

**MANUAL: JOINT MANAGEMENT OF
INCIDENTS INVOLVING CHEMICAL
OR BIOLOGICAL AGENTS OR RADIO-
ACTIVE MATERIALS**

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INTRODUCTION

1. The purpose of this manual is to describe the joint management of incidents involving chemical or biological agents or radioactive materials (CBR).

Actions that may have an influence on more than one role player will be discussed in detail while actions with no influence on other role players will be addressed in less detail or not at all.

2. The manual is divided into four parts:
 - a. Part I covers the general principles and guidelines that are applicable under all circumstances
 - b. Part II covers incidents involving chemical agents.
 - c. Part III covers incidents involving biological agents.
 - d. Part IV covers incidents involving radioactive materials.
3. Parts II and IV, chemical and radiological incidents, cover non-criminal as well as criminal incidents while the part on biological agents only addresses criminal incidents.

PART I

GENERAL PRINCIPLES

INTRODUCTION

The principles and procedures described in this part are applicable to all incident categories. Where there may be any deviations, such deviations will be pointed out in the part on the specific incident category.

1. Incident Categories

2. Chemical incidents are divided into:

- a. Non-criminal incidents
 - i. Transport related incidents (road, rail, air and marine incidents).
 - ii. Other: - Pipelines, facilities with hazardous substances etc.
- b. Criminal incidents
 - i. Incidents involving structural damage
 - ii. Incidents where no structural damage has occurred
 - iii. Incidents leading to adverse environmental impacts.

3. Biological Incidents

4. Radiological incidents are divided into:

- a. Non-criminal incidents
 - i. Transport related incidents (mainly road accidents)
 - ii. Industrial incidents i.e. loss of sources /shielding in public domain
- b. Criminal incidents
 - i. Radioactive materials dispersed by explosion.

CHAPTER I

MODES OF OPERATION

The modes of operation utilised in this manual have initially been developed for Fire Brigade Services but they are applicable for incidents involving all types of hazardous materials.

The Incident Command will determine the mode of operation to be followed to manage an incident. In determining a mode of operation, the safety of the first responders is the priority consideration to be taken.

There are three modes of operation described. These are;

- non-intervention,
- defensive and
- offensive.

NON-INTERVENTION OPERATIONS

1. Non-intervention operations are those operations in which the responders take no direct actions to control the incident and the cause of the actual problem. Not taking any action is the only safe strategy in many types of incidents. An example of non-intervention is when a pressure vessel exposed to fire cannot be adequately cooled or kept cool. In such incidents, responders should withdraw to a safe distance. The non-intervention mode is selected when one or more of the following circumstances exist:
 - a. The facility or Local Emergency Response Plan (LERP) calls for it, based on a pre-incident evaluation of the site.
 - b. The situation is clearly beyond the capabilities and/or training of first responders.
 - c. Explosions are imminent.
 - d. Serious container damage threatens a massive release of the hazardous material.
 - e. When a radioactive source has been detected on the scene.
2. When operating in the non-intervention mode, responders will take the following actions:
 - a. Withdraw to a safe distance.
 - b. Report scene conditions to dispatch, their control or senior officer.
 - c. Establish scene control.
 - d. Request the support of relevant specialist functionaries.
 - e. Initiate the incident management system.

- f. Initiate evacuation where needed.
- g. Call for additional resources.
- h. Remain up-wind from the incident at a safe distance.

DEFENSIVE OPERATIONS

- 3. Defensive operations are those in which the responders seek to confine the emergency to a given area, without directly contacting the materials causing the emergency. This mode of operation is the upper limit of risk that first responders may take at the operational level. The defensive mode is selected when one of the following circumstances exists:
 - a. The facility or LERP calls for it based on a pre-incident evaluation of the hazards present at the site.
 - b. The responders have the training and equipment necessary to confine the incident to the area of origin (a minimum of hazardous materials operational level according to NFPA 472).
- 4. When operating in the defensive mode, responders will take the following actions:
 - a. Report scene conditions to dispatch, their control or senior officer.
 - b. Establish scene control.
 - c. Initiate the incident management system.
 - d. Establish and indicate zone boundaries.
 - e. Commence evacuation where needed.
 - f. Control material spread by diverting it to a safe location.
 - g. Construct dikes or dams to confine the materials.
 - h. Control ignition sources.
 - i. Call for additional resources.

OFFENSIVE OPERATIONS

- 5. Offensive operations are those in which responders take aggressive, direct action on the material, container, or process equipment involved in the incident. These operations may result in contact with the material and therefore require responders to wear appropriate protective clothing and respiratory protection. Offensive operations are beyond the scope of responsibilities for first responders and are conducted by more highly trained HAZMAT personnel (Preferable hazardous materials technicians or off-site specialist in accordance to NFPA 472).

CHAPTER II

INCIDENT LEVELS

Incident levels are used to classify incidents in a manner that will indicate the level of response required to manage a specific incident

LEVEL I INCIDENT

1. A Level I incident is the least serious and the easiest to handle. It poses no immediate or serious threat to life or property. This type of incident is within the capabilities of the fire department or other first responders having jurisdiction.
2. Local resources (fire, EMS, SAPS and Traffic police) should be able to manage the incident
3. The following are examples of Level I incidents:
 - a. Small amount of gasoline or diesel fuel spilled from an automobile.
 - b. Leak from the domestic/distribution low pressure natural gas line on the upstream and downstream side of the consumer/customer meter unit/station.
 - c. Broken containers of “consumer commodity” such as paint, thinners, bleach, swimming pool chemicals, and fertilizers.
 - d. Parcel containing suspicious powder. Cognisance must be taken of the fact that such an incident can be elevated to a level II incident if there is any indication of possible spread of powder.
 - e. The owner or proprietor is normally responsible for cleanup and disposal in the case of chemicals where no criminal activity is suspected.

LEVEL II INCIDENT

4. A level II incident is an incident involving a greater hazard or larger area than level I that poses a potential treat to life and property and is beyond the capabilities of the first responders on the scene and may be beyond the capabilities of the first response agency having jurisdiction. Level II incidents require the services of formal HAZMAT, biological and/or radiological response personnel with or without specialist functionary support. Evacuation, if required, will be limited to the affected area. Properly trained and equipped response personnel could be expected to respond in the following manner:
 - a. Use of the relevant personal protective ensemble.
 - b. Dike and confine within the contaminated areas.

- c. Perform plugging and patching.
 - d. Sample and test unknown substances.
 - e. Perform various levels of decontamination.
 - f. Remove casualties from the contaminated area.
5. The following are examples of Level II incidents:
- a. Spill or leak requiring limited evacuation.
 - b. Any major accident, spillage, or overflow of flammable liquids.
 - c. Spill or leak of unfamiliar or unknown chemicals.
 - d. Accident involving hazardous substances with limited danger to life and property.
 - e. Rupture of an underground pipeline.
 - f. Fire that is posing a hazardous materials threat.
 - g. Presence of an unshielded radioactive source or radioactive contamination (industrial or transport accidents).
 - h. Parcel containing suspicious powder.

LEVEL III INCIDENT

6. A Level III incident is the most serious of all HAZMAT incidents. These incidents require resources and specialist inputs from local, provincial and national government and/or the private sector. Evacuation may be required. Most likely, the incident will not be concluded by any one agency. Successful handling of the incident will require a collective effort by:
- a. Specialists from industry and governmental agencies.
 - b. Sophisticated sampling and monitoring equipment.
 - c. Specialized leak and spill control techniques.
 - d. Large scale decontamination will be required.
 - e. Exposure management.
7. The following are examples of Level III incidents:
- a. Those that require an evacuation where evacuated persons require protection or accommodation over a prolonged period
 - b. Those that require an evacuation extending across jurisdictional boundaries.

- c. Incidents beyond the capabilities of the local HAZMAT response team.
- d. Incidents that activate, in part or in whole provincial or, national resources.
- e. Explosion associated with dispersal of radioactive material.
- f. Explosion associated with dispersal of natural gas.
- g. Criminal incidents involving chemicals biological agents or radioactive materials.

CHAPTER III

COMMAND AND CONTROL

SECTION I: INCIDENT COMMAND

ESTABLISHMENT OF AN INCIDENT COMMAND POST (ICP)

- a. The agency arriving on scene first must, as soon as is reasonably possible, establish an Incident Command Post (ICP) and indicate the position of the ICP by an orange and red rotating light or placing a traffic cone (if no rotating light is available) on a vehicle's roof. The ICP must be situated in such a position that access control and other administrative activities can be easily administered. The ICP can also be housed in a building or other structure depending on the availability thereof and the circumstances.
- b. The senior member of the agency arriving first must act as incident commander until the official incident commander has been appointed. This member remains in control of the scene until he/she can hand the scene over to the incident commander. One of the agency commanders will assume the position of the incident commander in accordance with the guidelines provided in paragraph 14 below. Upon the handover of the scene to the incident commander, the first member must brief the incident commander on the activities at the scene and give a final SITREP to the dispatcher, or controlling officer after handing over the scene.
- c. The Incident Command (IC) will consist of a command team made up by a representative from each agency represented at the scene. This representative must be able to take decisions on behalf of his/her agency and have them executed. The agency representative must be available at all times at the ICP. Should a member of the ICP have to leave, he must inform the Incident Commander and make alternative arrangements for representation. All arriving disciplines must report to the ICP and identify their representative at the IC.
- d. In the case of an incident that involves radioactive substances, a radiation protection specialist (RPS) must form part of the IC. The RPS shall determine if any additional technical staff is required to support the control of the incident.
- e. Depending on the size of the incident, the ICP staff should consist of the following, in addition to the agency representatives:
 - i. Safety officer
 - ii. Weather officer
 - iii. Support coordinator
 - iv. Public liaison officer
 - v. Communications officers
 - vi. Technical advisors.

- f. It is important that cognisance be taken of the fact that the IC is in overall command of the incident. Each discipline will still have its own functional command structures in order to execute their specific duties and responsibilities on the scene effectively.
- g. The main role of the IC is to coordinate all actions on the scene and to control activities that may have mutual effects.

APPOINTMENT OF AN INCIDENT COMMANDER

- 8. The following general rule should be applied to determine which agency is in overall command:
 - a. In cases involving hazardous materials where there is no criminal activity suspected the fire service (HAZMAT) is the lead agency and the senior HAZMAT person will be the incident commander.
 - b. In all cases where criminal activity is suspected the SAPS is the lead agency and the senior police officer will be incident commander.
 - c. When there is any uncertainty as to whether there is criminal activity involved, the senior HAZMAT person will be incident commander.
- 9. The IC is a joint decision making body and should take consensus-based decisions; however the final responsibility rests with the incident commander, who should take the final decisions if consensus can't be reached.
- 10. All commanders of joint elements, such as safety zone, transport park, access and egress control should be supplied by the lead agency where possible. If the lead agency is not able to supply a commander(s), the IC will appoint a commander from available personnel.
- 11. Personnel for joint elements should be drafted from participating agencies.

FUNCTIONS OF THE ICP

Incident Commander

- 12. The incident commander is responsible for the overall management of the incident; chairs the incident command meetings and must make the final decisions. The incident commander is responsible for the following:
 - a. Accepting the handover from the acting incident commander and assume control of the scene.
 - b. Reviewing command responsibilities.
 - c. Confirming the operational mode and level of incident.
 - d. Determining incident objectives and strategy.
 - e. Establishing the immediate priorities.
 - f. Ensuring planning meetings are scheduled.

- g. Approving and authorizing the implementation of an action plan for the management of the incident.
- h. Ensuring that adequate safety measures are in place and enforced.
- i. Coordinating activity for all command and general staff.
- j. Keeping authorities informed of incident status.
- k. Authorizing release of information to the news media.
- l. Ratifying safety zones.
- m. Establishing incident command post if not yet established.
- n. Confirming deployment of agencies in the cold zone.
- o. Establishing communication between the zones, agency command posts and rear command posts/dispatch.
- p. Confirming access and egress routes, ensuring traffic control.
- q. Ensuring that records are kept of activities on scene and decisions made.

Agency Representatives

- 13. The agency representatives all participate in the incident command meetings and decision-making.

Safety Officer

- 14. The safety officer advises the incident commander on all matters related to the health and safety of those involved in site operations, establishes and directs the safety program. He/she must stay free of other responsibilities that may draw attention away from the scene safety.
- 15. The safety officer reports directly to the Incident Commander and has full authority to terminate, suspend or alter any unsafe condition or action. The safety officer must have the necessary technical knowledge to fulfil the function and is appointed by IC from the available personnel.
- 16. The safety officer's function is to develop and recommend measures for assuring personnel safety and to assess and/or anticipate hazardous and unsafe situations. In this regard the safety officer must:
 - a. Review common responsibilities
 - b. Participate in planning meetings
 - c. Identify hazardous situations associated with the incident
 - d. Review the Incident Action Plan for safety implications

- e. Exercise emergency authority to stop and prevent unsafe acts
 - f. Investigate accidents that have occurred within the incident area
 - g. Assign assistance as needed.
17. The Safety Officer may utilize any previous Safety Sector Officers and other specialists available to his/her best advantage, coordinating resources and incident assignments as approved by IC.
18. It will be the responsibility of IC to establish a strategy/action plan that includes a safety plan for the incident. This safety plan must be communicated to the Safety Sector and other sector officers. IC may request the Safety Officer to develop and recommend an appropriate safety plan. The Safety Officer must remain a part of the on-going planning process with command and/or the Planning Section Chief.
19. **Guidelines for the Safety Officer:**
- a. Obtain briefing from the incident commander.
 - b. Identify hazardous situations associated with the incident.
 - c. Review incident action plans.
 - d. Identify potentially unsafe conditions.
 - e. Investigate accidents that have occurred within the incident area.
 - f. Exercise emergency authority to stop or prevent unsafe acts.
 - g. Ensure that the buddy system is being used as applicable.
 - h. Determine with the incident commander and applicable sector commanders the levels of entry protection and decontamination protection required.
 - i. Review the approved medical plan.
 - j. Keep abreast of all activities in the exclusion zone.
20. The Safety Officer will intervene in scene operations in event of both life threatening and non-life threatening situations.
- a. Life Threatening Conditions. Any life threatening condition must be corrected immediately and directly. Where time permits, IC must be notified and corrective action initiated immediately by IC. In obvious life threatening situations that do not allow time for IC intervention, the Safety Officer shall immediately stop any action, or countermand any order that may influence safety directly. Such action may be taken with the understanding that the Safety Officer works for IC and is accountable to IC for actions taken. IC must immediately be advised of any direct intervention by the Safety Officer.

A change of strategy and/or tactics by IC or Agency Commanders may be required as a result of the Safety Officer's actions. Agency Commanders must be notified of hazards, required safety corrections or changes to the strategic plan, tactics, and objectives.

- b. Non-Life threatening Conditions. IC must be kept abreast of any and all corrections that affect overall site operations, or the strategic plan, via frequent and timely progress reports. The second approach is for non-life threatening situations and involves a more "one on one" correction of safety problems with individuals involved and often does not affect incident strategy. This approach is the most frequent type of interaction. Where corrective action does not affect IC strategy, IC need not be notified. Corrected items should, however, be noted for discussion at a future debrief on the incident.

Admin Support

21. Each discipline (agency) is responsible for its own logistics and admin.
22. The admin support of the IC is provided by the lead agency and is responsible for:
 - a. Provision of secretarial functions to the IC
 - b. Keeping record and track of resources allocated from external organisations or stakeholders that are not represented in the IC.

Communications officers

23. Communication plays a major role to ensure effective incident management due to multi-agency use of the ICS. It is important to determine the required radio frequencies and to ensure that the communication network can be utilized to its maximum potential and capability.
24. The communication officers should attend all incident-planning meetings to ensure that tactical operations planning can be supported by available incident communications systems.
25. Agencies will use their own communication and network systems for internal communication. When a JOC is established the agencies must establish their own communication links with their representatives in the JOC. The communication link of the agency that is in command will become the command link.
26. A dedicated communications officer must be appointed for management of the IC communication. This officer must maintain a communications log for the duration of the incident. The communication officer will be responsible for establishing communication links (usually via radio) with the relevant services and support structures relative to the particular discipline.
27. It is ideal for services with an identified need to allocate dedicated staff to perform the functions of communications officers, thereby freeing the incident managers to concentrate on co-ordinating activities.

Information Officer

28. The information officer is responsible for the collection, evaluation and dissemination of tactical information about the incident. The information officer is also responsible for developing and releasing information about the incident to agencies involved and to other appropriate organizations.
29. Only one information officer will be assigned for each incident. He/She may have assistants as necessary, and the assistants may also represent different organizations or disciplines.
30. The information officer needs to gather and analyse all data regarding identified or probable contaminants, incident operations and assigned resources; developing alternatives for tactical operations gather and provide specialist information, etc.
31. Responsibilities may include the following:
 - a. Review common responsibilities.
 - b. Establish information requirements and reporting schedule.
 - c. Determine from the IC if there are any limits on information released.
 - d. Obtain information that may be useful to incident planning.
 - e. Maintain and provide relevant information on status of incident to assigned personnel.
 - f. Gather tactical information and provide tactical expertise where applicable.
 - g. Provide assistance to the IC by providing input in preparing the incident action plan.
 - h. Determine the need for any specialized resources in support of the incident.
 - i. Compile and display incident status information.
 - j. Assemble information on alternative strategies

Public Information Officer (PIO)

32. It is important to establish and maintain a positive operating relationship with the news media. A PIO must be available on each level of joint command to act as spokesperson for the joint response to the incident.
33. A PIO must be appointed by IC as the spokesperson for the joint response at the scene. Usually a PIO of the lead agency will fulfil this role. This person must liase with the various liaison officers of each line function agency to ensure that a coordinated message is conveyed to the Disaster

Management Centre of the District or the Metropolitan municipality, the media and the public. A focal point comprising of the relevant public information officers should be established for this purpose.

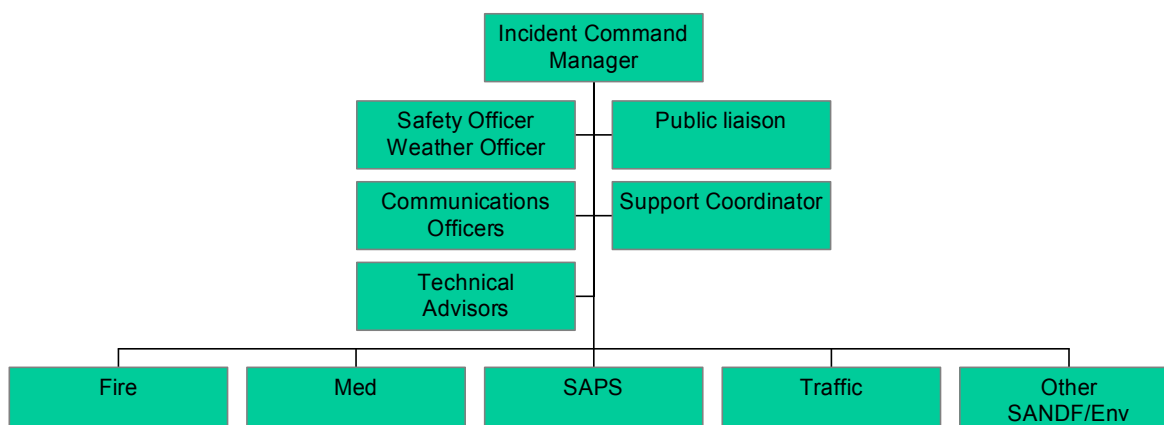
34. The PIO is responsible for:
- Liaison with and control of the media on the scene.
 - Coordinating information dissemination.
 - Ensuring that the release of public information is coordinated between crisis and consequence management response entities.
35. There must be a designated area, situated away from operational activities, for the media to gather.

Technical Advisors

36. Technical advisors may be utilised by IC during the execution of the operation.
37. Various kinds of specialists, which may be required for assistance by the information officer:
- Environmental impact specialist
 - Product specialists
 - Structural Engineer
 - Radiation specialist
 - Explosives specialist, etc
 - Others as required.

Fig 1

Incident command structure



ACCOUNTABILITY

38. This procedure identifies a system of incident site personnel accountability. The purpose is to account for all personnel, at any given time, within the controlled areas of an incident. Use of the system will provide enhanced personal safety for the individual and will provide IC an improved means of tracking and accounting for all personnel working on the scene.
39. Accountability involves a personal commitment to work within the safety system at an incident. IC must always maintain accurate tracking and awareness of where resources are committed at an incident and include accountability as a major element in planning. IC must also consider and react to any barriers that could affect accountability.

General Principles

40. Agency Commanders must always maintain an accurate tracking and awareness of their personnel. Each agency should appoint an officer who would be responsible for accountability of its members on the scene.
41. All crews entering the hot zone must work for IC or an agency - no free-lancing must be allowed.
42. Crews should remain intact for all intents and purposes. A minimum crew size will be considered two members (the buddy system). A radio will be required.
43. All crews entering a hot zone must be supervised by a designated supervisor or other ranking individual.
44. Crews must enter together, stay together, and exit together. Reduced visibility and increased risk will require very tight togetherness.
45. If a radio fails while in the hot zone, the crew will exit, unless there is another working radio with the crew and report to Command as soon as possible.

Passports

46. To enhance accountability and to improve tracking of personnel in the hot zone, a "Passport" system can be used. The passport system involves each member having a nametag and a control board to which the nametags of persons in the hot zone are pinned. The objective of the passport system is always to have the crewmember's passport near the point of entry, reflecting only those members entering the hot zone. The following must be adhered to:
 - a. Members must turn in their passports upon entering and must retrieve their passports upon exiting from the hot zone.
 - b. Passports never enter the hot zone. Passports must be maintained at the point of entry to the hot zone.
 - c. Passports must reflect only those personnel present in the hot zone.
 - d. The accountability status board will contain only the passports of those crews in the hot zone.

Personnel Accountability Report

47. The Personnel Accountability Report (or "PAR") involves a roll call of personnel assigned. A personnel accountability report will be required for the following situations:
- a. Newly arriving elements after reporting on-scene or elements staged.
 - b. Any report of a missing or trapped member (Command initiates a PAR of all crews on the scene).
 - c. Any change from offensive to defensive actions (Command initiates a PAR of all crews on the scene).
 - d. Any sudden hazardous event at the incident - flash over, back draft, collapse, etc. (Command initiates a PAR of all crews on the scene).
 - e. By all crew(s) reporting an "all clear" (Officers of crews responsible for search and rescue will ensure they have a PAR for their crews at the time they report an all clear).
 - f. At every 30 minutes of elapsed time.

SECTION II: JOINT OPERATIONS CENTRE (JOC)

48. In major incidents a higher command element, the Joint Operations Centre (JOC) deploys in a safe area away from the incident. All agencies involved must be represented in the JOC. The representative from disaster management coordinates the actions in the JOC. The JOC is responsible for overall control and management of the incident.

SECTION III: DISASTER MANAGEMENT

49. Irrespective of whether a local state of disaster has been declared or not, the local municipality is primarily responsible for the co-ordination and management of level III incidents and disasters that occur in its area (Disaster Management Act, 2002, Section 54).
50. If a disaster has occurred, or an event has the potential to become a disaster, the municipality will decide which department is responsible for the coordination and management of the disaster via the Disaster Management Centre.
51. When a disaster occurs it is imperative that there is no confusion as to the chain of command. Coordinated command and control is the key to successful Disaster Management. In accordance with the Disaster Management Act (Act 57 of 2002) responsibility for this function will rest with the Head of the Disaster Management Centre.

THE DISASTER MANAGEMENT CENTRE (DMC)

52. The DMC will be activated at the appropriate level (national, provincial and metropolitan/district). The Head of the DMC will ensure that all individuals on the team execute their SOPs. The standard operating protocol/procedure (SOP) for the DMC will be to:

- a. Maintain records of communication, decisions, actions, and expenditure.
- b. Designate disaster areas and sites.
- c. Decide on emergency measures and priorities.
- d. Assess impacts of the disaster.
- e. Request emergency partner assistance or invoke mutual aid agreements.
- f. Close public buildings.
- g. Issue public warnings, orders and instructions.
- h. Protect the health and safety of the emergency responders.
- i. Ensure an acceptable level of emergency service for the Local Authority outside the disaster areas.
- j. Prepare a list of fatalities, casualties, and missing persons.
- k. Prepare a list of destroyed and damaged property.
- l. Coordinate response with the Provincial Disaster Management Centre through the Local authorities' Disaster Management Centre.
- m. Coordinate response with non-governmental disaster relief organizations, neighbourhood and community organizations.
- n. Identify persons and organizations to contribute to the emergency response.
- o. Provide information to the media for dissemination to affected communities and the general public.
- p. Coordinate information for public release with emergency partners' communication staff.
- q. Respond to inquiries from the media and the public.
- r. Identify target audiences for post-disaster communication.
- s. Identify persons and organizations to contribute to post-disaster reports and debriefings.
- t. Submit information for payments of invoices.
- u. Submit reports to the National and Provincial Disaster Management Centres.

53. Requests for Assistance. The DMC team will be the consultative body that will set-out the parameters and the protocols for the requesting of external assistance from the individual team members' departments, private sector, organizations, neighbouring district municipalities, and from national and provincial spheres of governance.

PROCEDURES FOR ACTIVATING INCIDENT OR DISASTER CONTINGENCY AND RESPONSE PLANS FOR CHEMICALS, BIOLOGICAL OR RADIOACTIVE MATERIALS

54. The Head of the Disaster Management Centre will:
- set up a Disaster Operations Centre (DOC); and
 - ensure that all key personnel are notified to participate in the DOC.
55. The DOC is an entity at the strategic level at which a collective body of relevant role players gathers to coordinate the response to a disaster. The DOC venue is a component of the Disaster Management Centre and strategic actions are generally taken in the DOC. However, circumstances may arise when it is necessary to convene the DOC at an alternative or more appropriate location/venue.
56. The DOC team will be responsible for the assessment, evaluation and coordination of all actions in all phases of the disaster.
57. Requirements for external assistance and back-up resources to the disaster scene must be channelled from the Incident Command Post (ICP) on the scene and Joint Operational Centre (JOC) to the DOC for execution.

Fig1

DISATER MANAGEMENT STRUCTURE



CHAPTER IV

DISPATCH

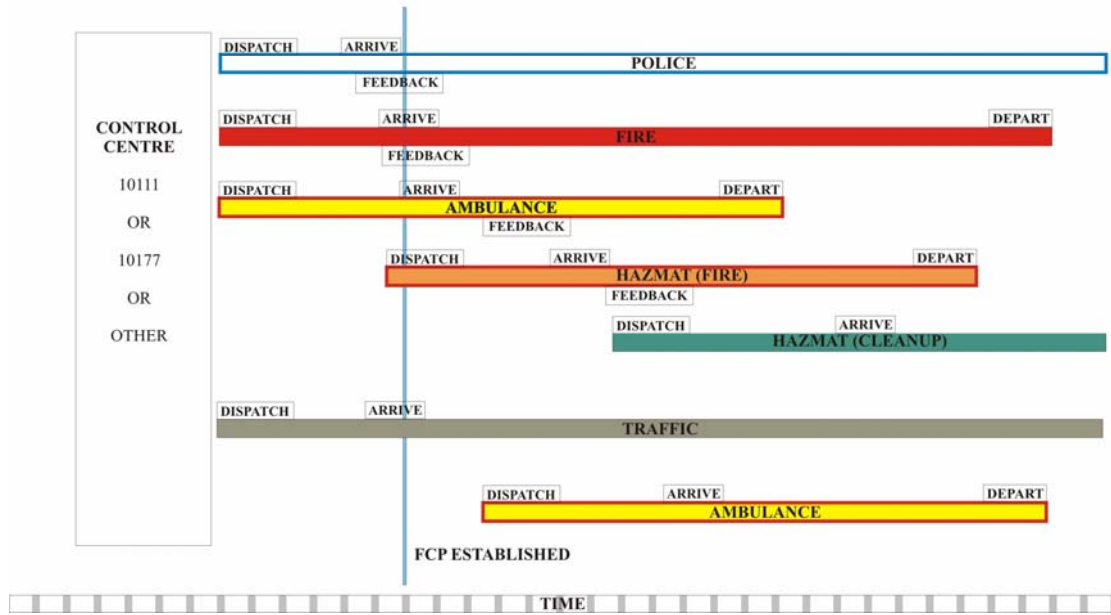
1. Initial Notification: In most circumstances the Fire Service will be called first to such an incident. The following agencies must always be notified and alerted.
 - a. Disaster Management Centre
 - b. SAPS
 - c. EMS
 - d. Metro / Traffic Police
2. The incident commander will determine, on scene, which other agencies may have to be involved.

SECTION I: DISPATCH CENTRE

3. The Dispatch Centre will attempt to obtain any and all information from the person reporting a HAZMAT incident. The information should, if possible, include material name and/or type, amount and size of container(s), extent and nature of the incident (leak, spill, fire, etc.) and dangerous properties of the materials or any other HAZCHEM information that may be available as well as the number of persons injured or exposed. The operator who received the call should remain on the telephone with the caller, if possible, to gain additional information after entering the call for dispatch.
4. Any additional information shall be relayed to responding units after dispatch. This should include the safest approach or best access to the incident, if available.
5. If the call comes from a person with particular knowledge of the hazardous situation, that person should be instructed to meet and direct the arriving units. Dispatch shall relay that person's location and level of knowledge to responding units.
6. The Dispatch Centre will dispatch the appropriate Hazardous Materials Assignment companies to all reported hazardous materials incidents.
7. The Dispatch Centre will inform Necsa's National Emergency Centre (012-3053333) in the case of incidents that involve radioactive material, to indicate the anticipated support requirements.

SECTION II: EMERGENCY RESPONSE

EMERGENCY RESPONSE



CHAPTER V

ACTIVITIES UPON ARRIVAL ON SCENE

SECTION I: GENERAL

1. The first responder on the scene should follow the following guidelines, but must still work strictly to own agency emergency response plans and procedures.
2. If there is any uncertainty regarding the presence of a hazardous material or the type of material present, or if the presence of a specific hazardous material e.g. radioactive material has been confirmed visually (label) or by measurement, the relevant agencies, specialists/ advisors should be notified, the area secured and controlled at a safe distance and no further action taken.
3. Upon arrival on the scene, the first Fire Company Commander will establish Command and begin a size-up. The Commander will also route any other responding companies away from any hazards.
4. The Commander should consider establishing remote staging areas for additional responding units when necessary. Remote staging areas must be in a safe location, taking into account wind, spill flow, explosion potential and similar factors in any situation.
5. The following agencies/ emergency centres may have to be notified and put on standby if necessary according to the local emergency response plan:
 - a. Local; metropolitan/district; provincial or national level Disaster Management depending on the level of the incident and the level of coordination required.
 - b. Hospitals when casualties are present or expected. Notification must include the possibility of contaminated casualties.
 - c. Department of Transport- when roads are involved.
 - d. Department of Environmental affairs in case of level 2 or 3 incidents.
 - e. Environmental health in case of level 2 or 3 incidents.
 - f. SANDF – Chief of Joint Ops if SANDF Support is contemplated.
 - g. The National Emergency Control Centre (ECC) of Necsa- in case of incidents that involve radioactive material.
 - h. SAPS
 - i. Dept of Labour – when casualties are present or expected in circumstances relevant to the department.

6. Always remember to:
 - a. assess the situation and available resources;
 - b. determine an appropriate incident action plan;
 - c. monitor the effectiveness of plans; and
 - d. continually modify plans to meet realities of the situation.

SECTION II: GUIDELINES ON THE APPROACH TO A HAZMAT INCIDENT

APPROACH

7. When approaching an incident, remember that there are hazardous substances that have no distinctive smell or taste.
 - a. Determine the wind direction.
 - b. Always try to approach from up-wind and uphill. If it is not possible to approach from upwind and uphill at least try to approach from upwind.
 - c. Ensure that vehicle windows are kept closed.
 - d. Air conditioners must be turned off.
 - e. Inform other vehicle users.
 - f. Consider best routes, hydrant locations, and water supply.
 - g. Review tactical pre –plan, if available.
 - h. Consider occupancy and time of day (people sleeping?).
 - i. Evaluate wind speed, direction, and impact on contamination.
 - j. If possible look for labels/placards or other visual signs that indicate the presence of a hazardous substance such as dead animals or birds lying on the ground, people staggering, gasping or coughing, or lack of people or animal life in general.
 - k. Stop at a safe distance, at least 150m, from the scene and conduct a size-up of the scene from there.

SIZE-UP

8. Command organisations at all levels must make careful size-ups before making commitments. It may be necessary to take immediate action to make a rescue or evacuate an area. This should be attempted only after a risk/benefit analysis is completed. Members must use applicable personal protective equipment in these situations.
9. The objective of the size-up is to identify the nature and severity of the immediate problem and to gather sufficient information to formulate a valid action plan.

10. In the size-up the following should be considered:
 - a. The primary objective is to identify the type of material(s) involved in a situation and the hazards presented if possible.
 - b. The incident level should be determined according to the definitions provided in chapter I above.
 - c. Consider the requirement for specialist /technical advisors.
 - d. Identify the hazardous area, based on potential danger, taking into account materials involved, time of day, wind and weather conditions, location of the incident and degree of risk to unprotected personnel. Determine safety zones. The borders of the zones must be determined, marked and controlled. The zones are discussed in chapter VI below.
 - e. Determine the downwind hazard.
 - f. Identify the staging area upwind and uphill. If possible, choose a protected area.
 - g. Position the incident command and mark it with an orange and red rotating light or placing a traffic cone (if no rotating light is available) on the roof of a vehicle.
 - h. Determine the working area for each agency in the ICP.
 - i. Deploy a weather station (wind sock for wind direction is sufficient).
 - j. Identify access and egress routes and roads to be cordoned and relay the information to metro police/traffic department for traffic control.
 - k. The area for each agency in the cold zone must be determined and the agency commander must indicate it to his personnel.
 - l. Determine which other agencies must be alerted. Dispatch must be notified as soon as this has been determined, in order for them to alert such agencies.
 - m. Set up communications
11. Size-up During the Day
 - a. Identify the type of container involved.
 - b. If it is a vehicle, determine its position.
 - c. Identify possible gas leaks or liquid leaks as well as the colour of the gas/liquid.
 - d. Try to determine whether there is any outflow and the flow rate.
 - e. Determine the magnitude of any spill.

- f. Look for any identifying placards, labels, permanent markings as well as colours of objects in order to determine the identity of the agent(s) involved.
 - g. Evaluate the topography. Identify rivers, ravines, marshes, water channels, etc.
 - h. Identify any other structures, vehicles or objects that are involved.
 - i. Identify potential patients and numbers of people that may require decontamination and treatment.
 - j. Identify any area(s) of concerns, e.g. buildings, residential areas, informal settlements etc.
 - k. Determine if there are any gas cloud(s), their speed and direction, as well as any houses or buildings that may be affected by the down-wind hazard.
 - l. Identify ignition sources, e.g. open fires, substations, etc.
 - m. Remember “If you don’t know, you don’t go, because it may BLOW”
 - n. In case of vehicles try to identify the owner/operator in order to obtain information if required
12. Night approach. The approach to a scene during the night is much more complicated due to lack of visibility, which makes it difficult to identify placards, gas clouds in terms of colour and size, wind direction. It is also difficult to judge distance and evaluate the terrain. When approaching a scene at night many more precautions must be taken, while every effort is made to obtain vital information. The following should be kept in mind:
- a. Stop as soon as any object (vehicle, tank, etc) is visible in vehicle lights.
 - b. Use vehicle lights or any other bright light source available to improve visibility.
 - c. Increase safety distances. Use airway protection at an early stage while approaching.
 - d. If monitoring (detection) equipment is available, make maximum use of the equipment for early warning. Request specialist support as early as possible.
 - e. When identifying placards/labels, ensure personnel doing identification are not colour blind.
13. Upon arrival at the scene the commander of each subsequently arriving agency must report to IC.

CHAPTER VI

SAFETY ZONES

SECTION I: GENERAL

1. After the scene has been surveyed (sized-up), safety zones are established in order to keep control of the scene and for personnel and public safety. In order to execute control on scene it is divided into 3 zones: hot zone; warm zone; cold zone. Access to zones is restricted to personnel who actually need to be working in a specific zone – this includes officials who are not performing responder duties. Entry and exit registers must be kept for the warm and hot zone.
2. The size of zones can change, depending on the magnitude of the incident, type of hazardous substance agent involved and weather conditions. Therefore, detection teams must, where practicable, conduct monitoring on the perimeter on a regular basis to detect changes in levels on the perimeters.
3. Conditions may differ as a result of weather conditions, available space and topography (high or low lying areas). Such differences must be taken into consideration when establishing safety zones.

SECTION II: SAFETY ZONES

HOT ZONE

4. The hot zone is the area at the centre of the incident where a detectable vapour or other hazards exist. The perimeter of the hot zone is determined by means of monitoring and includes the down-wind hazard area where hazardous vapours, gas, mists or dusts are detectable. The hot zone may only be entered for specific functions conducted by trained personnel dressed in appropriate protective ensemble. The safety officer in conjunction with the incident commander and agency commanders will determine the level of protection required in the hot zone.
5. The perimeter of the hot zone is determined as follows:
 - a. Upon completion of the reconnaissance from a safe distance, personnel in appropriate protective ensemble approach the scene, while conducting detection for suspected agent(s). The position where the first agent is detected is marked. The detection team moves 20m to either side (90⁰) and repeats the detection process until positive results are obtained. The three points are connected and the line is prolonged for as far as required in both directions. This line indicates the up-wind perimeter of the hot zone and must be marked in an identifiable manner. The perimeter down-wind of the incident (the down-wind hazard area) is determined electronically or by means of STANAG models. Detection teams then start at various spots on the edge of the determined area and move inwards until the agent is detected. They then proceed in similar fashion as for the up-wind determination. The perimeter is marked 100 m in the opposite direction from the line connecting the detection positions. Wind direction and other weather conditions may be very unpredictable in built up areas and that must be taken into consideration.

These processes can be applied in the case of radiation (unshielded radioactive source in which case the wind direction is irrelevant) or cases of chemical and radioactive contamination, but may not be feasible in case of biological contamination because of the unavailability of real time biological detection equipment. Determination of perimeters in case of biological contamination will be discussed in Part III on biological incidents.

6. The terms “danger zone” and “red zone” are also used to identify this zone.

WARM ZONE

7. The perimeter of the warm zone is established half the distance of the radius of the hot zone, up-wind from the perimeter of the hot zone. For example, if the distance from the centre of the hot zone to its perimeter is 100 meters, the distance from the perimeter of the hot zone to the perimeter of the warm zone would be 50 meters.
8. If a secondary device is present (in the case of explosions) it is likely to be in the warm zone. The warm zone is only established up-wind of the incident. The perimeter of the warm zone must be marked in an identifiable manner that is clearly distinguishable from that of the hot zone.
9. The warm zone is utilised for decontamination of personnel, casualties and equipment and samples where applicable. It also serves as a safety barrier between the hot zone and the cold zone. Only personnel dressed in applicable protective ensemble, as determined by the incident commander, may enter the warm zone. All personnel must be decontaminated before exiting the warm zone.
10. Other terms used to identify the warm zone are “restricted zone and yellow zone.

COLD ZONE

11. The area outside the perimeter of the warm zone is the cold zone. The cold zone is only established up-wind from the incident. The up-wind perimeter of the cold zone must again be marked clearly and differently from the other zones.
12. The cold zone is the zone that contains the command and support elements, which may consist of the ICP, sectors for different agencies, the staging sector into the warm zone, dedicated media sector, access and egress routes. Non-essential persons should not be allowed inside the cold zone, they should be accommodated elsewhere outside the cold zone.
13. Others terms used to identify the cold zone are “safe zone” and “green zone”.