

# 9

## Emergency response: Principles to public authorities

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This chapter provides principles on the role of public authorities in the response to chemical accidents. The focus of the activities described here is primarily the local area where an accident has occurred; the public authorities addressed here therefore include local response authorities (e.g. fire, emergency medical and police) and local/regional government agencies, as well as health/medical facilities. If accidents escalate, authorities should be aware that regional, national and transboundary plans may need to be triggered.

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## Activate the offsite emergency plan

When alerted to a chemical accident, response authorities should activate their emergency plan.

- The objective is to put into place the arrangements needed to localise the accident and, if possible, contain it and minimise the harmful effects on health, the environment and property.
- Authorities should activate the measures in the emergency plan to alert the public who may be affected by the accident. Authorities should ensure that the public is informed about what actions they need to take and are kept updated as the situation changes.

The systems that have been defined in the emergency plan should be activated as required to obtain the equipment, specialists and other resources needed for the response. This could include obtaining assistance, as needed, from regional or national authorities, or from emergency responders in neighbouring or other appropriate communities, or the international community.

Public authorities, at the regional or national level, should support local response operations to the extent possible to help protect health, the environment and property. Such support could include but is not limited to:

- Providing technical, scientific, policy, meteorological and legislative information and advice to response personnel.
- Undertaking inspections and sampling to determine the extent of contamination.
- Identifying environmental resources and animals at risk, spill behaviour predictions, weather forecasts and priorities for protection.
- Providing guidance on the protection and clean-up of affected wildlife.

## Call on the on-scene co-ordinator

The on-scene co-ordinator should decide on the immediate actions to take to avoid or limit exposure of humans to hazardous substances, both on and off site, including measures to avoid contamination of emergency responders. The on-scene co-ordinator should obtain information and advice from the management of the hazardous installation, as well as from other experts, concerning how best to protect health, environment and property from the hazardous substances involved in the accident.

The site incident controller or on-scene co-ordinator is the person responsible for taking control at the scene of the incident. The person should have a thorough knowledge of the facility and the situation. A suitable job function to fill this role is the establishment manager, shift manager or shift supervisor.

For cases where the response requirements go beyond what was foreseen in the emergency plan, or other difficulties are encountered, the on-scene co-ordinator should seek assistance. This assistance could include information from outside specialists who may be able to provide fast reliable information. In the event an accident cannot be controlled using local response resources, requests should be made to get support from, as appropriate, neighbouring communities, regional or national authorities, other countries, industrial networks or the international community.

It is important that decisions concerning appropriate actions may change over time, in light of changes in the circumstances and availability of updated information. Any type of response (including limited intervention) requires appropriate monitoring and follow-up to ensure that all consequences are recognised and actions, where needed to protect health and the environment, are undertaken.

## Establish systems to provide real-time information to assess response

Systems should be accessed to provide immediate, on-the-spot information that can be used to assess and respond to an emergency. In addition, systems should be used for the collection, dissemination and updating of information that is to be made available to health/medical personnel and other relevant parties as the emergency response progresses, including medical information or advisories given to the public via the media.

The information to support response actions includes:

- Information to be provided via the onsite co-ordinator (company) to the incident commander (emergency responder):
  - Information on the quantity and nature of the hazardous substance(s) involved in the accident.
  - Potential for further accidents or escalation of events.
  - Information on the expected number and types of patients, the nature of their injuries and the severity of exposure.
- Information to be made available through electronic databases or safety data sheets (SDS):
  - Physicochemical properties; the possible transformation or degradation products of the substance(s), such as when in contact with water or through pyrolysis; toxicological and eco-toxicological properties; clinical effects, including acute, delayed and long-term effects; and risk assessments.
  - Information on how to fight fires and/or manage the chemical spill.
  - Guidance concerning the levels of acute exposure to various hazardous substances, likely adverse effects, and methods for protecting against such effects.
  - Information on first aid and medical treatment; the nature of the information should be appropriate for the target audience including, for example, the lay (not medically qualified) person, the general practitioner and the specialised medical expert (such as an intensive care professional).
  - Means of transporting victims.
  - How and when to contact essential services, including central authorities, local authorities, police, fire and other rescue services.
    - Who has the local co-ordinating role in an emergency and the criteria that determine the transfer of command-and-control to a higher authority.
    - Lists of experts (from industry, public authorities, etc.) who can advise on particular hazardous substances or groups of hazardous substances.
    - The medical information or advisories provided to the public via the media.
- This information should be provided via the onsite co-ordinator (company) to the incident commander (emergency responder).

## Establish zones at the accident scene

On the arrival of the emergency responders at the place of the accidents, danger/safety zones should be established. These zones are established primarily to reduce the accident's spread of hazardous substances and to delineate areas where emergency responders can operate without special protective equipment. A system of establishing *hot, warm and cold zones* should be defined in the external emergency plan together with the appropriate measures that must be adopted. This should be co-ordinated with the internal emergency plan. This system helps organise the response at the accident scene (Box 9.1).

### Box 9.1. Hot zone, warm zone and cold zone

#### Hot zone

- The area where the risk for contamination and the probability of exposure to hazardous substances is highest. Possible life-threatening injury.
- The area closest to the accident/source of the leakage of hazardous substances.
- Only emergency responders with the right skills and the highest protective equipment can work in this zone.
- Evacuation of patients to a safe zone, stabilisation of the incident and necessary technical efforts.
- The size of the zone depends on the properties of the substances involved, sizes of leakage, related hazards and risks.

#### Warm zone

- Possible contamination and light symptoms/signs of illness.
- Treatment and decontamination of patients. At the first triage, life-saving intervention and then decontamination only if the patient is visibly contaminated.
- Requirements for respiratory protection and protective clothing for responders due to contamination from patients.
- Ambulance personnel with protective equipment and training can be a resource inside the warm zone and do triage and treatment of decontaminated patients.
- Establish decontamination station.
- Mass decontamination to be organised if needed.

#### Cold zone

- No specific demand for protective equipment.
- Possible place for incident commander centre.
- The zone marks the outer barrier of the scene of the accident.
- Demarcation towards activities outside the scene of the accident and the public.

## Organise response for health impacts

Recognising that immediate response decisions tend to be primarily driven by the need to protect people from acute toxic effects, response decisions should also take into account the possible long-term or delayed effects on health from exposure to hazardous substances (direct and indirect) and possible environmental impacts. Information should be available to support decision-making concerning how to treat people who have been exposed to chemicals and may have long-term, delayed or unobserved adverse effects.

Hospitals and other treatment facilities should put their emergency plans and their part of the community emergency plan into effect as soon as they are alerted that there is a possibility of patients arriving as the result of a chemical accident.

Health/medical personnel and facilities should be part of the overall response team and part of the information chain, in order to provide and receive information as appropriate.

- Hospitals and other treatment facilities that may be involved in responding to an accident should be provided, as soon as possible, with information on the hazardous substance(s) involved, the type of accident (spill, fire, etc.), the likely number of victims and the nature of their injuries.
- For the appropriate treatment of exposed victims, health/medical personnel should have access to specialised information and should consult, as appropriate, with a variety of specialists (for example, toxicologists, lung and respiratory specialists, ophthalmologists, haematologists and occupational health physicians).

Following an accident, there should be psychological support at an early stage, where appropriate. Specifically, professionals/counsellors with psychiatric, psychological or psycho-social training should be available in a timely manner.

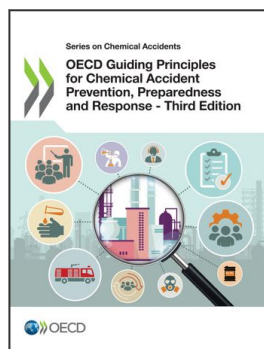
The planning process should take into account the role of other caregivers in providing emotional and psychological support (e.g. clergy, funeral directors), in particular in communities without access to adequate numbers of psychologists or psychiatrists.

In high-risk areas, epidemiological data and internationally accepted instruments for the assessment of mental health impacts should be available so that monitoring can take place following an accident.

When an accident results in death(s), any people handling the remains (such as response personnel, medical examiners and morticians) should be protected against possible contamination from the hazardous substances. Someone should be designated in the emergency plan with the responsibility for providing information and assistance to people handling human remains.

## Document decisions and actions

The organisations involved in the response should document decisions and actions taken during the response to an accident in order to be able to review the effectiveness of the intervention, learn from experience, improve emergency plans, have input into an investigation and learn lessons for future response activities.



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