Emergency Preparedness and Response

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QCTO: Occupational Health, Safety Quality Practitioner Qualification – NQF Level 2

ISO NET (Pty) Ltd

Learner Guide

COURSE CONTENTS:

EMERGENCY PREPAREDNESS

Overview of emergencies

Topic elements to be covered include:
- Explain the definition of an emergency and give examples of typical emergencies that could occur in the workplace;

- Explain the difference between preparedness and response and give examples of typical preparedness and response actions;

- Describe the roles of the various role players to ensure that an organisation is adequately prepared for emergencies;

- Describe the roles of the various role players when an emergency occur
Introduction

Nobody expects an emergency or a disaster – especially an emergency or disaster that affects you, your co-workers and your workplace.

However, emergencies and disaster can strike anyone, anytime and anywhere. You and your co-workers could be forced to evacuate the workplace when you least expect it.

It is necessary to plan for that possibility. The best way to protect yourself, your co-workers and the business is to expect the unexpected and develop a well-thought out emergency action plan to guide you when immediate action is necessary.

Definition of an emergency

You may ask yourself "what is an emergency". A simple definition of an emergency is as follows:

An emergency is any unplanned event that can cause deaths or significant injuries to employees, customers or the public; or that can shut down your business, disrupt operations, cause physical or environmental damage, or threaten the facility's financial standing or public image.

Definition of an emergency management

Although we are going to discuss the whole process of emergency management **"Emergency Response Planning and Evaluation"**, let us look in the interim at a definition of emergency management.

Emergency management is the process of preparing for, mitigating, responding to and recovering from an emergency.

Types of emergencies

Emergencies may be **natural** or **man-made** and include the following:

- Natural disasters and severe weather, e.g:
  - Floods.
  - Extreme heat.
  - Hurricanes.

- Tornadoes.
- Wildfires.
- Earthquakes.

- Bioterrorism emergencies, e.g.:
  - Anthrax
  - Plague, etc.

- Toxic gas releases.

- Chemical spills.

- Radiological accidents.

- Explosions.

- Civil disturbances.

- Workplace violence resulting in bodily harm and trauma.

- Communications failure.

- Loss of key supplier or customer.

Preparing for emergencies

How do you protect yourself, your co-workers and the workplace in the event of an emergency?

The best way is to **prepare to respond to an emergency before it happens.** Very few people can think clearly and logically in a crisis. Therefore it is important to do so in advance, when you have time to be thorough.

Identify potential emergencies

You should begin your emergency planning by identifying potential emergencies through a risk assessment. Brainstorm the worst-case scenarios.

Ask yourself the following questions:

- What would you do if the worst happened?

- What if a fire broke out, for example, in the boiler room?

- What if a hurricane hit the building?

- What if a train carrying hazardous waste derailed while passing your loading dock? Etc., etc.

Once you have identified all the potential emergencies, consider how they would affect you, your co-workers, the public and how you would respond.

Emergency action plan

Definition

An emergency action plan covers designated actions employers and employees must take to ensure safety from fire and other emergencies.

Compiling an emergency action plan

Compiling an emergency action plan is a good way to protect yourself, your co-workers, the public and the business during an emergency.

Putting together a comprehensive emergency action plan that deals with all types of issues specific to your workplace is not difficult.

It is beneficial that the management team and employees participate in the process. Everybody's commitment and support are critical to ensure the success of establishing and implementing an emergency action plan.

Contents of emergency action plan

When developing an emergency action plan, it is a good idea to look at a wide variety of potential emergencies that could occur at the workplace.

It should be tailored to the worksite and include information about all potential sources of emergencies.

Developing an emergency action plan means you should do a hazard assessment to determine what, if any, physical or chemical hazards in your workplace could cause an emergency.

If you have more than one worksite, each site should have an emergency plan.

Minimum contents of emergency action plan

At a minimum, the emergency action plan must include the following:

- A preferred method for reporting fires and other emergencies.

- An evacuation policy and procedure.

- Emergency escape procedures and route assignments, for example, floor plans, workplace maps and safe areas.

- Names, titles, departments and contact numbers of individuals, both within and outside the workplace to contact for additional information or explanation of duties and responsibilities under the emergency plan.

- Procedures for employees who remain to perform or shut down critical plant operations, operate fire extinguishers, or perform other essential services that cannot be shut down for every emergency alarm before evacuating, and

- Rescue and medical duties for any employees designated to perform them.

You should also consider designating an assembly area and procedures to account for all employees after an evacuation.

In addition, you may also find it helpful to include the following in your plan:

- An alternative communications centre to be used in the event of a fire or explosion, and

- A secure on or offsite location to store originals/duplicate copies of accounting records, legal documents, employees' emergency contact details and other essential records.

Alerting employees to an emergency

The plan must include a way to alert employees, including disabled employees, to evacuate or take other action, as well as how to report emergencies, as required.

Amongst the steps you should take are the following:

- Ensure that alarms are distinctive and recognised by all employees as a signal to evacuate a work area or perform actions identified in the plan.

- Ensure the availability of an emergency communications system, for example a public address system, portable radio unit, or other means to notify employees of the emergency and to contact local law enforcement, the fire department etc.

- Stipulate that alarms must be able to be heard, seen or otherwise perceived by everyone in the workplace. You might want to consider providing a back-up power supply in the event that electricity is shut off.

You may also want to consider the following:

- Using tactile devices to alert employees who would not otherwise be able to recognise an audible or visual alarm, and

- Providing an updated list of key personnel, for example, the Plant Manager or Supervisor, in order of priority, to notify in the event of an emergency during off-duty hours.

Evacuation policy and procedures

A disorganised evacuation can result in **confusion**, **injury** and **property damage**. That is why when developing an emergency action plan it is important to determine the following:

- **Conditions** under which an evacuation would be necessary.
- A clear **chain of command** and **designation** of the person in the workplace authorised to order an evacuation or shutdown. For example, you may want to designate an "Emergency Co-ordinator to assist others in an evacuation and to account for employees.
- **Specific evacuation procedures**, including routes and exists. Post these procedures where they are easily accessible to all employees.
- Procedures for **assisting people with disabilities** or who do not speak English.

- **Designation of any employees who will continue or shut down critical operations** during an evacuation. These people must be capable or recognising when to abandon the operation and evacuate themselves.

- A **system for accounting the employees** following an evacuation.

When should you call for an evacuation?

A designated person within the workplace should be responsible for making the decision to evacuate or shut down operations. Protecting the health and safety of everyone in the workplace should be the first priority.

In the event of a fire, an immediate evacuation to a predetermined area away from the workplace is the best way to protect employees. On the other hand, evacuating employees may not be the best response in an emergency, for example in the event of a toxic gas release at a facility across town from your workplace.

The type of building you work in may be a factor in your decision. Most buildings are vulnerable to the effects of disasters such as tornadoes, earthquakes, floods or explosions. The extent of the damage depends on the type of emergency and the building's construction. Modern factories and office buildings, for example, are framed in steel and are structurally sounder than neighbourhood business premises may be.

However, in a disaster such as a major earthquakes or explosions, nearly every type of structure will be affected. Some buildings will collapse and others will be left with weakened floors and walls.

Evacuation routes and exits

When preparing the emergency action plan, designate primary and secondary evacuation routes and exits. To the extent possible under the conditions, ensure that evacuation routes and emergency exists meet the following criteria:

- Clearly marked and well lit.

- Wide enough to accommodate the number of evacuating employees.

- Unobstructed and clear of debris at all times, and

- Unlikely to expose evacuating employees to additional hazards.

Prepare drawings that show evacuation routes and exits, and post them prominently for all employees to see

Accounting for employees after an evacuation

Accounting for all employees following an evacuation is critical. Confusion in the assembly areas can lead to delays in rescuing anyone trapped in the building, or unnecessary and dangerous search-and-rescue operations.

To ensure the fastest, most accurate accounting of your employees, consider the following steps in your emergency action plan:

- Designate assembly areas where employees should gather after evacuating.

- Take a head count after the evacuation. Identify the names and last known locations of anyone not accounted for and pass them to the official in charge.

- Establish a method of accounting for non-employees such as suppliers and customers, and

- Establish procedures for further evacuation in case the incident expands, for example, sending employees home by normal means or providing them with transportation to an offsite location.

Emergency co-ordinator and other key personnel

When drafting an emergency action plan, you should select a responsible individual to lead and coordinate the emergency plan and evacuation.

It is critical that employees know who the co-ordinator is and understand that this person has the authority to make decisions during emergencies.

Duties of the Emergency Co-ordinator

The Emergency Co-ordinator should be responsible for the following:

- Assessing the situation to determine whether an emergency exists requiring activation of the emergency procedures.

- Supervising all efforts in the area, including evacuating the employees.

- Co-ordinating outside emergency services, such as medical aid and local fire departments as well as ensuring that they are available and notified when necessary, and

- Directing the shutdown of plant operations when required.

It is also beneficial to co-ordinate the action plan with other employers when several employers share a worksite.

Other key personnel

It is also beneficial to designate additional key personnel, for example, evacuation wardens to help move employees from danger to safe designated areas during an emergency.

Generally, one warden for every 20 employees should be adequate, but again, this depends on the risk profile of the workplace and the possible emergencies that could take place.

The appropriate number of wardens should be available at all times during working hours.

All employees designated to assist in emergency evacuation procedures should be trained in the complete workplace layout and various alternative escape routes.

All employees, as well as those designated to assist in emergencies, should be made aware of:

- Employees with special needs who may require extra assistance.

- How to use the "buddy" system, and

- Hazardous areas to avoid during an emergency evacuation.

Rescue operations and medical assistance

Planning for rescue operations

It takes more than just willing hands to save lives. Untrained individuals may endanger themselves and those they are trying to rescue.

For this reason, it is generally wise to leave rescue work to those who are trained, equipped and certified to conduct rescues.

Medical assistance

If your workplace does not have a formal medical programme, you may want to investigate ways to provide medical and first aid services. If medical facilities are available near your worksite, you can make arrangements for them to handle emergency cases.

Provide employees with a written emergency medical procedure to minimise confusion during an emergency.

If an infirmary, clinic or hospital is not close to your workplace, ensure that onsite person(s) have adequate training in first aid.

Treatment of a serious injury should begin within 3 to 4 minutes of the accident.

Ensure that all first aid boxes are regularly checked and the contents replenished after an emergency.

Medical personnel must be accessible to provide advice and consulting in resolving health problems that occur in the workplace.

It is vital to establish a relationship with a local ambulance service so transportation is readily available for emergencies.

Role of employees in an emergency action plan

The best emergency action plans:

- Include employees in the planning process.

- Specify what employees should do during an emergency, and

- Ensure that employees receive proper training for emergencies.

Include employees in the planning stage and encourage them to offer suggestions about potential hazards, worst-case scenarios and proper emergency responses.

After the emergency plan has been developed, review it with the employees to make sure everyone knows what to do before, during and after an emergency.

Provide all employees with a copy of the emergency plan and keep a copy in a convenient location where employees have easy access to it.

Employee information in emergency plan

In the event of an emergency, it could be important to have ready access to important personal information about the employees. This includes their:

- Home telephone numbers.

- The names and contact numbers of their next of kin, and

- Medical information.

Employee training

It is imperative that all employees should be educated about the types of emergencies that may occur and trained in the proper course of action to be taken in an emergency.

The training requirements will be determined by:

- The size of the workplace and workforce.

- Processes used.

- Material handled, and

- The availability of onsite or outside resources.

It is vital that all employees understand the function and elements of the emergency action plan, including:

- Types of potential emergencies.

- Reporting procedures.

- Alarm systems.

- Evacuation plans, and

- Shutdown procedures.

Discuss any special onsite hazards, for example:

- Flammable materials.

- Toxic chemicals.

- Radioactive sources.

- Water-reactive sources.

Clearly communicate to all employees who will be in charge during an emergency to minimise confusion.

General training to employees should address the following:

- Individual roles and responsibilities.

- Threats, hazards and protective actions.

- Notification, warning and communication procedures.

- Means for locating family members in an emergency.

- Emergency response procedures.

- Evacuation, shelter and accountability procedures.

- Location and use of common emergency equipment, and

- Emergency shutdown procedures.

Employees can also be trained in:

- First aid procedures.

- Protection against blood borne pathogens.

- Respiratory protection.

- Use of an escape-only respirator, and

- Methods for preventing unauthorised access to the site.

Practice drills

Once the emergency action plan has been reviewed with the employees and everyone has been properly trained, it is essential that practice drills are held as often as necessary to keep employees prepared.

If possible, include outside resources such as fire and police departments when possible.

After each drill, gather management and employees to evaluate the effectiveness of the drill. Identify the strengths and weaknesses of the plan and implement measures to improve it where necessary.

How often to train employees

It is suggested that annual training takes place in the emergency plan. It is also imperative to offer training when:

- Developing the initial plan.

- Hiring new employees.

- Introducing new equipment, materials or processes into the workplace that affect evacuation routes.

- Changing the layout or design of the workplace, and

- Revising or updating the emergency procedures.

Coordination with other bodies

Although you are not required to do so, it is useful to coordinate your efforts with any other companies or employee groups in your building or workplace to ensure the effectiveness of the emergency plan.

In addition, if you rely on assistance from local emergency responders, for example the fire department, you may find it useful to coordinate your emergency plans with them.

This will ensure that you are aware of the capabilities of outside responders and that they know what you expect of them.

Hazardous substances

No matter what kind of business you are working in, you could potentially face an emergency involving hazardous materials such as:

- Flammable.
- Explosive.
- Toxic.
- Noxious (poisonous).
- Corrosive.
- Biological, or
- Radioactive substances.

Sources of hazardous substances

The source of the hazardous substances could be external, such as a local chemical plant that catches fire or an oil truck that overturns on a nearby freeway.

The source may be within your workplace. Regardless of the source, these events could have a direct impact on your employees and your business and should be addressed by your emergency action plan.

Use and storage of hazardous substances

If you use or store hazardous substances at your workplace, you face an increased risk of an emergency involving hazardous materials and should address this possibility in the emergency action plan
Ensure that, if you use hazardous chemicals, you:

- Inventory them.

- Keep the manufacturer-supplied Material Safety Data Sheet (MSDS) for them in a place accessible to workers.

- Label containers of these chemicals with their hazards.

- Train employees in ways to protect themselves against those hazards.

A good way to start is to determine from the hazardous chemical inventory what hazardous chemicals are used and to gather the MSDSs for these.

MSDSs describe the hazards that a chemical may present, list the precautions to take when handling, storing or using the substance and outline emergency and first-aid procedures.

Personal protective equipment (PPE)

Employees may need personal protective equipment (PPE) to evacuate during an emergency.

PPE must be based on the potential hazards in the workplace. The workplace must be assessed to determine potential hazards and the appropriate controls and PPE for those hazards.

PPE

PPE may include the following:

- Safety glasses, goggles or face shields for eye protection.

- Hard hats and safety shoes for head and foot protection.

- Proper respirators.

- Chemical suits, gloves, hoods and boots for body protection from chemicals.

- Special body protection for abnormal environmental conditions, for example extreme temperatures.

- Any other special equipment or warning devices necessary for hazards unique to your workplace.

Choosing appropriate respirators and other PPE

You should consult with health and safety professionals before making any purchases.

Respirators selected should be appropriate for the hazards in your specific workplace and meet the necessary standards and criteria.

Respiratory protection may be necessary if employees must pass through toxic atmospheres of dusts, mists, gases, vapours or even through oxygen-deficient areas while evacuating.

Emergency planning and evaluation

Every year emergencies take their toll on business and industry — in lives and rands. But something can be done – business and industry can limit injuries and damages and return to normal operations more quickly **if they plan ahead.**

You do not need to have in-depth knowledge of emergency management. However, what you need to have is the authority to create a plan and a commitment from top management to make emergency management part of the corporate culture.

We are going to discuss:

- Steps in the planning process.

- Emergency management considerations, and

- Hazard-specific information.

What is emergency management?

Emergency management is the process of **preparing for**, **mitigating**, **responding to** and **recovering from** an emergency.

Emergency management is a dynamic process. Planning, however critical, is **not the only component**.

Training, **conducting drills**, **testing equipment** and **coordinating activities** with employees and the community are other important functions to consider.

Management support

To be successful, emergency management requires upper management support. The chief executive sets the tone by authorising planning to take place and directing senior management to get involved.

When presenting the "case" for emergency management, do not dwell on the negative effects of an emergency, for example, deaths, fines or criminal prosecution.

Rather emphasise the positive aspects of preparedness. For example it:

- Helps companies fulfil their moral responsibility to protect employees, the community and the environment.

- Facilitates compliance with regulatory requirements.

- Enhances a company's ability to recover from financial losses, regulatory fines, loss of market share, damages to equipment or products or business interruption.

- Reduces exposure to civil or criminal liability in the event of an incident.

- Enhances a company's image and credibility with employees, customers, suppliers and the community.

May reduce your insurance premiums.

The planning process

In this part we are going to discuss the planning process of an emergency plan:

Step 1: Establish a planning team.

Step 2: Analyse capabilities and hazards.

Step 3: Develop the plan.

Step 4: Implement the plan.

Step 1: Establish a planning team

This step will discuss:

- The forming of a planning team.

- Establishment of authority.

- Issuing a mission statement, and

- Establishing a schedule and budget.

Step 2: Analyse capabilities and hazards

This step will discuss:

- The reviewing of internal plans and policies.

- Meeting with outside groups.

- Identifying codes and regulations.

- Identifying critical products, services and operations.

- Identifying internal resources and capabilities.

- Identifying external resources, and

- Conducting an insurance review.

- Conducting a vulnerability analysis.
  - The listing of potential emergencies.
  - Estimating probability.
  - Assessing the potential human impact.
  - Assessing the potential property impact.
  - Assessing the potential business impact.
  - Assessing internal and external resources

Step 3: Develop the plan

This step will discuss:

- The planning components, namely:
  - Executive summary.
  - Emergency management elements.
  - Emergency response procedures.
  - Support documents.

- The development process, namely:
  - Identifying challenges and prioritising activities.
  - Writing the plan.
  - Establishing a training schedule.
  - Coordinating with outside organisations.
  - Maintaining contact with other corporate offices.
  - Reviewing, conducting training and revising.
  - Seeking final approval.
  - Distributing the plan.

Step 4: Implement the plan

This step will discuss:

- The conducting of training, namely:
  - Planning considerations.
  - Training activities.
  - Employee training.

- The evaluating and modifying of the plan.

Step 1: Establish a planning team

It is essential that an individual or group is in charge of developing the emergency plan.

Forming a team

The size of a planning team will depend on the facility's operations, requirements and resources.

It is best to involve a group of people because it:

- Encourages participation and gets more people involved in the process.

- Increases the amount of time and energy participants are able to give.

- Enhances the visibility and stature of the planning process.

- Provides for a broad perspective on the issues.

It is necessary to determine who can be an active member and who can serve in an advisory capacity. Most of the time, one or two people will be doing the bulk of the work.

At the very least, it is necessary to obtain input from all functional areas, namely:

- Upper management.

- Line management.

- Labour.

- Human resources.

- Engineering and maintenance.

- Safety, health and environmental affairs.

- Security.

- Sales and marketing.

- Legal, and

- Finance and purchasing, etc.

All participants should be appointed in writing by upper management and their job descriptions should also reflect this assignment.

Establish authority

It is vital to demonstrate management's commitment and promote an atmosphere of cooperation by "authorising" the planning group to take the steps necessary to develop a plan.

The chief executive officer or Plant Supervisor should lead the planning group.

Line of authority

It is important that a clear line of authority is established between group members and the group leader. However, it should not be rigid and prevent the free flow of ideas.

Issue a mission statement

The chief executive officer or plant manager should issue a mission statement to demonstrate the company's commitment to emergency management.

Such a statement should define:

- The purpose of the plan and indicate that it will involve the entire organisation, and

- The authority and structure of the planning group.

Establish a schedule and budget

It is necessary to establish a work schedule and planning deadlines.

As priorities become more clearly defined, the timelines and be modified.

It is also necessary to develop an initial budget for:

- Research.

- Printing.

- Seminars.

- Consulting services, and

- Other expenses that may be necessary during the development of the process.

Step 2: Analyse capabilities and hazards

In this step you should gather information about current capabilities as well as possible hazards and emergencies in your workplace.

Then you should conduct a vulnerability analysis to determine the facility's capabilities for handling emergencies.

In this step you should establish where your company stand at this point in time, i.e.:

- Review internal plans and policies.

- Meet with outside groups.

- Identify codes and regulations.

- Identify critical products and services.

- Identify internal resources and capabilities.

- Identify external resources.

- Conduct an insurance review.

You should also establish the vulnerability of your workplace by:

- Listing potential emergencies.

- Estimating probability.

- Assessing the potential human, property and business impacts.

- Assessing internal and external resources, etc.

Where does your company stand right now?

Review internal plans and policies

When you review internal plans and policies you should look at the following documents:
- Evacuation plan.
- Fire protection plan.
- SHE programme.
- Environmental policies.
- Security procedures.
- Insurance programmes.
- Finance and purchasing.
- Plant closing policy.
- Employee documentation.
- Hazardous materials plan.
- Process safety assessment.
- Risk management plan.
- Capital improvement programme.
- Mutual aid agreements, etc.

Meet with outside groups

It is also essential that you meet with outside government agencies, community organisation and utilities. Enquire about potential emergencies, plans and available resources for responding to them. Sources of information could include:

- Fire Department.

- Police Department.

- Emergency Medical Services organisations.

- Red Cross.

- Telephone companies.

- Electrical utilities.

- Neighbouring businesses, etc.

Identify codes and regulations

You should identify applicable local regulations, for e.g.:

- Occupational health and safety regulations.

- Fire codes.

- Transportation regulations.

- Zoning regulations.

- Environmental regulations, and

- Corporate policies, etc.

Identify critical products, services and operations

It is vital that you obtain this information to assess the impact of potential emergencies as well as to determine the need for backup systems.

Areas to review include:

- Company products and services as well as the facilities and equipment needed to produce them.

- Products and services provided by suppliers, especially soul source vendors.

- Lifeline services such as electrical power, water, sewer, telecommunications and transportation, etc.

- Operations, equipment and personnel vital to the business continuity of the workplace.

Identify internal resources and capabilities

It is also important that you identify internal resources and capabilities. Resources and capabilities that could be needed in an emergency could include:

- Personnel: Fire brigade, hazardous materials response teams, emergency medical services, security, emergency management group, evacuation, public information officer.

- Equipment: Fire protection and suppression equipment, decontamination equipment.

- Facilities: Emergency operating centre, media briefing area, shelter areas, first-aid stations, sanitation facilities.

- Organisational capabilities: Training, evacuation plan, employee support system.

- Backup systems: Arrangements with other facilities to provide for:
  - Payroll.
  - Communications.
  - Production.
  - Customer services.
  - Shipping and receiving.
  - Information systems support.
  - Emergency power.
  - Recovery support.

One way to increase response capabilities is to identify employee skills (medical, engineering, communications, foreign language), that might be needed in an emergency.

Identify external resources

There are many external resources that could be needed in an emergency. In some cases, formal agreements may be necessary to define the facility's relation with the:

- Fire Department.

- Emergency medical services.

- Hospitals.

- Police.

- Community service organisations.

- Utilities.

- Contractors.

- Suppliers of emergency equipment, etc.

Conduct an insurance review

Set up a meeting with insurance carriers to review all policies

Conduct a vulnerability analysis

The next step that you should take is to assess the **vulnerability** of your workplace – the **probability** and **potential impact** of each emergency.

Vulnerability analysis chart

You can use a "Vulnerability analysis chart" to guide you in the process.

This process entails:

- **Assigning** probabilities.

- **Estimating** impact, and

- **Assessing** resources,

using a numerical system.

List potential emergencies

In the first column, you list all the emergencies that could affect your workplace. Consider all emergencies that could occur **within your facility** as well as emergencies that could occur **in your community (in the vicinity/area surrounding your workplace).** Also consider the following:

- **Historical:** What types of emergencies have occurred in the community, at the workplace and at other workplaces in the area, i.e.:
  - Fires
  - Severe weather
  - Hazardous material spills
  - Transportation accidents
  - Earthquakes
  - Hurricanes
  - Tornadoes
  - Terrorism
  - Utility outages, etc.

- **Geographic:** What can happen as a result of the workplace's location? Keep the following in mind. Proximity to:
  - Flood plains, dams, etc.
  - Companies that produce, store, use or transport hazardous materials.
  - Major transportation routes and airports.
  - Nuclear power plants, etc.

- **Technological:** What could result from a process or system failure? Some possibilities include:
  - Fire, explosion, hazardous material incident.
  - Safety system failure.
  - Telecommunications failure.
  - Computer system failure.
  - Power failure.
  - Heating/cooling system failure.
  - Emergency notification system failure.

- **Human error:** What emergencies can be caused by employee error?
  - Are all employees trained to work safely?
  - Do they know what to do in an emergency?

Human error is the single largest case of workplace emergencies and can result from poor training; poor maintenance; carelessness; misconduct; substance abuse and fatigue.

- **Physical:** What types of emergencies could result from the design or construction of the workplace? Does the physical workplace enhance safety? Consider the following:
  - The physical construction of the facility.
  - Hazardous processes or by products.
  - Facilities for storing combustibles.
  - Layout of equipment.
  - Lighting.
  - Evacuation routes and exits.
  - Proximity of shelter areas.

- **Regulatory:** What emergencies or hazards are you regulated to deal with? It is vital to analyse each potential emergency from beginning to end. Consider what could happen as a result of:
  - Prohibited access to the workplace.
  - Loss of electric power.
  - Water, smoke or structural damage.
  - Air or water contamination.
  - Explosion.
  - Building collapse.
  - Trapped workers.
  - Chemical release, etc.

It is essential to analyse each potential emergency from beginning to end. You should consider what could happen as a result of:

- Prohibited access to the facility.

- Water damage.

- Smoke damage.

- Air or water contamination.

- Explosion.

- Building collapse.

- Trapped persons, etc.

Estimate probability

Next, you should rate the likelihood of each emergency's occurrence (probability column). Although this is a subjective consideration, it is useful. You can use a simple scale of 1 to 5 with 1 as the lowest probability and 5 as the highest.

Human impact

Analyse the potential human impact of each emergency – the possibility of death or injury.

Assign a rating in the "Human Impact" column – again using a scale of 1 to 5 with 1 as the lowest impact and 5 as the highest.

Property impact

Consider the potential property impact for losses and damages. As above, assign a rating from 1 to 5. Consider the following:

- Cost to replace.

- Cost to set up temporary replacement.

- Cost to repair.

Business impact

Consider the potential loss of market share. Once again, assign a rating in the "Business Impact" column from 1 to 5. Assess the impact of:

- Business interruption.

- Employees unable to report to work.

- Customers unable to reach the workplace.

- Company in violation of contractual agreements.

- Imposition of fines and penalties or legal costs.

- Interruption of critical supplies.

Interruption of product distribution.

Internal and external resources

Next you have to assess your resources and ability to respond. Once again assign a score to these columns. The lower the score the better.

To assist with this, consider each potential emergency from the beginning to end and each resource that would be needed to respond.

For each emergency ask the following questions:

- Do we have the needed resources and capabilities to respond?

- Will external resources be able to respond to us for this emergency as quickly as we may need them, or will they have other priority areas to serve?

If …	then …
the answers are yes,	move on to the next assessment.
the answers are no,	identify what can be done to correct the problem.

For example, you may need to:

- Develop additional emergency procedures.

- Conduct additional training.

- Acquire additional equipment.

- Establish agreements with specialised contractors, etc.

Remember, when assessing resources community emergency workers — police, paramedics, firefighters, etc. — will focus their response where the need is greatest. Or they may be victims themselves and be unable to respond immediately. That means response to your workplace may be delayed.

Add the columns

In the "Total" column, total the scores for each emergency. The lower the score the better.

While this is a subjective rating, the comparisons will help determine planning and resource priorities.

Step 3: Develop the plan

You are now ready to develop an emergency management plan. In this part we will discuss the basic components of an emergency management plan, namely:

- The executive summary.

- Emergency management elements.

- Emergency response procedures.

- Support documents.

Executive summary

The executive summary gives management a brief overview of:

- The purpose of the emergency plan.

- The workplaces emergency management policy.

- Authorities and responsibilities of key personnel.

- The types of emergencies that could occur, and

- Where response operations will be managed.

Emergency management elements

This section of the plan briefly describes the workplace's approach to the core elements of emergency management which are:

- Direction and control.

- Communications.

- Safety of people.

- Property protection.

- Community outreach.

- Recovery and restoration.

- Administration and logistics.

These above elements (which will be described in detail further on in this module), are the foundation for the emergency procedures that your workplace will follow to protect employees, equipment and resume operations.

Emergency response procedures

The procedures spell out how the workplace will respond to emergencies. Whenever possible, develop these procedures as a series of checklists that can be quickly accessed by senior management, department heads, response personnel and employees.

Determine what actions would be necessary to:

- Assess the situation.

- Protect employees, customers, visitors, equipment, vital records and other assets – particularly during the first three days.

- Get the business back up and running.

Specific procedures might be needed for any number of situations, for e.g. bomb threats or tornadoes, and for such functions such as:

- Warning employees and customers.

- Communicating with employees and community responders.

- Conduct an evacuation and accounting for all persons in the workplace.

- Managing response activities.

- Activating and operating an emergency operations centre.

- Fighting fires.

- Shutting down operations.

- Protecting vital records.

- Restoring vital operations.

In an emergency, all employees should know the following:

- What is my role?

- Where should I go?

Some workplaces are required to develop:

- Emergency escape procedures and routes.

- Procedures for employees who perform or shut down critical operations before an evacuation.

- Procedures to account for all employees, visitors and contractors after an evacuation are completed.

- Rescue and medical duties for assigned employees.

- Procedures for reporting emergencies.

- Names of persons or departments to be contacted for information regarding the plan.

Support documents

Documents that could be needed in an emergency include:

- **Emergency call lists:** Lists of all persons on and off site who would be involved in responding to an emergency, their responsibilities and their 24-hour telephone numbers.

- **Building and site maps** that indicate:
  - Utility shutoffs.
  - Water hydrants.
  - Water main valves.
  - Water lines.
  - Gas main valves and gas lines.
  - Electrical cut offs.
  - Electrical substations.
  - Storm drains.
  - Sewer lines.
  - Location of each building.
  - Floor plans.
  - Alarms.
  - Fire extinguishers.
  - Fire suppression systems.
  - Exits.
  - Stairways.
  - Designated escape routes.
  - Restricted areas.
  - Hazardous materials (including cleaning suppliers and chemicals.
  - High-value items.

Resource lists: Lists of major resources (equipment, supplies, and services) that would be needed in an emergency, etc.

The development process

The information below is guidance for developing the emergency plan. In the development process consider the following:

- Identify challenges and prioritise activities.

- Write the plan.

- Establish a training schedule.

- Coordinate with outside organisations.

- Maintain contact with other corporate offices.

- Review, conduct training and revise.

- Seek final approval.

- Distribute the plan.

Identify challenges and prioritize activities

Determine specific goals and milestones. Make a list of tasks to be performed, who will perform them and when.

Determine how you will address the problem areas and the resource shortfalls identified in the vulnerability analysis.

Write the plan

Use all the members of the planning group to write the plan, by assigning a section to each member.

Determine the most appropriate format for each section and establish a timeline with specific goals. Allow enough time for completion of the work.

Establish a schedule for:

- First draft.

- Review.

- Second draft.

- Table top exercise.

- Final draft.

- Printing.

- Distribution.

Establish a training schedule

Assign responsibility to one person or department for developing a training schedule for your facility.

We will discuss specific ideas regarding training in Step 4.

Coordinate with outside organisations

It is a good idea to inform appropriate government agencies that you are creating an emergency management plan. Although you do not require their official approval, they will likely have valuable insights and information.

Ensure that you determine all the requirements for reporting emergencies and incorporate them into your procedures.

You should also determine protocols for turning control of a response over to an outside agency. You may need to establish:

- Which gate/entrance will responding units use?

- Where and to whom will they report?

- How will they be identified?

- How will personnel communicate with outside responders?

- Who will be in charge of response activities?

Remember to determine the needs of disabled persons and non-English speaking employees. For example, a blind employee could be assigned a partner in the event of an evacuation.

Maintain contact with other corporate offices

It is imperative that your communicate with other offices and divisions in your company to learn:

- Their emergency notification requirements.

- The conditions where mutual assistance would be necessary.

- How offices will support each other in an emergency.

- Names, telephone numbers and pager number of key personnel.

Incorporate all the above information in your procedures.

Review, conduct training and revise

Distribute the 1st draft to all the group members for review and revise as needed.

For a 2nd review, you could conduct a tabletop exercise with management and key emergency management personnel

Conduct the tabletop exercise as follows:

- Describe an emergency scenario.

- Ask the participants to discuss their responsibilities and how they would react to the situation.

- Based on the discussions, identify areas of confusion and overlap and modify the plan accordingly.

Seek final approval

Arrange a briefing for the CEO and senior management to obtain written approval.

Distribute the plan

Distribute the final plan to:

- CEO and senior management.

- Emergency response team members.

- The company's headquarters.

- Community response agencies (if applicable).

Ensure that each individual who receives a copy sign for it. Have key personnel keep a copy of the plan at their homes.

Inform all employees about the plan and training schedule

It is advised to consolidate emergency plans for better coordination. Stand-alone plans, for e.g., Spill Prevention Control Plan, Fire Protection Plan or Safety and Health Plan, should be incorporated into one comprehensive plan.

Step 4: Implement the plan

Implementation does not mean to exercise the plan during an emergency.

It means to act on recommendations made during the vulnerability analysis and:

- Integrating the plan into company operations.

- Training employees, and

- Evaluating the plan.

Integrate the plan into company operations

It is crucial that emergency planning becomes part of the corporate culture. It is vital to:

- Look for opportunities to build awareness.

- Educate and train employees.

- Test procedures.

- Involve all levels off management, all departments and the community in the planning process, and

- Make emergency management part of what each employee do on a day-to-day basis.

You can test the integration of the plan by asking the following questions:

- How well does senior management support the responsibilities outlined in the plan?

- Have emergency planning concepts been fully incorporated into the workplace's procedures (i.e. accounting, personnel, financial, etc.)?

- How can the processes for evaluating employees and defining job classifications better address emergency management responsibilities.

- Are there opportunities for distributing emergency preparedness information through corporate newsletters, employee manuals or mailings?

- What kinds of SHE posters or other visible reminders would be helpful?

- Do employees know what they should do in an emergency?

- How can all levels of the organisation be involved in evaluating and updating the plan?

Conduct training

Every worker, as well as everyone that visits the workplace, requires some form of training.

This training could include:

- Periodical employee discussion sessions to review procedures.

- Technical training in equipment use for emergencies.

- Evacuation drills, and

- Full-scale exercises.

Planning considerations

It is vital to assign responsibility for developing a training plan. You should consider training and information needs for:

- Employees.

- Contractors.

- Visitors.
- Managers, and

- All those with an emergency response role identified in the plan.

Determine for a 12-month period:

- Who will be trained?

- Who will conduct the training?

- What types of training activities will be used?

- When and where will the training take place?

- How will the training be evaluated and documented?

It is also important to consider how to involve community responders in training activities.

Conduct reviews after each training activity. Involve all personnel as well as community responders in the evaluation process.

Training activities

Training can take place in many forms. The discussion below focuses on some examples.

- **Orientation and education sessions**
  These are discussion sessions, scheduled on a regular basis, to provide information, answer questions and identify needs and concerns.

- **Tabletop exercises**
  Members of the emergency management team meet to discuss their responsibilities and how they would react to emergencies. This is a cost-effective and efficient way to identify areas of overlap and confusion before conducting training activities.

- **Walk-through drills**
  In this exercise, the emergency management and response teams actually perform their emergency response functions. It involves more people and is more thorough than the tabletop exercise.

- **Functional drills**
  Functional drills test specific functions, i.e. medical response, emergency notifications, etc. though not necessarily at the same time. Employees are asked to evaluate the systems and identify problem areas.

- **Evacuation drills**
  Employees walk the evacuation route to a designated assembly area where procedure for accounting for all employees is tested. Participants are asked to make notes as they go along of what might become a hazard during an emergency, e.g. cluttered stairways, etc. Emergency plans are then modified accordingly.

- **Full-scale exercise**

A real life emergency situation is simulated as closely as possible. This exercise involves all emergency response personnel, employees, management and community response organisations.

Employee training

General training for all employees should include:

- Individual roles and responsibilities.

- Information regarding threats, hazards and protective actions.

- Notification, warning and communication procedures.

- Means for locating family members in an emergency.

- Emergency response procedures.

- Evacuation, shelter and accountability procedures.

- Location and use of common emergency equipment.

- Emergency shutdown procedures.

The scenarios developed during the vulnerability analysis (discussed in Step 2), can serve as a basis for training events.

Evaluate and modify the plan

It is important to conduct a formal audit of the entire emergency plan at least once a year.

Issues to consider

Among the issues to consider are:

- How can all levels of management be involved in evaluating and updating the plan?

- Are all the problem areas and resources shortfalls (identified in the vulnerability analysis) sufficiently addressed?

- Does the plan reflect lessons learned from drills and actual events?

- Does everybody understand their respective responsibilities and have new members/employees been trained?

- Does the plan reflect changes in the physical layout of the workplace or new workplace processes?

- Are photographs and other records of the workplace assets up to date?

- Is the workplace attaining its training objectives?

- Have the hazards in the workplace changed?

- Are all the names and contact details in the plan current?

- Are steps taken to incorporate emergency management into other workplace processes?

- If applicable, have community agencies and organisations been briefed on the plan and they involved in evaluating the plan?

Evaluation and modification frequency

In addition to a yearly audit, it is suggested to evaluate and modify the plan:

- After each training drill or exercise.

- After each emergency.

- When employees or their responsibilities change.

- When the layout or design of the workplace changes.

- When policies or procedures change.

When siting a new location, conduct hazard analysis of the area. Modify your plan when a new site becomes operable.

Remember to brief all employees on changes to the plan.

Emergency management considerations

In this section we are going to discuss emergency management considerations namely:

- Direction and control.

- Communications.

- Safety of people.

- Property protection.

- Community outreach.

- Recovery and restoration.

- Administration and logistics.

Direction and control

It is vital that someone is in charge of an emergency.

A system for managing resources, analysing information and making decisions in an emergency is called **direction and control.**

The system described below assumes a workplace of sufficient size. Your workplace may require a less sophisticated system, however, the same principles will still apply.

The configuration of your system will depend on many factors. Larger industries/organisations may have their own fire team, emergency medical personnel or hazardous materials team, while smaller organisations may need to rely on mutual aid agreements (i.e. where more than one company occupy a premises).

Emergency Team

The Emergency Team is responsible for the big picture. It controls all incident-related activities. An Emergency Co-ordinator (also called Incident Commander or Emergency Operational Manager/Director – these designations could differ from company to company) oversees the technical aspects of the response.

The Emergency Team supports the Emergency Co-ordinator by allocating resources and by interfacing the:

- Community.

- Media.

- Outside response organisations, and

- Regulatory agencies.

The Emergency Team is headed by the Emergency Manager – usually a senior member of management, e.g. the facility manager. This person is in command and controls all aspects of the emergency.

Other Emergency Team members should be senior managers who have the authority to:

- Determine the short- and long-term effects of an emergency.

- Order the evacuation or shutdown of the facility.

- Interface with outside organisations and the media.

Issue press releases

Incident Command Centre (ICO)

The Incident Command Centre provides for coordinated response and a clear chain of command and safe operations.

The Emergency Co-ordinator is responsible for:

- Front-line management of the incident.

- Tactical planning and execution.

- Determining whether outside assistance is needed.

- Relaying requests for internal resources or outside assistance.

The Emergency Manager could be any employee, however a member of management with authority to make decisions is usually the best choice.

The Emergency Manager must have the authority to:

- Assume command.

- Assess the situation.

- Implement the emergency management plan.

- Determine response strategies.

- Activate resources.

- Order an evacuation.

- Oversee all incident response activities.

- Declare that the incident is "over".

Example

In a hazardous materials incident, an off-site medic was exposed to the spilled material and required hospitalisation.

It was determined that the medic was able to enter the hazardous area unprotected because no one among a host of managers and emergency scene team members was "in charge" at the scene.

Emergency Operations Centre (EOC)

This centre serves as a centralised management centre for emergency operations. Here decisions are made by the emergency team based upon information received by the Emergency Co-ordinator and other personnel.

This facility should be located in an area of the workplace not likely to be involved in an incident, for example in a manager's office, a conference room of the training centre. It is also important to designate an alternative facility, should the primary location not be usable.

Each workplace must determine its requirements for such an EOC based upon the functions to be performed and the number of people involved. Ideally, an EOC is a dedicated area, equipped

with communications equipment, reference material, activity logs and all the tools necessary to respond quickly and appropriately to an emergency.

EOC resources

The resources of such a centre could include:

- Communication equipment.

- A copy of the emergency management plan and procedures.

- Blueprints, maps etc.

- A list of all emergency personnel as well as descriptions of their duties.

- Technical information and data for advising responders.

- Site security system information.

- Information and data management capabilities.

- Telephone lists/directories.

- Backup power, communications and lighting.

- Emergency supplies.

Depending on the size and nature of your workplace, an Emergency Operations Centre would not be applicable. However it is advised, that regardless of the size or process, every workplace should designate an area where decision makers can gather during an emergency.

Planning considerations

In order to develop a direction and control system you should:

- Define the duties of all personnel with an assigned role. It is vital to establish procedures for each position and prepare checklists for all procedures.

- Define procedures and responsibilities for fire fighting, medical, health, etc.

- Determine lines of succession to ensure continuous leadership, authority and responsibility in key positions.

- Determine equipment and supply needs for each response function.

- Assign responsibility to key personnel for:

  - Recognising and reporting an emergency.

- Warning other employees in the area.

- Taking security and safety measures.

- Safe evacuation of employees.

- Provide training.

Security

Once an emergency is discovered, the incident scene must be isolated. If possible, the person discovering the incident should attempt to secure the scene and control access. However, no one should be placed in physical danger to perform these functions.

Basic security measures include the following:

- Closing doors and windows.

- Establishing temporary barriers after safe evacuation of all personnel.

- Placing containment materials (in the event of leaking substances).

Closing file cabinets, desk drawers, etc

Only trained personnel should be allowed to perform advanced security measures. It is vital that access to the facility, the EOC and the incident scene is limited to persons directly involved in the response.

Outside response

In some emergencies, laws, codes, prior agreements or the very nature of an emergency require the Emergency Coordinator to turn operations over to an outside response organisation.

In such an event, the protocols established between the facility and the outside response organisation is implemented. The Emergency Co-ordinator should provide the outside response organisation with a complete report on the situation.

The Emergency Coordinator should also keep track of which organisations are on site and how the response is being coordinator. This will help increase safety and accountability and prevents duplication of effort.

Remember to keep detailed logs of actions taken during an emergency. Describe what happened, decisions made, any deviations from policy and log the time for each event.

Communications

Communications are essential to any business operation. A communications failure can be a disaster in itself – cutting off vital business activities.

Communications are needed to:

- Warn employees of the danger.

- Keep families and off-duty employees informed about what is happening at the workplace.

- Coordinate response actions, and

- Keep in contact with customers and suppliers.

Contingency planning

It is vital to plan **for all possible contingencies** – from a temporary or short-term disruption to a total communications failure.

- Consider the everyday functions performed in the workplace and the communications (both voice and data), used to support these functions.

- Consider the business impact if communications were inoperable. How would this impact your emergency operations?

- Prioritise all facility communications. Determine which should be restored first in an emergency.

- Establish procedures for restoring communication systems.

Determine needs for backup communications for each business function

Emergency communications

It is vital to consider the functions your workplace might need to perform in an emergency and the communication systems needed to support them.

Consider communications between:

- Emergency responders.

- Responders and the Emergency Coordinator.

- The Emergency Coordinator and the Emergency Operations Centre.

- The Emergency Coordinator and the employees.

- The Emergency Operation Centre and:

    - Outside response organisations.

    - Neighbouring businesses.

    - Emloyees' families.

    - Customers.

- Media.

Communication methods

Communication methods include the following:

- Messenger.

- Telephone.

- Two-way radio.

- Fax machine.

- Satellite.

- Dial-up modems,

- Local area networks.

- Hand signals, etc.

Family communications

In an emergency, it is important that employees' families are informed of their well-being. Implement plans for communicating with employees' families.

Encourage employees to:

- Consider how they would communicate with their families in the event of an emergency.

- Arrange for an out-of-town contact for all family members to call in an emergency.

- Designate a place to meet family members in case they cannot get home in an emergency.

Notification

It is also important to establish procedures for employees to report an emergency.

- Notify employees of these procedures and train personnel assigned with specific notification tasks.

- Post emergency telephone numbers near telephones, on bulletin boards and in other prominent locations.

- Maintain an updated list of addresses and contact details of key emergency response personnel (from within as well as outside the workplace).

- Listen for severe weather warnings (where applicable).

- Determine government notification requirements in advance. Notification must be made immediately to local government agencies when an emergency has the potential to affect public health and safety.

- Prepare announcements.

Warning

It is also vital to establish a system for warning employees of an emergency. Such a system should:

- Be audible or within view by all employees in the workplace.

- Have an auxiliary power supply.

- Have a distinct and recognisable signal.

- Implement plans for warning employees with disabilities. E.g. a flashing light can be used to warn hearing-impaired employees.

- Familiarise employees with and train them in procedures for responding when the warning system is activated.

- Establish procedures for warning customers, contractors and visitors who may not be familiar with the warning system.

- Test the warning system at least on a monthly basis.

Safety of people

The first priority during an emergency is the protection of the health and safety of everyone in the workplace.

Evacuation planning

One common means of protection is evacuation. In the event of a fire, an immediate evacuation to a predetermined area away from the workplace might be necessary. However, in the event of severe weather, e.g. a hurricane, evacuation could involve the entire community and take place over a period of days.

To develop an evacuation policy and procedure you should:

- Determine the conditions under which an evacuation would be necessary.

- Establish a clear chain of command. Identify personnel with the authority to order an evacuation. Designate "evacuation wardens" to assist and account for employees in an evacuation.

- Establish specific evacuation procedures.

- Establish procedures for assisting employees with disabilities and those who do not speak/understand the language used at the workplace.

- Establish post-evacuation procedures.

- Designate personnel to continue or shut down critical operations while an evacuation is underway. Such personnel must be capable of recognising when to abandon the operation and evacuate themselves.

Evacuation routes and exits

It is important to designate primary and secondary evacuation routes and exits. Ensure all evacuation routes are clearly marked, well lit and signs posted. Install emergency lighting in the event of a power outage.

Ensure that all evacuation routes and emergency exists are:

- Wide enough to accommodate the number of employees evacuating.

- Clear and unobstructed at all times.

- Unlikely to expose evacuating employees to additional hazards.

Ask someone outside the workplace to evaluate the evacuation routes.

Assembly areas and accountability

Obtaining an accurate account of employees after a site evacuation requires planning and practice.

- Designate assembly areas where employees should gather after evacuating.

- Conduct a head count. Determine the names and last known locations of employees not accounted for.

- Establish a method for accounting for non-employees, customer, suppliers and visitors.

- Establish procedures for further evacuation in the event the incident expands.

Shelter

In some emergencies, the best means of protection is to take shelter – either within the facility or away from the facility in a public building.

- Consider the conditions for taking shelter (e.g. tornado warning).

- Identify shelters in the workplace/community and establish procedures for sending employees to the shelter/s.

- Determined emergency supply needs, i.e. water, food and medical supplies.

- Designate employees in charge of shelters.

Training and information

It is vital to train all employees in evacuation, shelter and other safe procedures. These sessions should be conducted at least annually or when:

- Employees are hired.

- Emergency personnel or other employees with special assignments are designated.

- New equipment, materials or processes are introduced.

- Procedures are updated or revised.

- Exercises indicate that employee performance must be improved.

Also ensure that evacuation maps are posted in strategic locations and also consider the information needs of customers and others who visit the workplace.

Family preparedness

It is important to consider ways to help employees prepare their families for emergencies. This will increase their personal safety and help the facility get back up and running.

Employees who are prepared at home will be better able to carry out their responsibilities at work.

Property protection

Planning considerations

Protecting the facility, equipment and vital records is essential for restoring operations once an emergency has occurred.

Therefore it is important to establish procedures for:

- Fire fighting.

- Containing material spills.

- Closing or barricading doors and windows.

- Shutting down equipment.

- Covering or securing equipment.

- Moving equipment to a safe location.

- Identifying sources of backup equipment, parts and supplies.

Designate employees to authorise, supervise and perform a facility shutdown. Ensure they receive the necessary training to recognise when to abandon the effort.

Obtain emergency equipment and ensure the designated employees are trained in the use thereof

Protection systems

Determine needs for systems to detect abnormal situations, provide warning and protect property. Depending on your workplaces size and processes, consider:

- Fire protection systems.

- Lighting protection systems.

- Water-level monitoring systems.

- Overflow detection devices.

- Automatic shutoffs.

- Emergency power generation systems, etc.

Mitigation

Consider ways to reduce the effects of emergencies, e.g. moving or constructing facilities away from flood plains and fault zones.

Also consider ways to reduce the chances of emergencies from occurring, such as changing processes or materials.

Also consider the following measures:

- Upgrade the workplace to withstand earthquakes/high winds.

- Implement flood walls or other flood protection devices.

- Install fire sprinkler systems.

- Install storm shutters for exterior doors and windows.

Also consider non-structural mitigation measures, e.g.:

- Install fire-resistant materials and furnishings.

- Secure light fixtures and other items that could fall or shake loose in an emergency.

- Move heavy or breakable objects to low shelves.

- Attach cabinets and files to low walls or bolt them together.

- Insert Velcro strips under computers, monitors, telephones, etc.

- Move work stations away from large windows.

- Install curtains/blinds to prevent glass from shattering onto employees.

As a final measure, you could also consult a structural engineer or architect for additional information.

Facility shutdown

Shutting down the facility is normally the last resort, but always a possibility. Improper or disorganised shutdown can result in confusion, injury and property damage.

Some facilities require only simple actions, i.e. turning off equipment, locking doors and activating alarms.

Others require complex shutdown procedures. Collaborate with Department Heads when establishing shutdown procedures. Include information on when and how to shut off utilities. Identify:

- The conditions that could necessitate a shutdown.

- Who can order a shutdown.

- Who will carry out shutdown procedures.

- How a partial shutdown would affect other facility operations.

- The length of time required for shutdown and restarting.

Ensure all applicable employees receive proper training in shutdown procedures.

Records preservation

It is essential that vital records are preserved to ensure the quick restoration of operations.

Vital records may include:

- Financial and insurance information.

- Engineering plans and drawings.

- Product lists and specifications.

- Employee, customer and supplier databases.

- Formulas and trade secrets.

- Personnel files.

Analysing vital records involves:

- Classifying operations into functional categories, e.g. finance, product, sales, administration, etc.

- Determining essential functions for keeping the business up and running, i.e. finance, production, sales, etc.

- Identifying the minimum information that must be readily accessible to perform essential functions, e.g. maintaining customer collections may require access to account statements.

- Identifying the records that contain the essential information and where they are located.

- Identifying the equipment and materials needed to access and use the information.

Protecting and accessing vital records

You should also establish procedures for protecting and accessing vital records.

Consider:

- Labelling vital records.

- Backing-up computer systems.

- Making copies of records.

- Storing tapes/disks in insulated containers.

- Storing data off-site where they would not likely be damaged by an event affecting your facility.

- Increasing security of computer facilities.

- Arranging for evacuation of records to backup facilities.

- Arranging for backup power.

Community outreach
Involving the community

Your workplace's relationship with the community will influence your ability to protect personnel and property and return to normal operations.

It is vital to establish contact with:

- Fire, police and emergency medical services personnel.

- Hospitals.

- Red Cross/Red Crescent.

- Telephone company.

- Utility company, etc.

Again, depending on your workplace's operations and processes, it is advised to have regular meetings with community emergency personnel to review emergency plans and procedures.

Ensure that they are aware of the type of emergencies that could happen in your facility and the impact it could have on the community.

Identify ways you could help the community in a community-wide emergency and look for common interests and concerns. Also identify opportunities for sharing resources and information.

Involve community fire, police and emergency management personnel in drills and exercises.

Meet with neighbours to determine how you could assist each other in an emergency.

Mutual aid agreements

In order to avoid confusion and conflict in an emergency, it is vital to establish mutual aid agreements with local response agencies and business. These type of agreements should:

- Define the type of assistance needed.

- Identify the chain of command for activating the agreement.

- Define communication procedures.

Mutual aid agreements can address any number of activities or resources that might be needed in an emergency, e.g.:

- Providing for fire fighting and HAZMAT response.

- Providing shelter, emergency storage, emergency supplies, and medical support.

- Businesses allowing neighbours to use their property to account for personnel after an evacuation.

Community service

In a community wide emergency, business and industry often needs to assist with:

- Personnel.

- Equipment.

- Shelter.

- Training.

- Storage.

- Feeding facilities.

- Flood, clothing, building materials,

- Funding.

- Transportation, etc.

Although there is no way to predict what demands will be placed on your company's recourses, it is necessary to consider how the community's needs may influence your corporate responsibilities in an emergency.

Consider the opportunities for community service before an emergency occurs.

Public information

In the event of an emergency expanding beyond your workplace, the community will want to know:

- The nature of the incident.

- Whether the public's health and safety is in danger.

- What is being done to resolve the problem, and

- What was done to prevent the situation from happening?

It is vital to determine who may be affected by an emergency and identify their information needs. Include:

- The public.

- The media.

- Employees and retirees.

- Unions.

- Contractors and suppliers.

- Customers.

- Shareholders.

- Emergency response organisations.

- Regulatory agencies.

- Special interest groups.

- Neighbours.

Media relations

In an emergency, the media is the most important link to the public. You should develop and maintain positive relations with media outlets in your area. Determine their particulars needs and interest and explain your plan for protecting employees and preventing emergencies.

Determine how you would communicate important public information through the media in emergency. Consider:

- Designating a trained and alternative spokesperson.

- Setting up a media briefing area.

- Establishing security procedures.

- Establishing procedures for ensuring that information is complete, accurate and approved for public release.

- Determining an appropriate and useful way of communicating technical information.

- Preparing background information about the facility.

Information to the media

When providing information to the media, remember the following:

DO:
- Give all media equal access to information.

- Conduct press briefings and interview when appropriate. Give local and international media equal time.

- Try to observe media deadlines.

- Escort media representatives to ensure safety.

- Keep records of information released.

- Provide press releases when possible.

DO NOT:
- Speculate about the incident.

- Permit unauthorised personnel to release information.

- Cover up facts or mislead the media.

- Place blame for the incident.

Press releases about emergencies should describe who is involved and what happened, including when, where, why and how.

Recovery and restoration

Business recovery and restoration (business resumption), goes right to a company's bottom line – keeping people employed and the business running.

Planning considerations

It is important to consider contractual arrangements with vendors for post-emergency services, e.g.:

- Record preservation.

- Equipment repair.

- Earthmoving.

- Engineering, etc.

Meet with your insurance and discuss property and business continuation policies. You should also determine critical operations and formulate plans for bringing those systems back online. This process may involve:

- Repairing or replacing equipment.

- Relocating operations to an alternate location.

- Contracting operations on a temporary basis.

Ensure that you document company assets – either by taking photographs or videotape – and ensure that these records are updated on a regular basis.

Continuity management

You can assume that not every key employee will be readily available or physically at the workplace after an emergency.

Ensure that recovery decisions can be made without undue delay. Ensure that you consult your legal department (or obtain legal advice) regarding laws and corporate bylaws governing continuity of management.

Ensure that there are procedures established for:

- Assuring the chain of command.

- Maintaining lines of succession for key employees.

- Moving to alternate headquarters.

Remember to include the above in all exercise scenarios.

Insurance

Many companies discover that they are not properly insured once they have suffered a loss.

Lack of appropriate insurance can be financially devastating. Discuss the following with an insurance advisor to determine your company's needs:

- How will the property be valued?

- What perils or causes of loss does the policy cover?

- What are the deductibles?

- What are the requirements in the event of a loss?

- What types of records and documentation will the insurance company want to see? Are these records in a safe place where they can be obtained after an emergency?

- To what extent are the business covered for loss due to interruption of power?

- Are the business covered for lost income in the event of business interruption because of a loss? Is the coverage sufficient? For how long is coverage provided? How long is the coverage for lost income if the business is closed by order of a civil authority?

- To what extent are the business covered for reduced income due to losing customers once the business reopens?

- How will the business's emergency management programme affect the rates?

Employee support

Employees are a business's most valuable asset. They will rely on the business for support after an emergency and the following services should be considered:

- Cash advances.

- Salary continuation.

- Flexible/reduced work hours.

- Crisis counselling, etc.

Resuming operations

It is essential to take steps to resume operations immediately after an emergency.

- If necessary, establish a recovery team. Establish priorities for resuming operations.

- Continue to ensure the health and safety of all employees. Assess the remaining hazard and ensure security is maintained at the incident scene.

- Conduct an employee briefing.

- Keep detailed records. Consider audio recording any decisions and take photographs/video of the damage.

- Account for all damage-related costs and establish special job order numbers for purchases and repair work.

- Follow notification procedures. Notify employees' families about the status of employees on the premises. Also notify off-duty employees about the work status. Notify insurers and appropriate government agencies.

- Protect undamaged property. Close up building openings; remove smoke, water and debris; protect equipment against moisture and restore sprinkler systems. Physically secure the property and restore power.

- Conduct an investigation and coordinate actions with appropriate government agencies.

- Conduct salvage operations – separate damaged and undamaged property. Keep damaged goods until an insurance adjuster has visited the premises. However, damaged goods may be moved outside if it is seriously in the way and exposure to the elements will not make its condition worse.

- Take an inventory of damaged goods. This is usually done with the insurance adjuster or the adjuster's salvager if there is any appreciable amount of goods or value. If any goods are released to the salvager, obtain a signed inventory stating the quantity and type of goods being removed.

- Restore equipment and property.

- Assess the value of damaged property as well as the impact of business interruption.

- Maintain contact with customers and suppliers.

Administration and logistics

It is essential to maintain complete and accurate records at all times to ensure a more efficient emergency response and recovery. Some records may also be required by regulation, insurance carriers or provide invaluable in the event of any legal action after an incident.

Administrative actions

Administrative actions <u>before</u> an emergency includes:

- Establishing a written emergency management plan.

- Maintaining training records.

- Maintaining all written communications.

- Documenting drills and exercises and their critiques/feedback.

- Involving community emergency response organisations in planning activities.

Administrative actions <u>during and after</u> an emergency includes:

- Maintaining telephone logs.

- Keeping a detailed record of events.

- Maintaining a record of injuries and follow-up actions.

- Accounting for personnel.

- Coordinating notification of family members.

- Issuing press releases.

- Maintaining sampling records.

- Managing finances.

- Coordinating personnel services.

Documenting incident investigations and recovery operations.

Logistics

Logistics <u>before</u> an emergency may entail:

- Acquiring equipment.

- Stockpiling supplies.

- Designating emergency facilities.

- Establishing training facilities.

- Establishing mutual aid agreements.

- Preparing a resource inventory.

<u>During</u> an emergency, logistics may entail:

- Providing utility maps to emergency responders.

- Providing material safety data sheets to employees.

- Moving backup equipment in place.

- Repairing parts.

- Arranging for medical support, food and transportation.

- Arranging for shelter facilities.

- Providing for backup power/communications.

Hazard specific information

In this section we are going to discuss hazard specific information namely:

- Fire.

- Hazardous materials incidents.

- Technological emergencies.

- Floods and flash floods.

- Hurricanes.

- Tornadoes.

- Severe winter storms.

- Earthquakes.

Fire

Fire is the most common of all the hazards. Every year fires cause thousands of deaths and injuries and millions in property damage.

Planning considerations

Consider the following when developing your plan:

- Meet with the fire department to establish their fire response capabilities. Inform them regarding the company's operations. Identify processes and materials that could cause a fire.

- Have your workplace inspected for fire hazards and enquire about fire codes and regulations.

- Ask your insurance company for recommendations on fire prevention and protection measures.

- Distribute fire safety information to employees – how to prevent and contain a fire; evacuate the workplace and where to report a fire.

- Ensure employees receive the necessary training in the event of a fire.

- Conduct evacuation drills. Post maps of evacuation routes in prominent places and keep all routes, including stairs and doorways, clear of debris.

- Assign fire wardens for each area to monitor shutdown and evacuation procedures.

- Establish procedure for the safe handling and storage of flammable liquids and gases.

- Establish procedures to prevent the accumulation of combustible materials.

- Provide for the safe disposal of combustible materials.

- Establish a preventive maintenance schedule to keep equipment operating safely.

- Place fire extinguishers in appropriate locations.

- Train employees in the use of fire extinguishers.

- Install smoke detectors and check these at least once a month.

- Establish a warning system for fires. Consider installing a fire alarm with automatic notification to the fire department.

- Install a sprinkler system, fire hoses and fire-resistant walls and doors.

- Ensure that key personnel are familiar with all fire safety systems.

- Identify and mark all utility shutoffs to ensure that electrical power, gas or water can be shut off quickly by fire wardens or responding personnel.

- Determine the level of response in the event of a fire. Consider the following options:

  1. Immediate evacuation of all employees on alarm.

  2. All personnel are trained in fire extinguisher use. Employees in the immediate area of a fire attempt to control it. If not possible, the fire alarm is sounded and all employees evacuate.

  3. Only designated employees are trained in fire extinguisher use.

  4. A fire team is trained to fight incipient-stage fire that can be controlled without PPE. Beyond this level fire, the team evacuates.

  5. A fire team is trained and equipped to fight structural fires using PPE.

Hazardous materials incidents

Hazardous materials are substances that are either:

- Flammable or combustible.

- Explosive.

- Toxic.

- Noxious.

- Corrosive.

- Oxidizable.

- An irritant, or

- Radioactive.

Hazardous materials incidents

A hazardous material spill or release can pose a risk to life, health or property. An incident can result in the evacuation of a few people, a section of a workplace or an entire community.

Specified requirements on hazardous chemical substances (HCS) include legal and also site-specific requirements and are contained in one or more of the following documents:

- Legal codes and standards such as health and safety acts.

- Site specific:

  - Hazard Identification and Risk Assessment (HIRA).

  - Occupational Health and Safety and Environmental Management Programmes.

  - Management Instructions.

  - Standard Procedures – Hazardous Materials Procedure.

  - List of recorded occupational health and safety and environmental risks.

  - Working Guides.

  - Material Safety Data Sheets (MSDS's).

  - Equipment and Materials Specifications.

Any other applicable codes of practices.

  - A site **Hazardous Materials Coordinator** should be appointed at sites where hazardous materials are processed stored and handled. This person should be trained and be competent to understand and evaluate the risks associated with a wide variety of substances, and be able to identify where additional expert advice can be sourced.

    The individual should be responsible for assessing the hazardous properties and disposal requirements of materials used, monitoring the consumption and management of inventory, and also provide an "as needed" service to supply, warehousing, operational and health and safety personnel.

Planning considerations

Consider the following when developing your plan:

- Identify and label all hazardous material stored, handled, produced and disposed of by your facility. Ensure that you follow all legal requirements and obtain material safety data sheets (MSDS) for all hazardous materials.

- Ask your local fire department for assistance in developing appropriate response procedures.

- Train employees:

  - To recognise hazards material spills and releases.

  - In the proper handling and storage of hazardous materials.

- Establish a hazardous material response plan that include:

  - Procedures to notify management and emergency response organisations of an incident.

  - Procedures to warn employees of an incident.

  - Evacuation procedures.

  - Appropriate training for the emergency response team to confine and control hazardous material spills in accordance with applicable regulations.

- Identify other facilities in our area that use hazardous materials. Determine whether an incident could affect your workplace.

- Identify highways, railroads and waterways near your workplace used for the transportation of hazardous materials. Determine how a transportation accident could affect your operations.

Technological emergencies

Technological emergencies include any interruption or loss of a utility service, power source, life support system, information system, or equipment needed to keep the business in operation.

Planning considerations

Below are suggestions for planning for technological emergencies:

- Identify all critical operations including:

  - Utilities including electric power, gas, water, hydraulics, compressed air, municipal and internal sewer systems and waste-water treatment services.

  - Security and alarm systems, elevators, lighting, life support systems, heating, ventilation, air conditioning and electrical distribution systems.

  - Manufacturing and pollution control equipment,

  - Communication systems, both data and voice computer networks.

- Transportation systems, including air, road, railroad and waterway.

- Determine the impact of service disruption.

- Ensure that key safety and maintenance employees are thoroughly familiar with all building systems.

- Establish procedures for restoring systems. Determine need for backup systems.

- Establish preventive maintenance schedules for all systems and equipment.

Floods and flash floods

Some communities can experience some degree of flooding after spring rains, heavy thunderstorms or winter snow.

Most floods develop slowly over a period of days. Flash floods however, are like walls of water that develop in a matter of minutes. Flash floods can be caused by intense storms or dam failure.

Planning considerations

Consider the following when preparing for floods:

- Establish if your workplace is located in a flood plain. Learn the history of flooding in the area as well as the elevation of the workplace in relation to streams, rivers and dams.

- Review the community's emergency plan and ensure you are aware of all evacuation routes. Ensure that you also know where to find higher ground in the event of a flood.

- Establish warning and evacuation procedures for your workplace. Establish procedures for assisting employees who may need transportation.

- Inspect areas in you workplace subject to flooding. Identify records and equipment that can be moved to a higher location. Establish procedures to move records and equipment in the event of a flood.

- Listen and take note of any flood watches* and flood warnings* is already occurring or will occur soon).

- Ask your insurance company for information about flood insurance.

- Consider the feasibility of floodproofing your workplace.

Flood watches: Flooding is possible. Be prepared to evacuate. Stay tuned to radio/television broadcasts for additional information.

* Flood warnings: Flooding is already occurring or will occur soon. Take immediate precautions. Be prepared to go to higher ground. If advised, evacuate immediately.

Types of floodproofing

There are three basic types, namely:

1. Permanent floodproofing.

2. Contingent floodproofing.

3. Emergency floodproofing.

Permanent floodproofing

Permanent floodproofing measures are taken before a flood occurs and require no human intervention when flood waters rise. This includes:

- Filling windows, doors or other openings with water resistant materials, e.g. concrete blocks or bricks.

- Installing check valves to prevent water from entering where utility and sewer lines enter the workplace.

- Reinforcing walls to resist water pressure. Sealing walls to prevent or reduce seepage.

- Building watertight walls around equipment or work areas within the facility that are particularly susceptible to flood damage.

- Constructing floodwalls outside the facility to keep flood waters away.

- Elevating the workplace on walls, columns or compacted fill. This approach is most applicable to new constructions, though many types of buildings can be elevated.

Contingent floodproofing

Contingent floodproofing measures are also taken before a flood, but require some additional action when flooding occurs. Measures include:

- Installing watertight barriers called flood shields to prevent the passage of water through doors, windows, ventilation shafts or other openings.

- Installing permanent watertight doors.

- Constructing movable floodwalls.

- Installing permanent pumps to remove flood waters.

Emergency floodproofing

Emergency floodproofing measures are generally less expensive that those discussed above. They do however, require substantial advance warning.   Measures include:

- Building walls with sandbags.

- Constructing a double row of walls with boards and posts to create a 'crib', then filling the crib with soil.

- Constructing a single wall by stacking small beams or planks on top of each other.

It is advised to consider backup systems, i.e.:

- Portable pumps to remove flood water.

- Alternate power sources such as generators or fuel-powered pumps.

- Battery-powered emergency lighting.

It is also advised to participate in community flood control projects.

Hurricanes

Hurricanes are several tropical storms with sustained winds of +- 120 kilometres per hour and extent inland for hundreds or kilometres.
Hurricanes bring torrential rains and a storm surge of ocean water that crashes into land as the storm approaches. Hurricanes also spawn tornadoes.

Hurricane advisories are issued by the weather service as soon as it appears to be a threat.

Planning considerations

When planning and preparing for hurricanes consider:

- Asking and obtaining community evacuation plans.

- Establishing workplace shutdown procedures. Establish warning and evacuation procedures. Establish plans for assisting employees who may need transportation.

- Establish plans for communicating with employees' families before and after a hurricane.

- Listen for hurricane watches* and hurricane warnings*.

- Survey your workplace. Establish plans to protect windows. Permanent storm shutters offer the best protection. Covering windows with (+- 1.6 centimetres) marine plywood is a second option.

- Consider the need for backup systems:

  - Portable pumps to remove flood water.

  - Alternate power sources such as generator or fuel-powered pumps.

  - Battery-powered emergency lighting.

- Prepare to move records, computers and other items within your workplace or to another location.

Hurricane watches: A hurricane is possible with 24 to 36 hours. Stay tuned to radio/television broadcasts for additional information. An evacuation may be necessary

* Hurricane warnings: A hurricane will hit land within 24 hours. Take precautions at once. If advised, evacuate immediately.

Tornadoes

Tornadoes are incredibly violent storms that extend to the ground with whirling winds that can reach +- 483 kilometres per hour.

Generated from powerful thunderstorms, tornadoes can uproot trees, buildings and turn harmless objects into deadly missiles in a few seconds. Damaged areas can be in excess of 1.6 kilometres wide and 80 kilometres long.

Planning considerations

When planning for tornadoes consider the following:

- Enquire about the local tornado warning systems.

- Listen for tornado watches* and tornado warnings*.

- Establish procedures to inform employees when warnings are posted.

- Ask a structural engineer/architect to designate shelter areas in your workplace.

- Consider the amount of space you will need.

- The best protection against a tornado is usually an underground area. If such an area is not available, consider:

  - Small interior rooms/hallways on the lowest floor that is without windows.

  - Rooms constructed with reinforced concrete, brick or block with no windows and a heavy concrete floor/roof overhead.

  - Any protected areas away from doors and windows.

- Establish plans for evacuating personnel away from lightweight modular offices or mobile buildings. These types of structures offer no protection from tornadoes.

- Conduct tornado drills.

- Ensure every follow the correct procedures once in the shelter (protect heads with arms and crouch down).

Tornado watch: Tornadoes are likely. Be ready to take shelter. Stay tuned to radio/television broadcasts for additional information.

* Tornado warning: A tornado has been sighted in the area or is indicated by radar. Take shelter immediately.

Severe storms

Severe storms bring heavy snow, ice, strong winds and freezing rain. These types of storms can prevent employees and customers from reaching the workplace, leading to a temporary shutdown until the roads are cleared. Heavy snow and ice can also cause structural damage and power outages.

Planning considerations

Consider the following when preparing for severe storms:

- Stay tuned to radio/television broadcasts for information regarding severe storms.

- Establish procedures for workplace shutdown and early release of employees.

- Store the necessary emergency supplies for employees who may become stranded at the workplace.

- Arrange for ice and snow to be removed from parking lots, walkways, loading docks, etc.

Earthquakes

Earthquakes can:

- Seriously damage buildings and their contents.

- Disrupt gas, electric and telephone services.

- Trigger landslides, avalanches, flash floods, fires and tsunamis.

Aftershocks can occur for weeks following an earthquake.

The greatest danger to people in an earthquake is when equipment and non-structural elements, e.g. ceilings, partitions, windows and lighting fixtures, can shake loose.

Planning considerations

Consider the following when preparing for earthquakes:

- Add steel bracing to frames and sheer walls to frames.

- Strengthen columns and building foundations.

- Replace unreinforced brick filler walls.

- Follow safety codes when conducting construction or making major renovations.

- Inspect non-structural systems, e.g. air conditioning, communication and pollution control systems, etc. Assess the potential for damage and priories measures to prevent damages.

- Inspect your facility for any item that could fall, spill, break or move during an earthquake. Take steps to reduce these hazards:

  - Move large and heavy objects to lower shelves or the floor. Hang heavy items away from where people work.

  - Secure shelves, filing cabinets, tall furniture, desktop equipment, computers, printers, etc.

  - Secure fixed equipment and heavy machinery to the floor.

  - Add bracing to suspended ceilings if necessary.

  - Install safety glass where appropriate.

  - Secure large utility and process piping.

- Keep copies of design drawings of the workplace to assess the workplace's safety after an earthquake.

- Review processes for handling and storing of hazardous materials. Ensure that incompatible chemicals are stored separately.

- Enquire about earthquake insurance and mitigation techniques.

- Establish procedures to determine whether an evacuation is necessary after an earthquake.

- Designate areas away from exterior walls and windows where occupants should gather after an earthquake if an evacuation is not necessary.

- Conduct earthquake drills. Provide employees with the following safety information:

  - If indoors, stay there. Take cover under sturdy furniture or counter, or brace yourself against an inside wall. Protect your head and neck.

  - If outdoors, move into the open, away from buildings, street lights and utility wires.

  - After an earthquake, stay away from windows, skylights and items that could fall. Do not the elevators.

  - Use stairways to leave the building if it is determined that a building evacuation is necessary.

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