage incident to transportation, of any regulated substance or any other extremely hazardous substance under the provisions of CCR Title 19, Chapter 4.5. Transportation included, but is not limited to, transportation subject to oversight or regulations under Title 49 of the Code of Federal Regulations, parts 192, 193, or 195. Properties shall not be considered contiguous solely because of a railroad or gas pipeline right-of-way. A stationary source does not include naturally occurring hydrocarbon reservoirs.

Threshold quantity means the quantity specified for a regulated substance pursuant to CCR Title 19, section 2770.5 and determined to be present at a stationary source as specified in Section 2770.2.

INSTRUCTIONS FOR COMPLETING THE CalARP PROGRAM REGISTRATION FORM

Please indicate the number of pages to be submitted in the upper right hand corner of each form completed. Use additional pages if the number of regulated substances handled exceeds the space available on one page. Indicate if this is a "new" registration or a registration "update" by checking the appropriate box. If this form updates a previously submitted registration, indicate the type of update as follows: check "add" if a regulated substance is being added; check "delete" if a regulated substance is being deleted; check "revise" if any other information is being revised.

- I. Business Owner / Operator Information:** Complete business name, address (number and street), city, county, state, and ZIP code; and owner or operator name and telephone number.
- II. Regulated Substance List:** *A. Name of Each Regulated Substance* – provide the chemical name and Chemical Abstracts Service (CAS) number for each regulated substance held above the threshold quantity in a process, and the maximum quantity of each regulated substance in the process (in pounds), to two significant digits (refer to CCR Title 19, Section 2770.2 and 2770.5); *B. Name of each Regulated Substance in a Mixture* – Provide the chemical name and CAS number of each regulated substance in the mixture held above the threshold quantity in a process, the percent weight of the regulated substance in the mixture, and the maximum quantity of each regulated substance in the process (in pounds), to two significant digits (refer to CCR Title 19, Section 2770.2 and 2770.5). *Note: Specifically identify any information on this form which is classified information or trade secret.*
- III. Certification:** Read the certification statement and provide the owner or operator name, signature, and the date when executed.

If you need further assistance in completing this form, contact the Hazardous Materials Office at (510) 583-4910.

**Hayward Fire Department
California Accidental Release Prevention (CalARP) Program**

PROGRAM REGISTRATION

Page _____ of _____

*READ ACCOMPANYING INSTRUCTIONS
BEFORE COMPLETING THIS FORM*

Registration Type		Update Type		
<input type="checkbox"/> NEW	<input type="checkbox"/> UPDATE	<input type="checkbox"/> ADD	<input type="checkbox"/> DELETE	<input type="checkbox"/> REVISE

I. Business Owner / Operator Information

Business Name			
Street Address			
City	County	State	Zip Code
Owner / Operator Name			Phone Number

II. Regulated Substance List

A. Name of Each Regulated Substance	Process Maximum Quantity (lbs)	CAS Number	
1.			
2.			
3.			
4.			
5.			
6.			
B. Name of Each Regulated Substance in a Mixture	Percent Weight	Process Maximum Quantity (lbs)	CAS Number
1.			
2.			

III. Certification

I, the owner or operator of the aforementioned business, hereby certify that the registration information provided above is true, accurate, and complete to the best of my knowledge, based upon reasonable inquiry. I am fully aware that this certification, executed on the date indicated below, is made under the penalty of perjury under the laws of the State of California.

Printed name of Owner / Operator	
Signature of Owner / Operator	Date Signed



HOW DO I SCHEDULE A CODE ASSISTANCE MEETING

WHAT ARE CODE ASSISTANCE MEETINGS?

Code Assistance Meetings provide an opportunity for the public to introduce proposed projects to knowledgeable representatives of the Fire Department, Building Division, Water Pollution, and other concerned city staff. Meetings are appropriate when proposals are at a stage when specific information can be submitted. Our intent is to provide reliable responses to your questions and give you ideas on what codes will need to be met, what information will need to be submitted, and how to go about submitting for permits. It must be understood that these meetings are *purely advisory* at this stage and that submittal of more complete information during the permit application phase may result in new issues being raised.

HOW DO I KNOW WHEN A CODE ASSISTANCE MEETING WILL BE OF USE TO ME?

Code Assistance Meetings will be useful to:

- Those businesses conducting *high-pile storage*.
- Those businesses that store or use *hazardous materials*.
- Those businesses that require an *H-Occupancy* classification.
- Those businesses that will use or store *flammable and combustible liquids*.
- Those businesses that are in the process of *changing occupancy type* or involved in *intensification of use*.
- Those businesses that need to obtain *coordinated* California Fire Code, Hazardous Materials Ordinance, and California Building Code Information.

Code Assistance Meetings are also appropriate as pre-application "follow-up" meetings, when more specific code and hazardous material information is required.

WHEN AND WHERE ARE CODE ASSISTANCE MEETINGS HELD?

Code Assistance Meetings are held in Permit Center Conference Room 1C, every Wednesday from *11 AM to 11:45 AM* or from *1:30 PM to 2:15 PM*. The Permit Center Conference Room 1C is located on the first floor of City Hall, 777 "B" Street, Hayward.

HOW DO I SCHEDULE A CODE ASSISTANCE MEETING?

When you have determined that your proposal is at a stage at which a Code Assistance Meeting will be of use to you, please call (510) 583-4910.

WHO WILL ATTEND THE CODE ASSISTANCE MEETINGS?

The *Assistant Fire Marshal* or Fire Prevention Plan Checker will represent the *California Fire Code*. The *Environmental Specialist* or a *Hazardous Materials Investigator* will represent the City of Hayward *Hazardous Materials/Waste Unified Program*. And, the *California Building Code* will be represented by a *Building Division Plan Checker*. A portion of the meeting will be used to discuss the interrelationship of these codes and ordinances and how to facilitate your permit submittals. We require that your architect and/or engineer and consultant attend.

HOW WILL THE MEETING BE FORMATTED?

1. *Self-introductions* with a short explanation

of how the Fire, Building, and Hazardous Materials Ordinance relate to each other.

2. **Introduction of proposed project.**
3. A facilitator will assure that each **agenda item** is discussed within the allotted time.
4. Minutes of the meeting will be available.

WHAT INFORMATION IS REQUIRED FOR ME TO BRING TO THESE MEETINGS?

- (a) Completed Fire Department **Questionnaire/Chemical Inventory**.
- (b) Existing and surrounding **use of building**.
- (c) **Proposed use** and occupancy classification of building in question.
- (d) Site plan, building plan, fire sprinkler density, etc. of building in question.
- (e) Any information on **contamination** of building or property.
- (f) An **architect** is required, along with appropriate **consultant, engineer**, etc., who can explain and respond to the code details of the project.

WHAT REFERENCE WILL HELP YOU IN PREPARATION FOR THIS MEETING?

California Fire Code

Appendix VI-A: for hazardous classifications.

Article 79: for flammable/combustible liquids.

Article 80: for hazardous materials.

Article 81

California Building Code

WHAT DO THESE MEETINGS COST?

There is no fee charged for the first one-hour meeting. **"Subsequent" meetings may be billed at \$133 per hour.**

SHOULD I HIRE A FIRE PROTECTION ENGINEER?

Expertise in the California Fire Code, California Building Code, and chemistry of hazardous materials are all necessary to achieve

compliance. More complex projects will require "approved" consultants.

We will require a qualified consultant be present at any **"subsequent"** meeting.

WHO IS CONSIDERED A QUALIFIED CONSULTANT?

Consultants are considered qualified when they have demonstrated their expertise and have been approved for use by the Hayward Fire Department. **You may choose any qualified consultant** whose "credentials" are approved by the Fire Marshal/Building Official. Below are listed some consultants that we have worked with in the past.

Antrim Engineering and Construction
1228 Quarry Lane, Suite C
Pleasanton, CA 94566
(925) 426-2444, Fax (925) 426-0371

Chemical Solutions, Inc.
Mr. Jim Miille
4120 Cross Rd., Livermore, CA 94550
(925) 606-8000, Fax (925) 606-8018

Dowler-Gruman Architects
550 Ellis St., Mountain View, CA 94043
(650) 943-1660, Fax (650) 943-1670

Jeff Tarter/Integrated Engineering Services
780 Charcot Ave., San Jose, CA 95131
(408) 321-0810 ext. 210/, Fax, (408) 321-0814

Mullen-Morris-Alexander Architects
1600 B St., Hayward, CA 94541
(510) 538-7766, Fax (510) 357-1611

Pacific Crest Engineering, Inc.
James F. Walker, P.E.
195 Aviation Way, Suite 203
Watsonville, CA 95076
(831) 763-6191, x203 Fax (831) 763-6195

Roy Associates
39199 Liberty Street, Suite B-2
Fremont, CA 94538
(510) 794-8091, Fax (510) 794-7250



HOW TO APPLY FOR AN ALTERNATE MATERIALS & METHODS REQUEST

WHAT IS AN ALTERNATE MATERIALS & METHODS REQUEST?

The Fire Chief is authorized to approve alternate materials or methods provided that the Fire Chief finds that the proposed design, use or operation satisfactorily complies with the intent of the California Fire Code and that the method of work performed or operation is, for the purpose intended, at least equivalent to that prescribed in the California Fire Code in quality, strength, effectiveness, fire resistance, durability and safety.

WHO APPROVES AN ALTERNATE MATERIALS & METHODS REQUEST?

The Fire Chief, through the Office of the Fire Marshal, approves an alternate materials and methods request. The approval of the City Building Official is also required whenever the alternate materials and methods request involves matters regulated by the California Building Code.

WHEN IS AN ALTERNATE MATERIALS & METHODS REQUEST NECESSARY?

The Fire Chief is authorized to modify any of the provisions of the California Fire Code upon application in writing by the owner, a lessee or a duly authorized representative where there are practical difficulties in the way of carrying out the provisions of the California Fire Code, provided that the spirit of the California Fire Code shall be complied with, public safety secured and substantial justice done. The particulars of such modification and the decision of the Fire Chief shall be entered upon the records of the department and a signed copy shall be furnished to the applicant.

HOW DO I REQUEST APPROVAL OF AN ALTERNATE MATERIALS & METHODS REQUEST?

A written request for approval of a proposed alternate materials or methods shall be filed with the Fire Marshal's Office accompanied by a completed "Application for Fire Department Permit" and a check payable to the "Hayward Fire Department" for \$133.00 to cover processing and review of the proposal. The request for approval shall be addressed to the City of Hayward Fire Department, Attention: Fire Marshal, 777 B Street, Hayward, CA 94541.

WHAT ELSE SHOULD MY REQUEST FOR APPROVAL INCLUDE?

The request for approval of an alternate materials or methods should specify the sections of the California Fire Code that are being addressed by the proposal. It should state clearly the practical difficulties that have been encountered or are anticipated should these provisions be strictly observed or imposed. The request should then explain how the proposed alternate materials or methods meet the spirit and intent of the code and secure public safety. You should also include any operational procedures unique to your business that may support your case. Technical specifications of proposed materials and equipment, and/or a scale drawing of the site plan showing building footprints, property lines, fire hydrants and adjacent public streets may be required to thoroughly review your request.

ARE THERE ADDITIONAL FEES INVOLVED IN THE REVIEW AND APPROVAL PROCESS?

If more than one hour is required to process and review a request for approval of a proposed

alternate materials or methods, additional time in one-hour increments shall be charged to the applicant. Note that the fee covers the review process only and does not assure approval. If the request is denied you may appeal directly to the Fire Chief. Appeals may require additional fees.

***IS THE DECISION OF THE FIRE
MARSHAL FINAL?***

The Fire Marshal will notify you of his decision on your request within two weeks of a complete submittal. If your proposed alternate materials or methods are disapproved by the Fire Marshal, you may file a written appeal to the Fire Chief for reconsideration of your proposal.

