

Emergency Action Plans

Explanation: For employee safety and health, it is vital that all workers know what to do in the event of an emergency condition that affects the workplace environment, whether it be a fire emergency (Note: not just own facility but exposure to fire from adjoining building), transportation accident (e.g., railcar/truck accident, barge collision, aircraft, etc.), or weather-related event. These plans must be developed before the event and all employees need to be familiar with the plan in order to (1) safely evacuate the building/facility; (2) reduce the extent of the damage from the particular emergency situation; and (3) be able to restore normal operations in shortest time possible after the event.

Purpose: Emergency action plans are primarily designed to protect life, and our emphasis here is on worker safety and health. Plans must be established in advance to prevent injury to employees from any of the expected events that the business is subject to, or, if there is chance of injury, to preplan emergency services. With action predetermined, it is more likely that you will be able to respond to emergency situations without needless injury to workers and be able to restore operations efficiently/effectively.

Protocol: Emergency action plans should address potential hazards; assess the possible harm to people, property, and the environment; estimate time to mobilize the plan considering the type of emergency; determine what the organization needs to do to minimize or even eliminate potential for injury/loss/damage; and specify what additional materials will be required to handle emergency situations (e.g., flood shields, tarpaulins to cover structure damage, potable water, equipment to clean snow from flat roof, etc.). Also, program plan needs to determine what work can be done by own personnel—based on their expertise and risk factors—and what needs to be coordinated with emergency response authorities/organizations. Emergency plans should always be reviewed with local emergency management agencies and exercises or drills should be conducted to verify plan function, especially where evacuation of significant employee and/or general public populations are concerned.

Emergency Action/Response Plan General Procedures

There is a body of information available relative to developing emergency action/response plans including OSHA's 29 CFR, Part 1910.38, which can be used as a basis for most any program. California's Senate Bill 198 (GISO Para. 3220) has much the same requirements. Both those documents will be included in this material for reference. Although this information appears to be rather straightforward, there remains some confusion about what is really necessary and how to put the plan together.

An emergency action/response plan (EA/RP) is a documented program on how a particular organization will respond to emergency situations. Some responses may be routine and only involve evacuation of personnel; other responses may be more complex and involve the coordination of public services, plant emergency response teams, and notification of adjacent businesses and surrounding community. It all depends on what business activity is being conducted, natural hazards or other perils, and the relative exposure of employees and the civilian population at large.

Developing a basic EA/RP might include the following review process:

- Identify potential hazard exposures from (1) business operation itself (e.g., if using chlorine gas in some process, plan needs to address release or fires in vicinity of the storage tanks); (2) natural hazards (e.g., floods, hurricanes, earthquake); (3) exposures from business location (e.g., near highway where gasoline tankers travel or vicinity of airport); and (4) employee-induced hazards (e.g., welding/cutting fires, automobile accidents).
- Determine risk potential from frequency and severity standpoint—may use claims experience or history from similar operations to determine risk exposures.
- Review alternative actions to reduce, control, or eliminate potential risk—develop plans to respond to each particular scenario. Plan should address pre-event, emergency action during event, and post-event and restoration of normal operations.
- Complete emergency evacuation plan to provide for safety of all personnel. The safety of any persons remaining in plant/facility as part of emergency action team or other needs must be assured. All persons should be thoroughly trained in their duties.
- Decide how notice of emergency will be handled for (1) employees, (2) public safety agencies, (3) community, and (4) others who may be involved/affected. Plan should also address response of emergency medical and rescue services.
- All employees are to be informed and familiar with the plan. Should have regular review of plan and, provide immediate notification of any changes.

EMERGENCY ACTION PLAN REGULATION

§ 3220. Emergency Action Plan

- (a) Scope and Application. This section applies to all emergency action plans. The emergency action plan shall be in writing, except as provided in the last sentence of subsection (e)(3) of this section, and shall cover those designated actions employers and employees must take to ensure employee safety from fire and other emergencies.
 - (b) Elements. The following elements, at a minimum, shall be included in the plan:
 - (1) Emergency escape procedures and emergency escape route assignments;
 - (2) Procedures to be followed by employees who remain to operate critical plant operations before they evacuate;
 - (3) Procedures to account for all employees after emergency evacuation has been completed;
 - (4) Rescue and medical duties for those employees who are to perform them;
 - (5) The preferred means of reporting fires and other emergencies; and
 - (6) Names or regular job titles of persons or departments who can be contacted for further information or explanation of duties under the plan.
 - (c) Alarm System.
 - (1) The employer shall establish an employee alarm system *which* complies with Article 165.
 - (2) If the employee alarm system is used for alerting fire brigade members, or for other purposes, a distinctive signal for each purpose shall be used.
 - (d) Evacuation. The employer shall establish in the emergency action plan the types of evacuation to be used in emergency circumstances.
 - (e) Training.
 - (1) Before implementing the emergency action plan, the employer shall designate and train a sufficient number of persons to assist in the safe and orderly emergency evacuation of employees.
 - (2) The employer shall advise each employee of his/her responsibility under the plan at the following times:
 - (a) Initially when the plan is developed,
 - (b) Whenever the employee's responsibilities or designated actions under the plan change, and
 - (c) Whenever the plan is changed.
 - (3) The employer shall review with each employee upon initial assignment those parts of the plan which the employee must know to protect the employee in the event of an emergency. The written plan shall be kept at the workplace and made available for employee review. For those employers with 10 or fewer employees the plan may be communicated orally to employees and the employer need not maintain a written plan.
- Note: Authority and reference cited: Section I 42.3 Labor Code.

History

1. New section filed 9-8-81; effective thirtieth day thereafter (Register 81, No. 37).

EMERGENCY ACTION PLAN (EAP)

APPLICATIONS OUTLINE

Program elements as described in 29CFR1910.38 and California Senate Bill 198 (GISO Para. 3320)

1. Plan shall be in writing. All elements of the emergency action plan shall be described in writing for reference purposes and to maintain consistency in program applications. Also, documentation provides simple and effective format for disseminating the program to all employees. The written format can follow the required elements of the program listed in Part 2—there is no pre-established format for this program.
2. The following elements are required, at a minimum, to be included in the plan:
 - a. emergency escape procedures and emergency escape route assignments...

implementation: using NFPA 101 and Pennsylvania Fire and Panic Code (Title 34, Labor and Industry, Chapters 49-60, Fire and Panic and Universal Accessibility Standards) as the governing regulations, need to complete the following:

- (1) review building plans relative to occupancy characteristics and determine the best two ways out of any space to the outside or, in case of health care, to interior refuge using horizontal pathway; evacuation should be controlled and designated routes established for each major area in the facility.
 - (2) determine need for proper exit signage and emergency lighting—required illumination for signs and exitways including lighting for the outside landing area (note: 0.5fc minimum in Pa.).
 - (3) exit route maps need to be posted in conspicuous locations (e.g., generally near exit doors and fire alarm/fire suppression equipment) on or along main exit routes; maps need to be posted no higher than 44"(note: ADA requirements) and be of clear and simple graphic representation—no colors, please, since significant percentage of population has color perception deficiencies.
 - (4) maintain clearances to all exitways and exits including the outside landing area (e.g., no cars parked in front of exit doors, no obstructions that people would have problem negotiating under poor light or poor weather conditions); exit doors shall swing in the direction of travel and be capable of opening with less than 15 pounds pressure on the safety latch (e.g., panic hardware).
- b. procedures to be followed by employees who remain to operate critical plant operations before they evacuate.

implementation: this can be rather involved and depends on the nature and hazard of the process and building systems...process safety management approaches are required for larger, more complex operating systems; and each situation needs to be reviewed and evaluated on its own merits.

For most operating environments, especially office and administration-type occupancies, this might be as straight forward as shutting down desk-top computers or turning off the coffee pot (note: potential ignition source) but might not involve switching off lights if report of natural gas or flammable liquids releases (note: operation of the switch could ignite vapors). This needs to be reviewed for the particular environment and occupancy classification.

- c. alarm systems for (1) building occupants, and (2) fire brigade member

implementation: having a distinctive alarm for fire brigade members is somewhat moot issue for most occupancies other than the largest of manufacturing and similar operations so it will not be discussed any further herein. The general requirements for alarm systems include (ref: 29CFR1910.165—Employee Alarm Systems):

- (1) alarm shall sound in time for employees to safely escape work area
- (2) employees shall be able to hear/see the alarm above ambient noise/light levels (note: must address functions of alarm systems relative to limitations of sight/hearing impaired individual)
- (3) alarm shall be distinctive and recognizable as signal to evacuate work area
- (4) employee shall explain to each worker the preferred means of reporting emergencies such as manual pull stations, public address, radio or telephones; employee shall post emergency numbers near telephones, notice boards such as 911, direct police, or central station reporting number
- (5) establish procedure for sounding emergency alarms in the workplace
- (6) systems shall be maintained in operating condition
- (7) system shall be tested on regular basis—preferred frequency is monthly
- (8) alarm system circuitry shall be supervised with positive notification if a deficiency exists in the system
- (9) all manually operated devices (e.g., pull stations) shall be unobstructed, conspicuous, and accessible
- (10) power supply shall be provided with backup source of power (e.g., emergency generator, batteries, etc.) or other suitable arrangement for issuing alarm signal

- d. evacuation—the *employer* shall establish, in the emergency action plan, the types of evacuation to be used in (specific) emergency circumstances.

implementation: there are numerous and specific hazards with different emergency situations, from fire to windstorm to flood and to hazardous materials spills—each of the potential and likely occurrences needs to be evaluated for the dangers it poses to your workers. This evaluation must address the best way to protect your employees from injury, and a plan outlining the steps that need to be taken to prevent exposure.

For example: for fire emergency in your building, first step is to notify fire service, then *evacuate the building* to safe areas away from the building itself, and then to prevent further damage, and restore operation; for windstorm emergency (e.g., tornado, hurricane, williwaws), it might be necessary to keep your workers inside the structure in basement areas or doorways/closets (strongest construction), and away from windows or building openings; for a hurricane, since there is likelihood of advanced notice, you could send everyone home. Lots of things to consider here and, obviously, each situation must be considered on its own merits. The evaluation can be somewhat extensive based on your particular location. There are historical maps and data available from the National Weather Service and other similar sources. There is good information available in the ARM 55 textbook published by Insurance Institute of America under Crisis Management section.

- e. training covers three distinct groups of persons in the business operation : (1) those individuals designated to assist in the safe and orderly evacuation of other workers; (2) each employee as to their personal responsibility under the plan when the plan is developed, whenever the employee's responsibilities change or actions in the plan change, and whenever the plan itself changes; and (3) with each employee upon initial assignment (e.g., hiring or transfer to new facility), those parts of the plan the employee must know to protect themselves in the event of an emergency. As part of this format, a written plan shall be kept at the workplace and made available for employee review during normal working hours). There is an exception to this: for employers of 10 or fewer workers, the plan may be communicated orally and the employer need not maintain a written plan, but if it isn't written, it isn't in place.

Training needs to include active drills on a regular basis—frequency depends on your operation (e.g., hazards, need to verify evacuation plan, etc.)—but most businesses should complete at least two per year. This drill can include simulated emergency/disaster or just tripping the alarm and evacuating the building.

3. General Items

Because each business operation has its own distinctive characteristics, emergency action plans need to reflect the special requirements, needs and capabilities of the organization...very seldom can an EAP be templated and fit all types of business. Some additional considerations in formulating an emergency action plan include:

- verify the response of the local emergency fire/medical services—timeframes and capacity (e.g., number of people and kinds of equipment)...initially, you may have to handle some things on your own (e.g., first aid/CPR).
- need to establish chain of command for emergency situations—and it is likely that it will not be the same as the organizational command structure.
- establish internal and external communications systems—equipment required and backup systems in case of primary communications system failure.
- plan for designated persons on the plan to be away on business, vacation, or even sick leave—every person needs an alternate, and provisions must be made for full staffing of EAP duties and responsibilities every day relative to the plan.
- develop orderly shutdown of operations including utility services and emergency power systems—people who are assigned these duties must be assured of their personal safety while performing these critical operations.
- provide necessary equipment and materials for organizing an effective response to likely emergencies—such as backup boilers for space heating, auxiliary power plants for electrical service (operating pumps, lighting, etc.), tarps and covers to protect damaged portions of building, plywood sheeting for temporary repairs to roofs and walls, flood gates/shields, and so on.
- maintain security for facilities, persons, and contents—this is a vulnerable period for any business operation and, depending on the sensitive nature of your products/service, need to provide absolute protection...workers should be aware of potential risks to their persons, and trained in self defense.
- organize transportation needs relative to the emergency situation—transportation related to operating the business during the emergency, and that required for emergency services and emergency response.
- coordinate with governmental (FEMA, US Army Corps of Engineers, National Guard) and community service agencies (Red Cross, Salvation Army) relative to natural disaster, major accident, and/or accidental event at own facility.

A complete review would include all of the above, but based on the special nature of your operations, there may be other things to factor into emergency response/action plan efforts. An example would be a nuclear accident at a nearby power plant that might cause problems for your operations: loss of electrical power, radiation exposure to your workers, emergency response organizations taxed to the limits, necessitating your handling of some EAP matters on your own, public highways crowded with traffic due to evacuation of large numbers of people in the exposure (hot) zones, communications systems operating at capacity, etc. So how do you handle this? The following outline should help you get started, but it is only intended as a general outline considering the scope and complexity of situations that businesses could likely face:

1. What hazards do we face...what could happen in this geographic area or locale...danger of forest fires, exposures from highways, flight paths to airports, rail/river transportation?
2. What is the relative seriousness of the potential hazards?—evaluate the frequency of occurrence and the extent of damage...to people, to the business operation, to the facilities

3. Based on responses to the above, what preventive steps can be taken to mitigate or eliminate the effects of the hazard or risk...what action needs to occur during the event itself (e.g., stopping the flow of a hazardous material spill, shutting down fuel supply to process equipment involved in fire)...and what post-event actions will help to stop the further deterioration and begin recovery process?
4. Considering the major elements to be included in an emergency action plan, what do we need to do to protect workers under a variety of hazardous situations? First issue is life safety and either in situ provisions or evacuation...who is in charge...roster of employees...assembly areas away from dangers...treatment for injured people...emergency numbers; protecting property would include fire department response...operation of fire detection/suppression systems...operation of flood shields and fire doors...moving stock out of affected structure; and protecting the operations including shutting down critical systems...hardening equipment installations...availability of emergency power plants, back-up boilers, temporary work sites?
5. Determine most effective communications systems to be used during emergency to include alerting all workers to the emergency itself. Who is to be notified in case of emergency and at what level response notification? This aspect would include handling of news media—single point contact, no one else in the organization provides any information about emergency, response of organization, damage, etc.
6. Develop a written plan including all of the above. Evacuation plan should take people out of the facilities safely and out of areas required for emergency vehicle access—maps should be posted throughout the buildings for best two ways out of any area. People should be designated to coordinate the evacuation and be responsible for all persons—especially individuals who may be, physically or mentally challenged and who may be visiting the facility during the emergency (note: strong reason why all visitors should be accompanied). Detailed procedures should be provided on shutdowns, emergency services such as lighting, power and process equipment...and the people who will be responsible and their particular duties. Coordinate plan with the local emergency service organizations.
7. Train your people on the elements of the plan...continue with regular refresher training; complete evacuation drills or simulated disasters to determine response performance of everyone involved in the program; provide copies of the plan for all workers to read and review at their convenience; use various aspects of the plan for 5-minute safety talks.
8. Regularly review and update the plan based on your operations (e.g., the addition of a new piece of equipment or reconfiguration of the processing layout) and coordinate with other business program plans such as Process Safety Management Plan, contingent business operating plan, safety and risk management plan.

STANDARD OPERATING PROCEDURES EMERGENCY ACTION PLAN

General Guidelines

1. The plan shall be written and reviewed with all employees upon hire and at regular intervals thereafter, but no less than annually. Plan should be reviewed periodically for relevance and application, especially after any changes have been implemented in working schedules or operations.
2. The following elements shall be included in the plan:
 - a. Emergency escape procedures and emergency escape route assignments.
 - b. Procedures followed by employees who remain to operate/shut down critical plant equipment or systems before they evacuate.
 - c. Procedures to account for all employees after the emergency evacuation has been completed.
 - d. Define rescue and medical duties for those employees who are designated to perform them.
 - e. The preferred means of reporting fires and other emergencies.
 - f. Names or regular job titles of persons or departments who can be contacted for further information and explanation of duties under the plan.
3. The employer shall establish an employee alarm system which: provides a distinctive sound; may be tripped through either automatic or manual actuating devices; provides for communicating alarm signal or emergency notification to all employees under a variety of working conditions (e.g., 2-way radios for site work in remote areas, high decibel alarms in areas of extreme ambient noise levels, hearing or sight impaired individuals, etc.); and is tested on a regular basis. Employees must be trained to respond to an emergency alarm consistent with the emergency action plan.
4. Regular training must be completed in emergency evacuation for the types of situations that are likely to occur (e.g., hurricanes, release of chlorine gas, building collapse). Certain individuals should be designated to assist in the safe and orderly emergency evacuation of employees, and these people should receive special training.