

## 4. Hazardous Materials Emergencies

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### 4.1 Hazardous Materials Incident

Hazardous materials are chemical substances, which if released or misused can pose a threat to the environment or health. Hazardous materials identified in the Park include explosives, flammable and combustible substances, poisons, and radioactive materials. These substances may be released as a result of transportation accidents or because of chemical accidents in facilities.

Chemical emergencies can occur in almost any location. Chemicals are found in most homes, schools, and hospitals. They are frequently transported over roadways. Businesses within CIP use a wide variety of hazardous chemicals in manufacturing, power generation, and other activities. Historically, there have been a number of odor complaints, which have been associated with releases of hazardous chemicals or other substances from within CIP. Although catastrophic releases from CIP have not occurred, emergency planning efforts should always include contingency plans for chemical emergencies.

Chemical emergencies that result in serious off-site injuries or death are rare, but the potential for such releases does exist. Because chemical release hazards develop so quickly and unpredictably, typical evacuation planning for natural emergencies is not very effective. Shelter-in-place, taking cover in a sealed-off room, may be the only viable option. When a chemical emergency occurs, a number of factors must be considered by businesses, the public, and Incident Command to determine the best course of action:

- ◆ The chemical release may or may not be visible.
- ◆ The released chemical may or may not be flammable.
- ◆ The wind may switch directions at any moment, changing the hazard zone.
- ◆ The wind speed generally determines how fast a release cloud moves, how fast it will penetrate a structure, and how quickly it will dissipate.
- ◆ A safe escape route may not be known.
- ◆ Transportation incidents may block the escape route.
- ◆ The area affected by a hazardous material release may be unsafe and should only be entered by trained responders using appropriate personal protective equipment.
- ◆ There may not be adequate warning before exposure occurs.
- ◆ The release of chemicals may be a short duration, intermittent, or continuous.
- ◆ Two or more chemicals may be mixed to form an unknown hazard.
- ◆ At the onset of a release, the toxicity of the released chemical and the quantity released may be unknown.
- ◆ Individuals may be indoors or outdoors.

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- ◆ Individuals in the greatest danger are those closest to the release with the least amount of time to react.
- ◆ The effectiveness of shelter-in-place is dependent upon timely warning and response, the tightness of the structure, and whether or not interior rooms are available.

These challenges to emergency planning require that businesses and individuals know what actions to take and be prepared to take them at the first sign of danger, before trained emergency response personnel arrive. This section of the Guidebook provides valuable information for those who must take immediate action to protect themselves or others at the onset of hazardous materials incident.

Businesses that handle or store certain designated quantities of hazardous materials must comply with the State of Hawaii's Emergency Planning and Community Right to Know Act (HEPCRA). State law requires facilities to submit a chemical inventory, calculate annual emissions and report certain releases immediately to the State Department of Health. More information on the regulatory requirements and on available inventory and release reporting data is available on the Internet at the Department of Health web site <http://mano.icsd.hawaii.gov/doh/index.html>.

### 4.2 Facility Emergency Coordinators

Facility Emergency Coordinators (FEC) are individuals who are knowledgeable of their company's hazardous materials operations and are designated under the City and County of Honolulu Emergency Operations Plan to serve during an emergency. As outlined in the City and County of Honolulu Emergency Operations Plan, the functions of the Facility Emergency Coordinator include:

1. Represent the facility/transportation company, as appropriate, in all matters concerning releases of Extremely Hazardous Substances (EHS) at or near their facilities or along transportation routes, as appropriate, and make determinations/recommendations necessary to implement the City and County Plan.
2. Develop procedures for a quick and timely notification system for both in-house/on-the-road hazardous material incidents and subsequent notifications to the Honolulu Fire Department (HFD).
3. Submit MSDSs, Tier II reports, and other information to the LEPC, HFD, and HSERC. Provide local hospitals with information needed for planning response and treatment for any special hazards.
4. Report to the National Response Center (NRC), LEPC and HSERC in a timely manner as required by regulation.
5. Initially classify any incident according to the Emergency Response Level Classification System.
6. Initiate evacuation in the immediate affected area as needed. The FEC may elect to warn other surrounding facilities and/or vulnerable facilities (hospitals, schools, etc.) if a major release or incident has occurred.

7. Provide a representative to the Incident Command Post (ICP). Upon request, send a representative to the City and County of Honolulu Emergency Operations Center (EOC) to participate in Emergency Information Center activities.
8. When requested and if possible, provide expertise and resources to City and/or State agencies to help mitigate the effects of a hazardous materials incident.
9. Provide follow-up reports to the HSERC and the LEPC on the incident.

The extent to which a Facility Emergency Coordinator can perform the duties listed above will depend upon the individual's training, experience and qualifications. Mandatory training requirements under occupational safety and environmental protection regulations should be consulted.

### 4.2.1 Facility Emergency Coordinator General Guidelines

The general guidelines to be followed by the FEC as in accordance to the City and County of Honolulu Emergency Operations Plan are as follows:

1. Make initial assessment of the situation.
2. Take precautions and warn or notify all personnel within affected area of the release. Follow procedures in the Facility Emergency Response Plan.
3. Notify the Honolulu Fire Department and the State Department of Health of the situation.
4. Give the following information to the best of your knowledge:
  - a) Chemical name(s) or substance(s) involved in the accident or release.
  - b) Information about the hazardous nature of the material released.
  - c) Estimate the quantity of substance(s) released.
  - d) Time and duration of the release.
  - e) Medium or media (air, water, etc.) into which the release occurred.
  - f) Known or anticipated acute/chronic health risk(s), and where appropriate, advice regarding medical attention necessary for exposed individuals.
  - g) Proper precautions to take as a result of the release, including evacuation.
  - h) The name and telephone number of the person to be contacted for further information.
5. You or a facility person should meet the arriving Fire Company and/or HazMat team.
6. Have all information on the chemical(s) involved in the release available to the Fire Company or HazMat team.

### 4.2.2 Hazardous Material Emergency Response Classification System

The City and County of Honolulu has developed a Hazardous Materials Classification System to assist agencies and businesses in communicating during hazardous materials emergencies. The system is provided to enable emergency responders to rapidly and accurately understand potential hazards and notification requirements. The response

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levels of a HazMat emergency that have been defined in the City and County of Honolulu Emergency Operations Plan are shown in Table 4-1. The Facility Emergency Coordinator should consult this table when communicating with response agencies.

**Table 4-1: Hazardous Material Emergency Response Classification System**

<b>Response Level</b>	<b>Incident Description</b>	<b>Notifications*</b>
<b>Level I -</b> Potential Emergency Condition	Situation, release or threat of release, which can be, controlled by the first response agencies. Limited to a confined area and does not pose an immediate threat to life or property. May evacuate immediate area or structure involved.	<u>City</u> : Honolulu Fire Department, Honolulu Police Department, Emergency Medical Services, Honolulu DEM, EOC Staff as required, LEPC <u>State</u> : State Dept. of Health <u>Federal</u> : USCG Marine Safety Office (as required), National Response Center
<b>Level II -</b> Limited Emergency Condition	Release or situation that poses a potential threat to life or property within a limited distance. May require limited evacuation of the surrounding area outside the facility.	All agencies in Level I <u>City</u> : EOC Staff <u>State</u> : State Civil Defense, Dept. of Land and Natural Resources, Dept. of Transportation and others as required <u>Federal</u> : EPA <u>Private</u> : American Red Cross, public utilities, support organizations
<b>Level III -</b> Full Emergency Condition	Release or situation that poses a severe threat to life and property. Requires expertise or resources of the City, State, Federal agencies, or private organizations. Will probably require large-scale evacuation.	All agencies in Level I and II, and the following as required: <u>Federal</u> : Dept. of Defense (Mutual aid Fire, and emergency medical), FEMA, Regional Response Team, and others as required.
<b>Recovery Condition</b>	Immediate mitigation has been done and life-threatening situation has been resolved. Start of the mitigation and recovery stage of the incident.	All agencies in Level I, II, and III as required. Additional City, State, Federal, and private agencies as required by the Incident Commander

\*Notification requirements for use by the City and County's Incident Commander.

### 4.2.3 Facility Emergency Coordinator Checklists

#### 4.2.3.1 Response Level I - Potential Emergency Condition

- ❑ Make an initial assessment of the situation and assign an initial Emergency Response Level Classification to the incident.
- ❑ Alert all elements of the Facility Emergency Response Plan and Procedures.
- ❑ Promptly notify local authorities.
  - ◆ Honolulu Fire Department: 911
  - ◆ LEPC: 723-8960
  - ◆ State Department of Health – Hazard Evaluation and Emergency Response: 586-4249. After hours, weekends, holidays: 247-2191

Emergency notification information requirements:

- ◆ The following information should be provided immediately by the person performing the emergency notification (to the extent known at the time of the notice and so long as no delay in responding to the emergency results):
  - Chemical name(s) or substance(s) involved in the release.
  - Indication if substance is on list referred to in the Community Right-to-Know Act (CRTK) Regulation Section 302 (a).
  - Estimate of the quantity of the substance(s) released.
  - Time and duration of release.
  - Medium or media (air, water, etc.) into which the release occurred.
  - Any known or anticipated acute or chronic health risk(s) associated with the emergency and, where appropriate, advice regarding medical attention necessary for exposed individuals.
  - Proper precautions to take as a result of the release, including evacuation (unless such information is readily available to the community emergency coordinator) pursuant to the Emergency Plan.
  - The name and telephone number of the person(s) to be contacted for further information.
  - Address or description of location where release occurred.
  - Emergency Response Level Classification: I                      II                      III
- ❑ Notify the National Response Center (NRC) at (800) 424-8802 if amount of substance is above the reportable quantity.
- ❑ Direct facility personnel to respond to and contain the spill/release, if possible.
- ❑ Inform the first responder on scene of the current status and situation of the incident. Provide all information or sources of information to the first responder or incident commander, when requested.
- ❑ Provide a representative to the ICP, if one has been established.

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- ❑ Recommend population protection measures off-site in-place sheltering or evacuation. (Make this determination in coordination with Senior Fire Department official.)
- ❑ Provide periodic situation reports to the on-scene ICP, if established, and the City EOC, if activated, at maximum 30-minute intervals.
- ❑ If releases are occurring, provide exposure estimates and projections of the affected area to local authorities.
- ❑ Augment facility personnel and equipment resources and alert mutual aid company/industry agreements to standby to provide needed assistance.

### 4.2.3.2 Response Level II - Limited Emergency Condition

- ❑ Complete Response Level I actions (if not previously completed).
- ❑ Activate required elements of the Facility Emergency Response Plan and Procedures.
- ❑ Promptly notify local authorities and request emergency assistance.
- ❑ Contain spill/release, if possible.
- ❑ Protect facility personnel through in-place sheltering or evacuation. (Consider factors affecting spill/release, rate of release, weather conditions, product, time elapsed since release, etc.)
- ❑ Provide periodic situation reports to the ICP and the City EOC at maximum 30-minute intervals.
- ❑ Provide facility representative to Honolulu DEM to assist Information Control Center in responding to queries for information.
- ❑ Dispatch and assist in activating air monitoring teams and associated communications.
- ❑ Provide on-site meteorological conditions and dose estimates and projections to off-site authorities to assist in assessing the situation and determining the affected area.

### 4.2.3.3 Response Level III - Full Emergency Condition

- ❑ Complete Response Levels I and II actions (if not previously completed).
- ❑ Activate the Facility Emergency Response Plan and Procedures.
- ❑ Provide periodic situation reports to the ICP and the City EOC at maximum 15-minute intervals.
- ❑ Assign a senior facility official to augment the ICP and City EOC, upon request, to assist in holding press conferences and issuing emergency public information.
- ❑ Provide recommendations regarding in-place sheltering or evacuation of residents of the affected area.
- ❑ Augment facility personnel and equipment resources by activating mutual aid company/industry agreements.
- ❑ Make all trained facility personnel and equipment available to assist in the emergency response effort.

- ❑ Make senior facility staff personnel available for consultation with City/State authorities, upon request.

### 4.2.3.4 Recovery Condition

- ❑ Cooperate with City, State, and/or Federal public health and medical personnel to determine when it is safe to authorize re-entry into the affected areas.
- ❑ Cooperate in inspecting/testing water and sanitation systems to determine if water is safe for drinking.
- ❑ Initiate on-site and off-site clean up of hazardous materials and contaminated items in coordination with authorities.
- ❑ Arrange for proper disposal of hazardous material and contaminated items in accordance with City, State, and/or Federal guidance and regulations.
- ❑ Develop a long-term monitoring capability in accordance with City, State and/or Federal guidance and regulations.
- ❑ Cooperate in proceedings to determine legal responsibility for the incident and for claims of injury or damage.
- ❑ Submit the follow-up written report on the incident to the LEPC and the State Department of Health.

### 4.2.4 First Responder Checklist

The City and County of Honolulu has established a First Responder Checklist for use by trained First Responders to a HazMat incident. First Responders may use the following checklist only if they are properly trained to respond to such events. **Caution: Use appropriate personal protective equipment when responding to a hazardous materials incident.** Consult the North American Emergency Response Guide (NAERG) for protective measures. All other individuals should refer to the checklist provided in [Section 5.2, HazMat Checklist](#).

When approaching the scene of an accident (fixed site or transportation) involving any cargo, the person first responding to the scene should follow the guidelines below:

- ❑ Approach incident from an upwind and uphill direction, if possible. Shut off engine and keep vehicle a safe distance away to prevent ignition of vapors.
- ❑ Do not walk into or touch any spilled materials.
- ❑ Avoid inhaling fumes, smoke, and vapors.

Note 1: Even if the material is a common product (i.e., gasoline), breathing any chemical over a long period of time can be detrimental to health.

Note 2: Do not assume gases or vapor are not present because of lack of smell. Many products have no smell or can dull the sense of smell in a short time.

**NOTE 3: IF CHEMICALS CANNOT BE IDENTIFIED, TREAT AS TOXIC. DO NOT ENTER THE AREA.**

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- ❑ Survey the scene and adjacent area from a safe distance to determine conditions and hazards.
- ❑ Call 911 or notify by quickest available means the nearest Police or Fire Department Station. City vehicles equipped with a radio may call their dispatch or Honolulu DEM during normal work hours. Provide as much of the following information as possible:
  - Name and telephone number/call sign of individual making the report.
  - Location of the incident and situation (car accident, leaking container, facility fire, etc.)
  - Determine the chemical name from: the Facility Emergency Coordinator, the vehicle driver, a CHEMCARD in the cab of the truck, the cargo bill of lading, or from placards and labels on the truck and/or containers.
    - Chemical Description
    - Amount of Chemical
    - Time of the Release
    - Duration of the Release
    - Wind Velocity and Direction
    - Number of Injured
    - Number of Dead
    - Known Health Effects
    - Assistance Required
    - Precautions or Advice
    - Name of the FEC or Owner/Operator
    - Emergency Response Level Classification: I II III
- ❑ Assume Incident Command and establish an Incident Command Post at a visible, safe, and upwind location. Make continuous reports to the EOC.
- ❑ Set up a security perimeter by using a barrier tape, or flares (if material is not flammable). Utilize available personnel to direct vehicular or pedestrian traffic.

Note 1: The security perimeter may shift with any change in weather conditions.

Note 2: Keep lines of communication open with personnel involved in the security perimeter to advise of any changes.

- ❑ Locate and interview the Facility Emergency Coordinator, responsible party, or witnesses.
- ❑ If hospitalization of personnel or victims is required, inform EMS personnel of any known or suspected contamination, establish primary decontamination, and provide EMS with hazardous materials data (possibly by the use of Material Safety Data Sheet(s) (MSDS)). It also is important that a receiving hospital be informed of any known or suspected chemical contamination.

Note: Hawaii Medical Center-West normally functions as the primary facility for general medical emergencies emanating from Campbell Industrial Park. In the case of situations involving hazardous materials contamination, Hawaii Medical Center-West and the

Honolulu Fire Department are agreed that Hawaii Medical Center-West may provide secondary decontamination support. In this regard, Hawaii Medical Center-West may not be able to preclude general community walk-in situations, but triage will be performed and assessed according to information and circumstances available to the Medical Center at the time.

### 4.3 Potential Hazardous Materials Release Scenarios

Historically, most chemical releases have been small quantity releases, which may not exhibit the same potential hazards as large releases. Small quantities of highly toxic or flammable gases for instance, do not form dense vapor clouds with downwind hazards. Even ordinary household chemicals, which are present at most businesses, can result in a HazMat incident. [Table 4-2](#) provides a partial list of accident scenarios identified for typical industrial sites. Note that there are many other chemicals that could result in a hazardous materials incident that are not identified in the table.

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**Table 4-2: Potential Hazardous Materials Release Scenarios**

Type of Release	Examples	Description	Precautions
Extremely Hazardous Chemicals	Chlorine	Liquefied gas stored in cylinders up to 1 ton. May form a dense gas cloud and migrate downwind if released. Very toxic to breathe. May cause serious injury or death if concentration is sufficient. Large releases are rare due to the construction of storage containers. Detectable by smell at very low concentrations.	Cloud moves about as rapidly as the wind is blowing. Move upwind or crosswind, or shelter-in-place.
	Sulfur Dioxide	Liquefied gas stored in cylinders up to 1 ton. May form a dense gas cloud and migrate downwind if released. Very toxic to breathe. May cause serious injury or death if concentration is sufficient. Large releases are rare due to the construction of storage containers. Detectable by smell at very low concentrations.	Cloud moves about as rapidly as the wind is blowing. Move upwind or crosswind or shelter-in-place.
	Sulfur Dioxide Mixture	From refinery operations and stack emissions. Usually involves relatively low concentrations of sulfur dioxide mixed with smoke. May be heavier than air and settle if the weather conditions create a stable atmosphere. Detectable by smell at very low concentrations. Produces an unpleasant odor that usually causes transient health effects, such as irritated eyes and itchy throat. Releases from stacks do not usually pose an immediate danger to life or health. Sulfur dioxide may cause serious injury or death in high concentrations.	Evacuation is usually not necessary, except for elderly or those with breathing impairment. Avoid exposure to visible smoke or strong odors. Move upwind or crosswind, or shelter-in-place. Seek medical attention if your condition worsens. Verify what has been released before you assume there is no danger.
	Ammonia	Liquefied gas stored in containers up to 25,000 gallons. May form a dense gas cloud and migrate downwind if released. Toxic to breathe. May cause serious injury or death if concentration is sufficient. Large releases are rare due to the construction of storage containers. Detectable by humans at very low concentrations.	Cloud moves about as rapidly as the wind is blowing. Move upwind or crosswind or shelter-in-place.
	Hydrogen Sulfide	Very toxic byproduct of petroleum refining, rotting vegetation and other natural and man-made systems. Slightly heavier than air and detectable by human smell at extremely low concentrations. Has a characteristic rotten egg odor.	May drift downwind and cause injury or death if concentrations are sufficient. Associated with confined-space entry fatalities in tanks, vessels and sewers. Due to its physical properties, it usually disperses to less hazardous levels before drifting downwind.

Table 4-2: Potential Hazardous Materials Release Scenarios (continued)

Type of Release	Examples	Description	Precautions
Highly Flammable Gas	Butane, Propane and Other Hydrocarbons, Hydrogen, etc.	Gases that are heavier than air may accumulate in low areas and may ignite or explode without warning. Flammability, rather than toxicity is usually the primary concern. Sources include process units, pipeline leaks or compressed gas cylinders.	Shut off all sources of ignition. Cloud moves about as rapidly as the wind is blowing. Move upwind or crosswind. Shelter-in-place is not usually advisable for protection from flammable vapor clouds.
Fires	Fire may involve ordinary combustible materials, highly flammable materials, plastics, toxic materials, flammable and combustible liquids, insecticide, etc.	Smoke may contain toxic materials and should be avoided. Secondary explosions and extreme radiant heat may result if the fire causes failure of pressurized vessels.	Stay upwind, evacuate if ordered. Move out of the path of the fire. Never move toward the fire to watch it burn. Safe evacuation distances may be as far as one mile, depending on the circumstances.
Pesticides, Herbicides, Fungicides and Other Poisons	Poisons may be spilled from their containers, improperly sprayed or may be entrained in smoke from a fire.	Odor may not provide adequate warning of the hazard. Symptoms may not be noticed at the time of the exposure.	Stay upwind. If you believe you have been exposed, seek medical assistance immediately. Try to identify the compound or trade name. For direct contact, remove clothing and flush skin/eyes for at least 15 minutes.
Acids and Caustics	Sulfuric Acid, Hydrochloric Acid, Sodium Hydroxide	Skin contact is particularly hazardous, acid or caustic mists usually do not travel very far, but near the point of release they are toxic.	Remove clothes from exposed area. Wash thoroughly for at least 15 minutes if you believe you have contacted corrosive chemicals. Stay up wind.
Asphyxiants	Spills of Liquid Nitrogen, CO <sub>2</sub> , Argon or Other Inert Gas.	Inert gas may dilute the oxygen in the air to the point of danger. CO <sub>2</sub> is slightly toxic at high concentrations. Liquefied gases may be extremely cold and freeze skin when contacted.	Stay upwind, evacuate if ordered. Move out of the path of the release. Never move toward the site of an accident to observe.
Nuisance Odors	Asphalt fumes, decaying vegetation, diesel exhaust, sewage, used motor oil, meat rendering, and many other substances and processes may produce odors.	Many odors are harmless, but some people have difficulty in identifying the source of common odors. Many odors may make people feel nauseous and may even cause vomiting at concentrations far below toxic levels.	Don't take chances. If you think there is an unusual odor, investigate further or move away. If you believe an emergency exists, report the odor by calling 911. Remember to check indoor gas appliances, sewer connections and other sources.

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**Table 4-2: Potential Hazardous Materials Release Scenarios (continued)**

Type of Release	Examples	Description	Precautions
Transportation Accidents	Commercial traffic and pipelines.	Most chemicals in CIP and KBP are transported and may be involved in an accident in route. Accidents may block escape routes.	Be prepared to shelter-in-place, or move away from the hazard. Stay upwind. Do not approach a hazardous materials spill unless you are properly trained and equipped.
Radioactive Materials	Waste products, radiography equipment, certain gauges and meters.	Radioactive materials are usually tightly sealed and controlled. They are sometimes involved in transportation accidents, but usually pose no hazard beyond 50 to 100 feet distance. Particles may be carried in the smoke from a fire involving radioactive materials. Outdoor exposures at harmful concentrations are very rare.	Stay away from accident sites where radioactive materials are present. Seek assistance from trained emergency response personnel. If you believe you have been exposed, seek medical assistance or advice from an emergency response agency listed in the back of this Guidebook.
Chemical Mixtures	Any chemicals may react with certain incompatible materials.	May create a violent reaction, fire, explosion or toxic material. May react violently with other chemicals. Even household chemicals can create a hazard when inappropriately mixed.	Stay upwind. If you believe you have been exposed, seek medical assistance immediately. Try to identify the compound or trade name. For direct contact, remove clothing and flush skin/eyes for at least 15 minutes.
Terrorism Events	Threats or attacks involving release of biological, chemical, nuclear or explosive.	Chemicals can be stolen or used in place as a weapon of terrorism.	Provide security for your chemical inventories. Report suspicious behaviors around industrial sites or critical infrastructure. Be aware of the current threat level and keep your employees informed.