Government Gazette
Staatskoerant

REPUBLIC OF SOUTH AFRICA
REPUBLIEK VAN SUID-AFRIKA

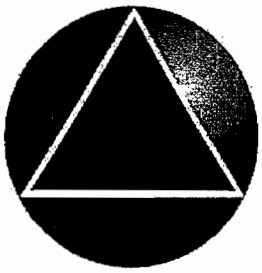
Vol. 488 Pretoria, 3 February / Februarie 2006 No. 28437

CONTENTS • INHOUD

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

GENERAL NOTICE
ALGEMENE KENNISGEWING

NOTICE 143 OF 2006



the dplg

Department:
Provincial and Local Government
REPUBLIC OF SOUTH AFRICA

The Management of the National Disaster Management Centre in the Department of Provincial and Local Government wishes to express appreciation to the Task Team in producing a significant document describing the joint management of incidents involving chemical or biological agents or radio-active materials.

After reviewing incidents involving hazardous materials it became evident that no standard operational procedures are in place to effectively manage joint response to such incidents in South Africa.

The manual was developed over a period of two years by the following team of lead agencies to ensure that these deficiencies are rectified.

Congratulations to the Task Team members!

Col. B P Steyn (Convenor)	:	SAMHS
P Richter	:	City of Tshwane Metropolitan Municipality – Emergency Management Services Emergency Medical and Ambulance Service
G S Venter	:	NECSA
M Pretorius	:	SAPS
C MacFarlane	:	WITS (Emergency Med)
H J Ras	:	FSL - SAPS
L A Thielke	:	SAESI
J Meiring	:	SAPS Explosives Unit
N S Erasmus	:	SAPS Explosives Unit
S K Ngqukuvana	:	7 Med BN GP
M D Delport	:	7 Med BN GP
M Fourie	:	City of Tshwane Metropolitan Municipality Emergency Management Services Dept. Disaster Management Service
Dr V Wessels	:	GPG Health EMS
A Bruwer	:	DMISA
A L Visagie	:	NECSA
J van Wyk	:	SASOL
F Oberholzer	:	SANDF
T Dreyer	:	City of Tshwane Metropolitan Municipality Disaster Management Service

CONTENTS

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:

a. Liaison with and control of the media on the scene.

b. Coordinating information dissemination.

c. 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:

a. Environmental impact specialist

b. Product specialists

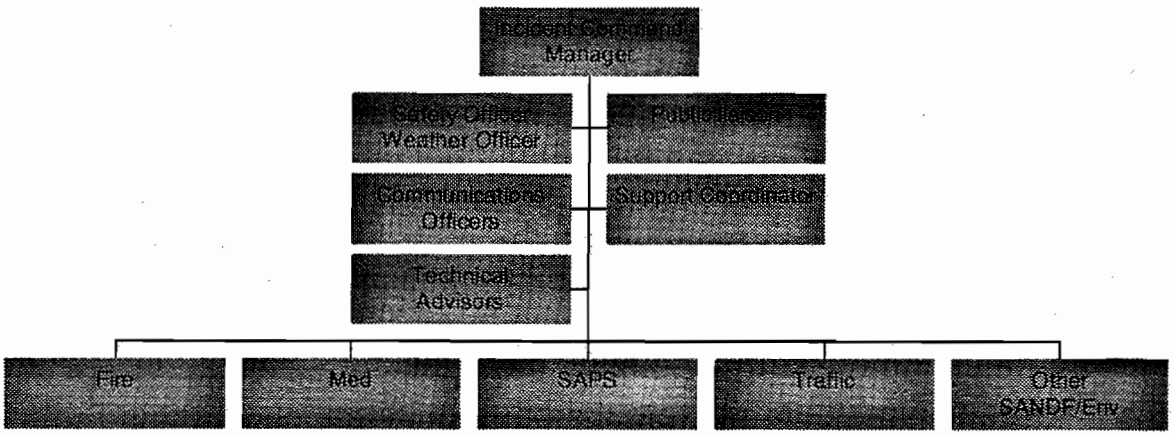
c. Structural Engineer

d. Radiation specialist

e. Explosives specialist, etc

f. 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:

a. set up a Disaster Operations Centre (DOC); and

b. 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.

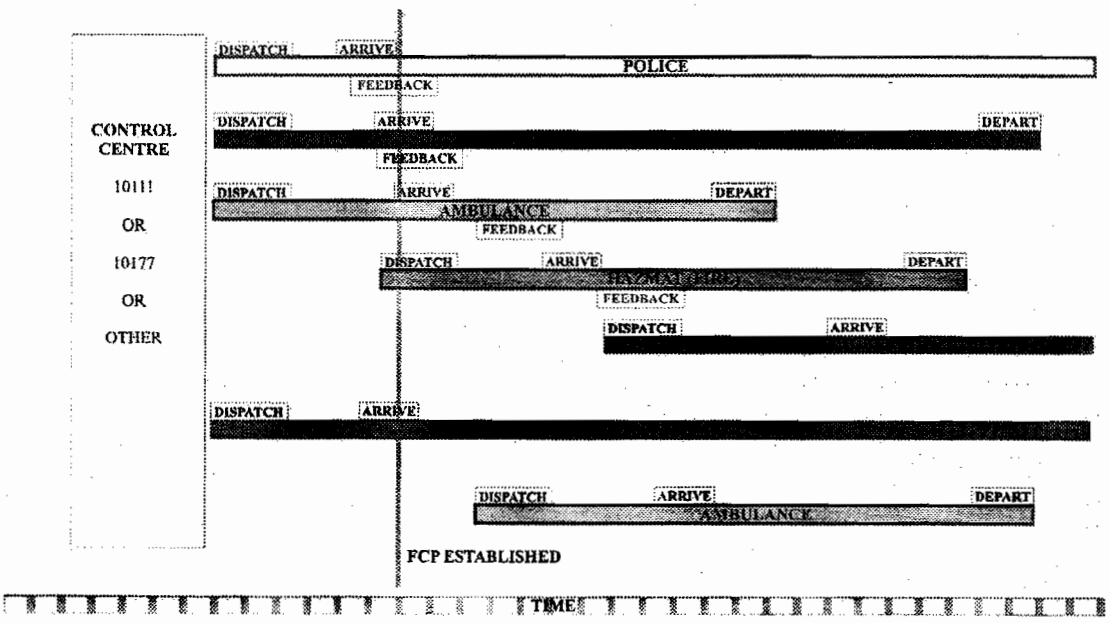
5. If the call comes from a person with particular knowledge of the hazardous situation, that person should be instructed to meet and direct the arriving units. Dispatch shall relay that person's location and level of knowledge to responding units.

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. <u>Size-up During the Day</u>

    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 (90^0) 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.

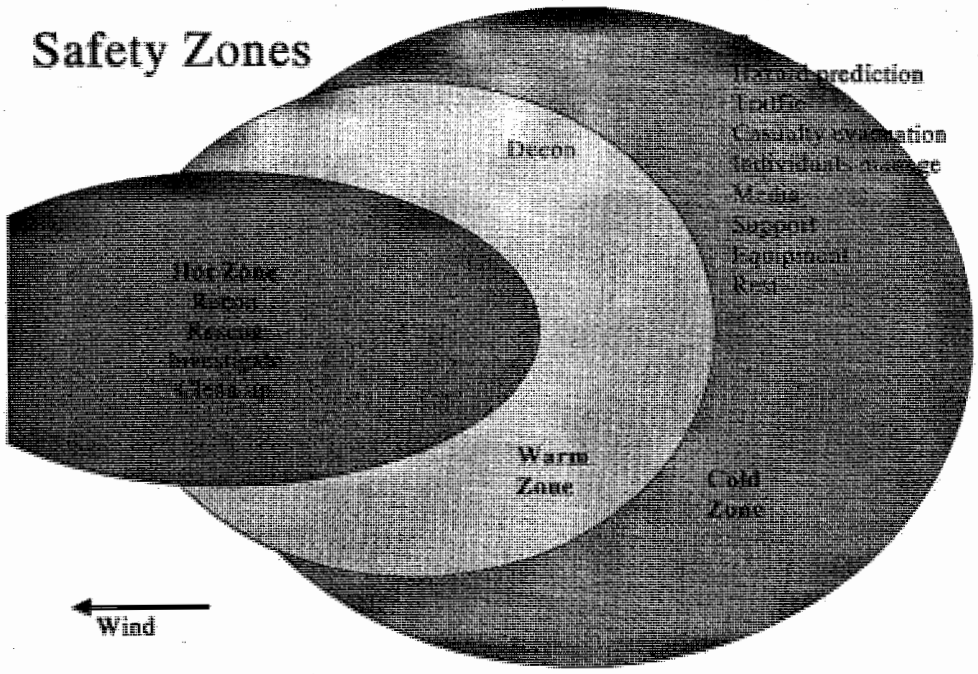
10. Other terms used to identify the warm zone are "restricted zone and yellow zone.

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".



SECTION III: ACTIVITIES IN WARM ZONE

a. The primary activity in the warm zone is decontamination, which consists of the decontamination of personnel, people, casualties and equipment.

b. The purpose of decontamination is to prevent the spread of contaminants beyond the already contaminated area (hot and warm zone). All personnel, members of the public, casualties and equipment that leave the hot zone must be decontaminated.

c. A decontamination sector must be deployed at all incidents where the potential for contamination exists. This sector should be assigned to personnel responsible for decontamination. Decontamination must be integrated into the management plan of the hazardous materials incident.

d. The person in charge of decontamination (Decontamination Sector Officer) is responsible for determining the decontamination requirements and managing the decontamination process. The initial assessment of decontamination requirements must be based upon the specific needs of the situation.

e. The specific requirements for decontamination (personnel, members of the public, casualties, equipment or apparatus) will vary with the circumstances, the contaminant and the level of contamination. These factors must be considered on a case-by-case basis, within the guidelines described in this procedure.

f. In all cases the primary objective must be to avoid contaminating anyone or anything beyond the warm zone. When in doubt about contamination, decontaminate all personnel, equipment, and apparatus that come out of the hot zone.

g. The decontamination sector should be established at the hot zone perimeter, within the warm zone at the entry/exit point of the safety sector. Personnel, equipment, and apparatus must not be permitted to leave the warm zone without approval from the Decontamination Sector Officer.

h. The decontamination sector should provide for separate corridors for decontamination of personnel, non-ambulatory, and ambulatory patients leading away from the source of contamination toward the exit point of the safety sector, with stations along the corridor for the deposit of tools, equipment, protective clothing, contaminated clothing, undressing of ambulatory persons and non-ambulatory casualties and other items. Personnel to monitor the process and provide guidance to people should be appropriately placed along the corridor. A person travelling along a corridor should experience a decreasing level of contamination along the way. Adequate space must be provided between corridors to avoid cross contamination of other areas or persons.

10. **Checklist for the Decontamination Commander;**

i. Obtain briefing from incident command.

ii. Coordinate the location of the decontamination area in the warm zone next to the edge of the hot zone and the edge of the safety sector with the safety officer.

iii. Determine the proper level of protective clothing and equipment to be worn and coordinate with the safety officer.

iv. Ensure adequate water/decontamination supply available for decontamination procedures indicated.

v. Assign personnel for different agreed procedures.

DECONTAMINATION OF PATIENTS

11. Patients in need of medical treatment should be removed from the source of contamination and be decontaminated as quickly as possible. Only basic emergency life saving treatment to keep viable patients alive until they can be properly decontaminated should be conducted inside the warm zone. No medical treatment should be conducted in the hot zone unless under extreme circumstances.

12. The purpose of the process is to effectively decontaminate the largest number of patients in the shortest time possible. The decontamination process should provide for the following:

a. Triage.

b. Undressing of patients.

c. Decontamination – copious amounts of water should be sufficient under most circumstances.

d. Emergency treatment – EMS personnel should be available in the warm zone to conduct lifesaving resuscitation if necessary and feasible.

e. Collection and marking of patients' valuables.

f. Contamination monitoring ability where applicable.

17. Contaminated casualties should only under exceptional conditions be transported from the scene. In such cases the patient must be covered before being transported. The ambulance should be brought to the warm zone perimeter for loading. When feasible, the vehicle should be prepared by draping exposed surfaces with sheets or polyurethane covers. Patients should be wrapped or covered to lessen secondary contamination during transport. Transport and treatment personnel must still wear protective ensemble and the windows of the ambulance must be opened while enroute. The receiving hospital must be notified in advance of the nature of the contamination, in order to prepare for decontamination of the patient. In cases of chemical agent contamination the Material Safety Data Sheet (MSDS) of the chemical should ideally be sent to receiving hospitals. The vehicle used will be considered contaminated and will have to be decontaminated before being used to transport any non-contaminated persons. Helicopters cannot be used for transporting any contaminated patients due to secondary contamination effects on the pilot and flight crew and possible spread of contamination by the rotor during landing and take-off.

DECONTAMINATION OF PERSONS

18. The aim of this process is to effectively decontaminate the largest number of persons in the shortest time possible. The decontamination process must be able to handle more than one person at a time and the larger the number of persons to be decontaminated the larger must be the capability to handle them.
Cognisance must be taken of the fact that most persons that have been exposed or potentially exposed to hazardous substances will be traumatised and agitated and will try to get away from the contamination as quickly as possible, therefore, provision must be made to control people inside the warm zone before and during decontamination and directly after decontamination as well as in the hot zone if necessary. The crowd control should preferably be conducted by police officers.

19. The decontamination process must provide for the following:

a. Sufficient personnel to handle the crowd and organise them before decontamination as well as after decontamination.

b. The undressing of persons.

c. Packing and marking of personal effects.

d. Directing personnel to indicate to persons where to go and what to do.

e. Decontamination – copious amounts of water should be sufficient under most circumstances.

f. Medical support to any persons that may require treatment during decontamination.

g. Management and directing of persons after decontamination. This includes the provision of temporary clothing.

h. Handling of personal effects after decontamination.

i. Ability to monitor for the presence of contamination if applicable.

j. Prevention of any run-off from the warm zone to uncontaminated areas at all times to avoid spreading of contamination

DECONTAMINATION OF PROTECTIVE EQUIPMENT AND PERSONAL EFFECTS

20. When feasible, protective clothing and personal effects should be decontaminated and released from the warm zone with the individual. If the decontamination sector officer determines this is not feasible, these items will be impounded in the decontamination sector. Personal effects must be carefully documented and guarded by decontamination sector members until a determination can be made regarding their final disposition.

Decontamination of equipment

21. Three courses of action are available:

a. Confirm "not contaminated"--using instruments or investigation based on the nature of the situation.

b. Decontaminate (as appropriate to the situation) and release.

c. Retain and package items for removal from the site for disposal or decontamination at a different location.

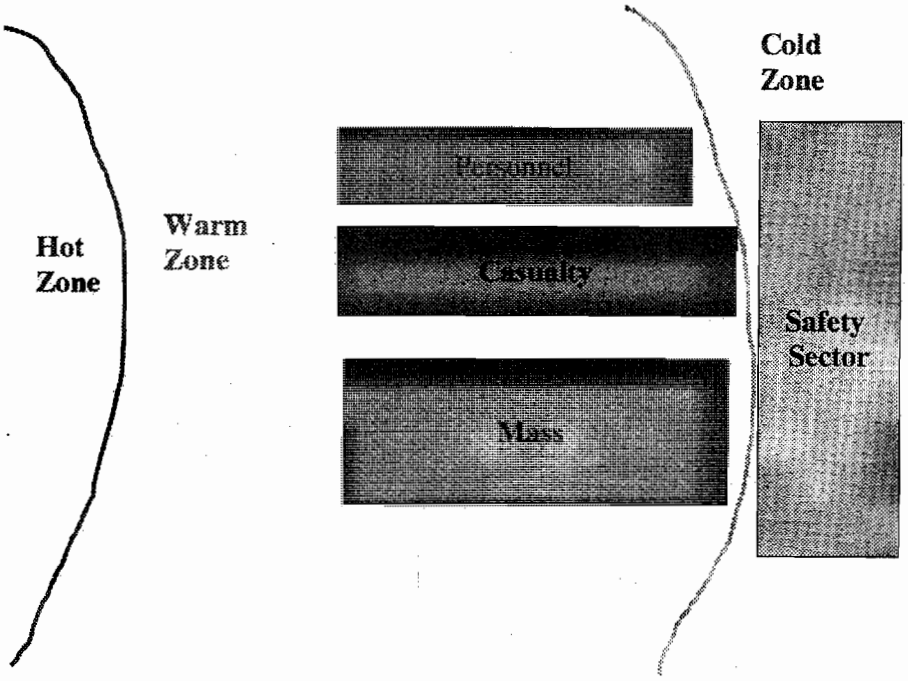
22. All contaminated equipment must remain within the perimeter of the warm zone until decontaminated or safely packaged for removal. The decontamination sector officer will be responsible for supervising proper decontamination of these items before removal. Members should be assigned to inspect equipment before being released from the decontamination area. This inspection should involve the use of detecting instruments, where applicable. It must be assumed that items are contaminated, unless their non-contamination can be confirmed.

DECONTAMINATION SECTOR PRECAUTIONS

23. During the decontamination process, all personnel working in the decontamination sector must be adequately protected from contaminants. The decontamination sector officer will determine the appropriate protective equipment. These individuals and their equipment must also be decontaminated at the end of the incident.

24. Any runoff or residue from decontamination procedures should be contained within the warm zone and retained for proper disposal where possible. Contaminated run-off must not be allowed to spread or escape where possible. If there is spillage into drainage systems, the local authority must be informed. Diking may be necessary, and should be directed back towards the hot zone. At incidents involving the decontamination of large numbers of people and casualties it may not be possible to contain runoff. Under those circumstances the runoff must be guided into the sewage system in such a manner that there is no spread of contamination outside the warm zone.

FIG 5 DECONTAMINATION LAY OUT



SECTION IV: ACTIVITIES IN THE COLD ZONE

GENERAL GUIDELINES

25. IC will allocate the specific sectors for agencies.

26. Any responding agency, irrespective of its function, needs to adhere to the following guidelines to ensure safety of staff and optimal operation:

    a. On arrival at the perimeter of the cold zone, the responding agency will be directed to the vehicle park area. Vehicles need to be parked at the vehicle park unless otherwise directed by IC. The vehicle park is discussed in paragraph 82 and 83 below.

    b. The responding agency needs to report to the IC on arrival, where it will be allocated a sector in the cold zone. If the responding agency does not fall within the existing category of services already represented within the ICP, it is the responsibility of the responding agency to elect a representative to join IC.

c. Due to the risks involved, it is essential that all staff from the responding agency adhere to the safety rules imposed by IC. No staff will enter the hot or warm zone unless appropriate personal protective equipment is worn and the staff members are cleared by IC to enter.

SAFETY SECTOR

27. It will be standard practice to implement a "Safety Sector" at any level II or III hazardous materials incident. In addition, a Safety Sector should be implemented at any incident of special hazard presenting an unusual risk to first responders, customers, or the general public.

28. The safety sector is used to control access to the warm and hot zones in order to maintain accountability for the entry and exit of personnel. The safety sector is the only location where personnel shall enter or exit from the warm and hot zones, in order to maintain full accountability. Safety sector personnel will limit entry into a particular zone to those authorized by IC and to personnel having the required level of protective clothing and equipment appropriate for the zone and situation.

29. The safety sector is established at an identified entrance/exit point from warm zone. The perimeter must be defined by hazard zone tape with an entrance/exit point identified. It must have clearly identified entrance and exit lanes into and from the warm zone. Provision must also be made for entry and exit points for personnel from the different agency sectors who have to enter or exit the safety sector.

30. This procedure in no way diminishes the responsibility of each agency for commitment to safe work behaviour and to operating within standard operating procedures at all times. Agency commanders carry the additional responsibility of ensuring that all members of their agency are operating in a safe manner.

31. The safety officer of the leading agency will automatically assume command of the safety sector upon arrival at the incident, following the appropriate command procedures and a briefing. Safety officers of other agencies and technical advisors must provide the safety officer with the necessary advice on safety issues pertaining to their agencies or expertise. IC must be notified of the assumption of safety sector responsibilities for accountability and scene management purposes.

32. The safety plan must be communicated to the safety sector and other sector officers.

33. **Safety Sector Responsibilities**

a. Ensuring that all crews and personnel are operating safely and consistently within existing safety standards.

b. Reviewing and ensuring that IC has an effective safety plan as part of the incident's strategic plan.

c. Terminate, suspend, or alter any unsafe operations or actions. Operate as the safety eyes and ears of IC.

d. Determine the method of alarm notification and notify all role players accordingly.

e. Observe all areas of the incident and identify any structural or hazardous conditions that could create a risk to personnel working at the incident and initiate corrective action.

f. Ensure that all personnel are wearing proper protective clothing and equipment when entering the warm or hot zone.

g. Help the entry and back-up teams in the proper donning or doffing of equipment and clothing.

h. Ensure amply breathing supply is set up and available for entry teams

i. Upon assignment to this function by IC, coordinate the use of technical specialists, in the continual evaluation of incident risk and provide corrective measures as needed.

j. Monitor the health and welfare of all personnel and ensure that they are not over-extended and are rehabilitated in an effective manner. Medical examinations must be conducted on all personnel leaving the hot zone. Each agency should have its own hydration and replenishment area.

k. Record the names, times, and assignments of all personnel entering and exiting the warm/hot zone. Accountability tags will be collected from all personnel entering and should be retrieved on departure. Where applicable, agencies should provide their own staff at the safety sector in order to apply their own accountability measures.

l. Provide IC frequent progress reports on safety related issues.

m. Maintain a liaison with IC and/or the planning section chief to update and revise the on-going incident safety plan.

n. Request additional resources through IC when required to support safety sector responsibilities.

o. Weather monitoring.

MEDICAL SECTOR

General

34. The numbers of groups or areas required at a major incident will vary depending on the type of incident. The medical operations include extrication/rescue, treatment, and transporting areas.

35. It should be noted that triage monitoring is a function of all sectors handling ill or injured patients and is a continuing component of the ICS (incident command system).

36. Additional units should be requested as soon as the need has been identified or anticipated. (The communications centre should have a written SOP for requesting mutual aid.) Additional support services may include obtaining food, shelter, and clothing for victims. IC is responsible for instructions for the strategic deployment of resources.

Staging area

37. Medical ops are staged from this area. Staging area responsibilities include the following:

    a. Maintaining a log of all apparatus in the staging area and maintaining an inventory of specialized equipment and medical equipment that may be needed.

    b. Reviewing with command what resources must be maintained and coordinating this request with the dispatching centre.

    c. Assuming a visible position for incoming vehicles. Personnel must wear identification vests or be identifiable by other means.

Support area

38. The support area coordinates the gathering and distribution of equipment and supplies for the medical sector. This area is responsible for the following:

    a. Determining the medical supply requirements of other sectors

    b. Coordinating procurement of medical supplies from hospitals or other sources.

    c. Reporting additional resource requirements to IC.

    d. Allocating supplies and equipment as needed.

Triage area

39. The triage area is responsible for managing decontaminated patients at the scene. This involves triage, primary treatment and initial tagging allocations before transfer of the patient to the treatment area. Patient care activities in this area should include only assessment and treatment of life-threatening situations, such as securing airways, controlling severe bleeding, and covering open chest wounds. The triage area responsibilities include the following:

    a. Attaching tagging assignments to injured patients.

    b. Evaluating resources needed for triage and the primary treatment of patients.

    c. Communicating resources requirements to Medical Sector command.

    d. Allocating assigned resources.

e. Collecting, assembling, and assessing the "walking wounded".

f. Reporting progress to command.

g. Reporting "all clear" to command when all patients have been delivered to the treatment sector.

h. Coordinating with other areas.

Treatment area

40. The treatment area works closely with the triage area in patient care and delivery. This area provides advanced care and stabilization until the patients are transported to an appropriate medical facility. Most paramedics and hospital staff are assigned to this area. With large numbers of patients, the area usually is further divided into immediate and delayed treatment zones to help determine priorities in patient transportation. The treatment area responsibilities include the following:

a. Locating a suitable treatment area within the medical sector and reporting that location to the triage area and IC.

b. Evaluating resources required for patient treatment and reporting these needs to IC.

c. Providing suitable immediate and delayed treatment areas.

d. Allocating resources.

e. Assigning, supervising, and coordinating personnel within the area.

f. Reporting progress to IC.

Transportation area

41. The transportation area communicates with the receiving hospitals and ambulances for patient transport. This area must work closely with the treatment area to determine appropriate destinations for injured patients. The arrival and departure of transfer vehicles must be coordinated with the staging area. Transportation area responsibilities include the following.

a. Determining patient transportation needs and obtaining appropriate transportation.

b. Evaluating resources required to manage patient transportation.

c. Establishing an ambulance staging area (if IC has not already done so) and patient loading areas.

d. Communicating with hospitals to determine capabilities.

e. Coordinating patient transportation allocation with the treatment area and the hospitals.

f. Tracking patients leaving the site with a written log, including patient identification, unit transporting, and destination facility.

g. Reporting resources requirement to Medical Commander.

h. Advising IC when the last patient has been transported.

FIRE SECTOR

Entry Point

42. This is the initial entry point. Assigned personnel will ensure passports have been collected from crews. Pulse rates will be taken on all crewmembers. Any member who has a pulse rate greater than 120 must report directly to the Medical Treatment and Transport area, where appropriate treatment will be provided. Members that do not require medical attention will report to the Hydration and Replenishment area.

Replenishment and Hydration area (Rehab)

43. The replenishment area officer will collect accountability passports from companies reporting to the entry point. The passports will be placed on a status board and all personnel will be logged on the Replenishment and Hydration area personnel log. The log will indicate the assignments as directed by IC. Companies may be reassigned to operating sectors or released from the scene.

44. This section may be staffed by the canteen driver or other designated personnel. All personnel will be provided supplemental cooling devices, fluid and electrolyte replacement, and the proper amount of nourishment.

Medical Monitoring

45. This section is responsible for the medical monitoring of HAZMAT personnel entering and exiting the hot zone and control of deployment.

37. The medical monitoring personnel assigned will advise the Rehab Area Officer of the necessity of medical transportation and extended medical attention requirements of personnel due to physical conditions. Crews released from medical monitoring will be released as intact crews to report to reassignment.

Reassignment

38. This section determines readiness for reassignment of a crew. Personnel manning this section will advise the Rehab Sector Officer of all companies' status for reassignment and crews that are running short or without a company officer. This information is relayed to IC by the Rehab Sector Officer.

39. The Rehab Sector Officer will update Command throughout the operation with pertinent information, including the identities of companies in Rehab, the companies available for reassignment, and the status of injured personnel. All personnel leaving Rehab will retrieve passports from the Rehab Sector Officer.

40. Company Officers must keep crews intact and report to the proper sections in Rehab. The Rehab Sector Officer will direct the crew to the proper sections; however, it is the Company Officer's responsibility to make sure crewmembers receive refreshments, rest, a medical clearance, and retrieve Company passport.

POLICE SECTOR

Crowd Control

41. Depending on the scale of the incident, policing support will be rendered by Visible Policing Units and/or the Area Crime Combating Units.

42. The policing support will be rendered by means of the following functions:

a. Cordoning off, searching and securing high crime and disaster areas.

b. Rapid response to relevant incidents.

c. Conducting roadblocks.

d. Undertaking cordon and search operations.

e. Conducting patrols.

f. Containing, isolating and securing areas by the establishment of an outer perimeter using roadblocks and control points, conducting patrols, providing protection to the emergency services and establishing observation posts.

g. Containing, isolating and securing the crime scene, conducting follow-up operations, securing the area through patrols, gathering information and establishing observation/surveillance posts.

43. The SAPS will enforce cold and warm zone perimeters as well as the down-wind hazard area perimeter. It is the responsibility of the SAPS to keep unauthorized persons outside these zones. Authorised personnel inside the zones are the responsibility of the relevant agencies, while the news media is the responsibility of PIO at IC.

44. The SAPS is also responsible for the control of contaminated people before decontamination. In this regard the SAPS is responsible for:

a. Calming agitated contaminated persons.

b. Ensuring that such persons are forming up according to the requirements of the decontamination area commander.

45. The personnel required for those functions must wear the applicable personal protective gear as determined by the Safety Officer and must enter and exit the warm zone through the safety sector.

46. The SAPS is responsible for supporting the Safety Officer in the monitoring of the outside perimeters (including the down-wind hazard area) and informing IC of any changes in the perimeters.

47. The SAPS must provide guidelines to personnel of other agencies working in the hot zone with regard to the preservation and handling of evidence.

The identification of role players at a scene

57. The different SAPS role players on a scene may be identified by the approved colour coded scene jackets that they wear. The following approved colour codes must be worn at all times at a scene to distinguish between the different role players:

ROLE PLAYER	COLOUR CODE
Scene manager	Red
Scene technician	Green with a shoulder patch bearing the letters "CST"
Explosives unit	Yellow
Investigating official	Blue with a shoulder patch bearing the letters "IO"
Investigation team	Blue
Media liaison	White
Processing team	Green
Hostage negotiator	Orange

MILITARY SECTOR

58. The military contingent will deploy a sector HQ, decontamination, platoon area, detection platoon area and support area.

Command and Control

59. The senior CBR defence officer on the scene will be in command of the military sector. The officers in command of decontamination and detection will also be situated in this sector. Each will be responsible for command and control of their respective elements. They will only take orders from the military commander until ordered to be detached to another role player for command and control purposes, but will remain under functional control of the military commander.

Liaison

60. The senior CBR Defence Officer on scene will be the military representative in the IC.

Logistics

61. All military logistics requirements are controlled from this sector. During the initial deployment, the cargo vehicles will unload all logistical supplies and then withdraw to the vehicle park. The only vehicles to remain will be those carrying decontamination systems, which are deployed in the decontamination sector. Logistical requirements will be coordinated at IC.

Safety

62. The commanders are responsible for the safety of all their personnel. They will also be responsible for monitoring work times and for ensuring that their personnel take the necessary rest breaks. With the assistance of two clerks they will document all the necessary information. They will set up a rest area and ensure that personnel are withdrawn from the hot and warm zones at the appropriate times for rest. These members will follow the withdrawal route as stipulated. Refreshments and water must be available in the rest area.

Specific tasks

63. The Military Commander is in command and control of the Military Sector for the duration of the deployment and will be responsible for the deployment and safety of military personnel in all the applicable zones when required. He must ensure overall safety and smooth running of the operation. He represents the military contingent in IC and liases with other agencies. He is also responsible for communication to the higher Military HQ.

64. The decontamination commander is in command and control of decontamination and reports to the Military Commander. It is his responsibility to deploy the decontamination sector correctly in the warm zone and to ensure it's smooth operation for the duration of the deployment. He is responsible for the safety of all his personnel. He is also responsible for the correct equipment and logistics to be utilised. He keeps the Military Commander up to date on all activities.

65. The detection (monitoring) commander reports to the Military Commander. It is his responsibility to deploy detection (monitoring) personnel correctly and to ensure their smooth and safe operation for the duration of the deployment. He is responsible for the safety of all his personnel and the utilisation of the correct equipment and logistics. He must keep the Military Commander up to date on all activities.

66. The senior NCO is responsible for all logistics and will handle logistical needs when they arise. He is also responsible for the control of all military vehicle movement on the scene.

STAGING SECTOR

67. The staging sector is required for large incidents to prevent vehicle congestion and response delays. All emergency vehicles (fire, police, EMS, military, etc) must report to this sector for direction. Other agencies, such as disaster-relief services and news media, should also be supervised by the staging sector. Staging sector responsibilities include the following:

    a. Coordinating with the Metro Police/Traffic Service to block streets, intersections, and other areas to establish a staging area.

    b. Ensuring that all vehicles that are not utilised at any moment are parked in an appropriate manner in a vehicle park.

c. Reviewing with command what resources must be maintained in staging and coordinating this request with the dispatching centre.

d. Assuming a visible position for incoming vehicles. Personnel must wear a staging sector vest or be identifiable by other means.

68. Staging techniques that may be used to deploy resources effectively include the following: Lining vehicles up at the scene to facilitate egress.
b. Staging away from a limited access highway or road. Identifying a formal staging area with an assigned staging officer.**Access/Exit Control and Vehicle Park**

Vehicle Park

69. All vehicles not directly involved in operations must be parked in a vehicle park. The following must be taken into consideration when a vehicle park is established:

a. The vehicle park must be situated within the cold zone perimeter in a secure area.

b. It must be close enough to the safety sector to allow quick response when necessary, but far enough not to interfere with sector operations.

c. It must have separate entry and exit gates.

70. The Agency in command of the scene must provide the vehicle park commander while all agencies should provide personnel to manage their own vehicles.

Access/exit control

71. The outer perimeter of the cold zone is also the outer perimeter of the controlled area. Provision must be made for separate entry and exit gates into the cold zone. The entry and exit gates should open into the major access and egress routes to and from the scene.

72. The entry and exit of all vehicles and individuals into the controlled area must be controlled to prevent any unauthorised entry. In this regard strict entry and exit logs must be kept.

73. The SAPS / Metro Police/Traffic Police are responsible for entry and exit control.

Traffic Control

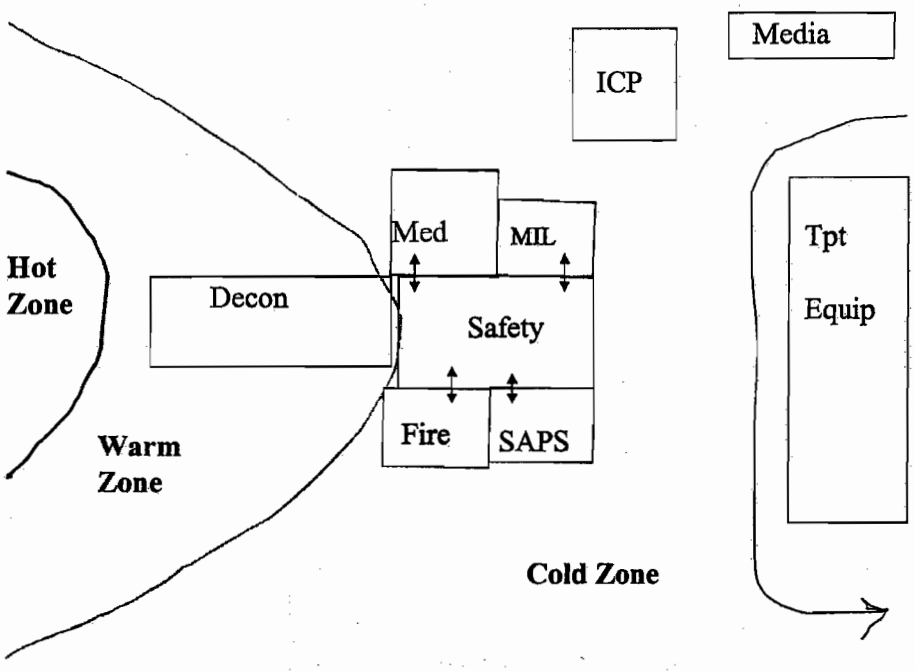
74. Dispatch should notify the Metro/Traffic Police Department of the need for traffic control at an incident.

75. Metro/Traffic Police must have a representative in the IC.

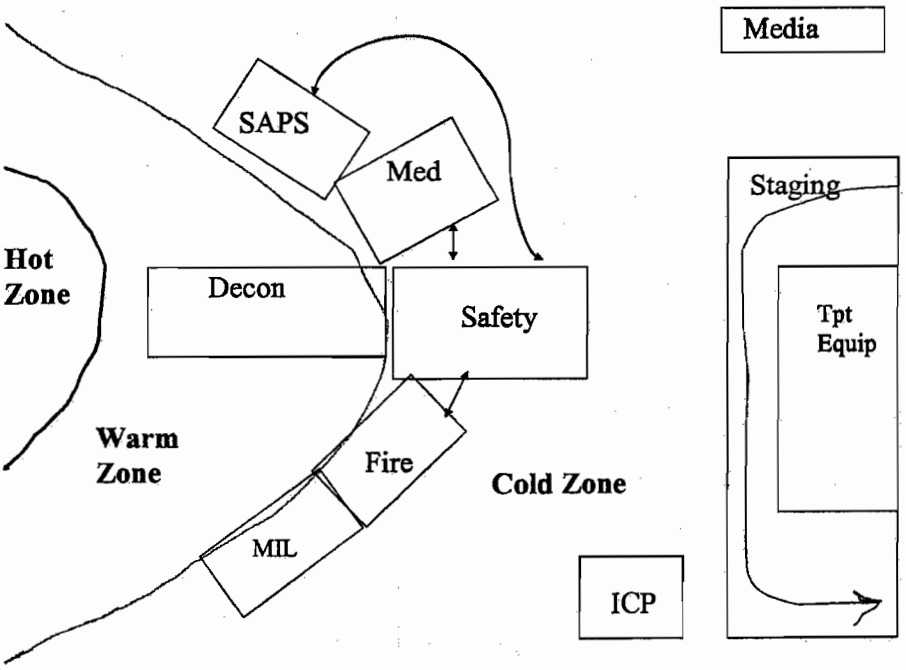
76. When special traffic control measures are required such requirements will be determined at IC.

Fig 6 Examples of Sectors in the cold zone

a)



b)



CHAPTER VII

DEMOBILISATION

SECTION I: DISPERSING

1. No agency will leave the scene without approval of the IC.

SECTION II: DEBRIEFING

2. A joint debriefing session of all agencies involved should be held as soon as possible after the end of the incident. Such a debriefing session should be coordinated by the agency that was in command.

3. The purpose of the debriefing session must be to identify problems / good conduct, in order to prevent failure and assure future success. Agencies not involved in the incident may attend, but may not involve themselves in the discussions and decisions. Although information shared at a debriefing session will be treated confidentially, lessons learned should be published or made available to all interested parties on request.

CHAPTER VIII

EVACUATION

SECTION I: INTRODUCTION

1. An incident involving hazardous materials has a higher probability of causing an evacuation of an affected area than any other incident. By the very nature of the hazard, this type of evacuation often provides very little preparation time. Decisions will need to be made quickly, and citizens moved rapidly.

2. When toxic or irritant gases, vapours or mists are being carried downwind, it may be most effective to keep everyone indoors with windows and doors closed to prevent contact with the material (shelter in place) instead of evacuating the area. In these cases, companies will be assigned to patrol the area, assisting citizens in shutting down ventilation systems and evacuating persons with susceptibility to respiratory problems.

3. At such incidents it will be the responsibility of the SAPS to effect and maintain evacuation of an area. In these cases it is essential that resource requirements and assignments are coordinated. Accurate and timely information is important to minimize risks to personnel and the public.

4. The area to be evacuated depends on the nature and amount of the material and type of risk it presents to unprotected members (toxic, explosive, etc.). In some cases, it is necessary to completely evacuate a radius around a site for a certain distance (i.e., potential explosion). In other cases, it may be advisable to evacuate a path downwind where toxic or flammable vapours may be carried (and control ignition sources in case of flammable vapours).

5. Evacuation / shelter in-place is a command responsibility that should be managed on the highest command level present.

SECTION II: DECISION TO EVACUATE

1. The decision to evacuate needs to be considered quickly and early. Delays in initiating evacuation can expose greater numbers of the public to the hazardous product. An unnecessary evacuation should be avoided. However, once the hazard has been identified and verified, the process of deciding whom, when, and how to evacuate should proceed quickly.

2. In some cases, in-place sheltering (staying indoors) may provide adequate protection and should be a serious consideration in the decision making process.

FACTORS TO CONSIDER BEFORE EVACUATION

1. The factors that should be considered before a decision to evacuate is taken, include:

   a. Product toxicity (as a health hazard).

   b. Concentration levels (before it becomes a health hazard).

c. Anticipated exposure time.

d. Weather conditions (temperature, humidity).

e. Wind direction (direction, speed).

f. Wind changes.

g. Predicted weather changes.

h. Distances from site requiring evacuation.

i. Evacuation risk to public (bringing them outdoors).

j. Infiltration into buildings.

k. Shelter locations.

l. Transportation needs and availability.

m. Evacuation time factors.

n. Resources for evacuation.

o. Density of population in the area.

6. In some situations, in-place sheltering can be used to protect the public rather than to initiate an evacuation. In-place sheltering can be considered during the following circumstances:

a. When the hazardous material has been identified as having a low or moderate level health risk.

b. When the material has been released from its container and is now dissipating.

c. When leaks can be controlled rapidly and before evacuation can be completed.

d. When exposure to the product is expected to be short-term and of low health risk.

e. When the public can be adequately protected by staying indoors.

SECTION III: RESPONSIBILITIES

SAPS RESPONSIBILITIES

7. The SAPS will be an integral part of the evacuation process, as a large portion of the evacuation may be accomplished by police officers.

8. Police responsibilities include:

a. Providing a ranking officer to the incident command post.

b. Providing a ranking officer to the Evacuation Sector/Evacuations Branch.

c. Providing a communication system for police resources.

d. Providing police resources needed for evacuation.

e. Providing perimeter security.

f. Providing evacuation zone security.

METRO/TRAFFIC POLICE RESPONSIBILITIES

9. Providing traffic control and traffic routing and assisting in police tasks after the area to be evacuated has been determined.

PUBLIC INFORMATION OFFICER'S RESPONSIBILITIES

10. The Public Information Officer's responsibilities include:

a. Notifying the news media and providing status reports and updates as necessary.

b. Providing the media with consistent and accurate evacuation instructions as provided by the JOC/DMC.

c. Utilizing the media and coordinating evacuation notices through news media.

DISASTER MANAGEMENT

11. Coordinating emergency relief and transportation of evacuees.

RETURN EVACUEES

12. The decision to return evacuees to their homes will be the sole responsibility of the highest level of command involved.

CHAPTER IX

REHABILITATION/ CLEANING/ DECONTAMINATION

Building Decontamination

1. The building as a whole or parts of it, depending on the extent of the contamination, must be decontaminated by specialist teams. Areas to be decontaminated must be identified by specialist personnel conducting monitoring (detection) inside the building. Air ducts and waste passages must be included in the decontamination. All filters from air-conditioning systems must be removed and sealed for analysis.

Reoccupation

2. When the decontamination has been completed, the building must be scanned with detection/monitoring equipment to determine and verify the safety for reoccupation. This verification is conducted by the relevant responsible agency(ies) who should consult specialists in the case of radioactive or biologically hazardous material.

3. The final decision that a building is safe for reoccupation will be taken by IC based after consultation and upon agreement by the responsible department:

   a. Department of Labour in case of chemical and biological incidents.

   b. National Nuclear Regulator and Directorate of Radiation Control (NDOH) as appropriate in case of radioactive materials. Necsa will, through its ECC, coordinate communication with departments.

Area Decontamination

4. In cases where an incident occurred in the open air, the area to be decontaminated must be identified by specialist personnel and the decontamination conducted by specialist.

PART II

CHEMICAL INCIDENTS

CHAPTER I

UNINTENTIONAL/ NON-CRIMINAL INCIDENT

INTRODUCTION

1. The principles and procedures described in Part I are all applicable in these cases.

2. The incidents categories covered in Part II are:

   a. Transport related incidents (road, rail, air, and marine incidents).

   b. Other accidents - pipelines, facilities etc.

Command and Control

3. The Fire Service will be in overall command in all incidents where there is no criminal intent or no indication that there was any criminal intent with regard to the cause of the incident.

CHAPTER II

CRIMINAL INCIDENTS

INTRODUCTION

1. The incidents included in this category are:

   a. Violent incidents - explosions.

   b. Incidents where no structural damage has occurred

2. The principles and procedures described in Part III are additional to those described in Part I.

COMMAND AND CONTROL

3. The SAPS is in overall command of all incidents where there are indications that the incident was caused through criminal intent.

SECTION I: VIOLENT INCIDENTS

CONTROLLING PHASE

Evaluation of a suspected chemical crime scene

4. In addition to the procedures described in Part I, the first SAPS member must, upon arrival on the scene:

   a. assume control of the crime scene from the relevant party by accepting the hand over of the crime scene from that party;

   b. identify the nature of the incident (people lying around, dead people, people vomiting etc);

5. After the first member has taken control over the crime scene, he or she must evaluate the safety status of the crime scene according to the safety manual. If there is any wind changes the cordons must be changed accordingly. If a secondary device is found and it is presumed to be of the same nature as the first, evacuation must take place in that area as soon as possible and cordons must be changed. If additional help is needed, the first member may request the assistance of other agencies.

Protection of the crime scene

6. To enable the first member to secure and protect the crime scene, he or she must:

   a. assist in the establishment of the safety zones;

   b. identify scenes that have a direct connection with the primary scene, for example the house and vehicle of the suspect and also protect such scenes;

c. protect the access and departure routes used by the suspects, if known;

d. determine access routes to and from the crime scene for use by the emergency services and other members of the Service; and

e. Keep the media out of the crime scene and not release information about the crime scene. The media officer is primarily responsible for liaison with the media on a crime scene.

7. **The crime scene technician must:**

a. ensure that the crime scene is documented photographically, before the scene is decontaminated and cleared up. All physical evidence must be photographed in its original position, bagged and tagged as mentioned, noted and shown on a plan;

b. ensure that all evidence is bagged and tagged in its contaminated condition, within the appropriate sealed contamination bags. No evidence will be decontaminated on the scene. Decontamination of the evidence bags will be done at the decontamination station. All evidence removed from the scene must be noted clearly in the exhibits log;

c. appoint an evidence recorder;

d. determine the evidence numbering convention;

e. ensure that all evidence is being logged and handled to maintain evidence integrity;

f. ensure that all evidence possibilities are considered. Examinations on evidence must only be performed by persons qualified in the field of examination;

g. authorise the removal of corpses, if any, after decontamination thereof in consultation with the pathologist;

h. maintain interaction between the investigation team and processing team through the IC and arrange for more time, if needed, by the processing team; and

i. ensure that all evidence left on the scene is marked properly, to ensure that others who require to enter the area, such as fire fighters, medical personnel, etc do not disturb the evidence. Evidence must be marked in such a manner as to ensure it is not disturbed, or any evidential value lost.

Evidence collection

8. Evidence will be collected by the Crime Scene Processing Team under control of the Crime Scene Technician.

SECTION II: NON-VIOLENT INCIDENTS

9. Non-violent incidents occur when a number of people develop uncommon symptoms without any reason. Such an incident may occur anywhere, but will most probably occur inside a building. These people may have been exposed to a toxic chemical agent.

Command and Control

10. In such cases the SAPS will be in command, because there will be a high level of suspicion that it was caused by criminal activities.

Activities upon arrival at the scene

1. In addition to the activities described in Part I, the following will apply:

    a. The building must not be entered without protective gear.

    b. The building must be approached and safety zones identified according to the procedures described in Part I. If no signs of any toxic chemical are present outside the building, the perimeter of the hot zone will be the building perimeter. The warm zone should include at least the streets adjacent to the building.

    c. Other buildings adjacent to the affected building must be scanned for contamination, if there is no contamination, they need not be evacuated or included in the warm zone, but continuous detection must be conducted to provide early warning of any contamination.

    d. Entrances on the up-wind side of the building should be used to enter the building.

    e. The decontamination zone should be established outside the building, allowing just sufficient space to manage people exiting the building.

    f. If there is central air-conditioning present, all such systems should be switched off as early as possible.

    g. The building must be evacuated before any other activities are conducted inside the building.

Building evacuation

2. The building must be evacuated in an orderly fashion to allow for decontamination of people if necessary. Where possible, casualties should be evacuated through a different exit. Order of evacuation will be determined by the physical properties of the contaminant, if known. If the contaminant is unknown, evacuation will be conducted from below upwards.

3. Evacuation will be conducted in accordance with SOPs.

Finding Contamination Sources

14. Specialist teams consisting of experts from the fire services, SAPS explosives units and/or SANDF will search the building methodically in accordance with SOPs for sources of contamination.

Building decontamination

15. The building as a whole, or parts of it, depending on the extent of the contamination, must be decontaminated by specialist teams. Air ducts and waste passages must be included in the decontamination. All filters from air-conditioning systems must be removed and sealed for analysis.

Reoccupation

16. Reoccupation will be conducted in accordance with the procedures described in Part I.

PART III

BIOLOGICAL INCIDENTS

INTRODUCTION

1. Most biological incidents will present as outbreaks of disease, which are not included in the scope of this work. The following incidents may present as emergency incidents:

   a. Incidents of deliberate spread of a biological agent through non-violent means – the typical anthrax type incident.

   b. Spread of biological agents by means of explosions – again anthrax is the most likely to be used in such an event.

2. In addition to the principles and guidelines set out in Part I the principles and guidelines described in the following sections apply.

SECTION I: DELIBERATE SPREAD THROUGH NON-VIOLENT MEANS

Introduction

3. This section covers the procedures for management of incidents involving parcels or packages. However, since suspicious parcels or packages must be handled as if they may contain explosives or other hazardous materials, the procedures to exclude explosives and other hazardous substances are described in this section.

4. Packages can contain explosives, toxic chemical substances, biological agents or a combination of these. It is, therefore, necessary to ensure that such packages are handled in a manner that will ensure the safety of public and personnel, but also that the contents are available for analysis if necessary. Situations should be handled so as to ensure the minimum disturbance within safety limits.

5. Biological hazards do not require the same procedures as for chemicals because biological materials do not emit vapours by themselves and are in many cases not so extensively distributed.

Actions upon arrival at the scene

6. The first step is to determine whether there is any toxic vapour hazard in the area. Vapour hazard indicators are:

   a. The presence of affected people in the area;

   b. A history of smelling something;

   c. An odour still present in the area;

   d. A positive report from one person with protective gear, gasmask and protective clothing, who has entered the area and performed detection (monitoring) with relevant equipment.

7. If positive for hazardous vapour, standard procedures for handling such a situation, as described in Part II, must be applied:

a. If negative for hazardous vapour there is still a possibility that the package may contain a hazardous substance. The possibility of a biological hazard is now higher. The danger area should now be restricted to the immediate vicinity of the package, a 30m radius around the package as safety margin. If the contamination is in a single room, that room is adequate as safety margin.

b. If no vapour hazard exists the package can be inspected for explosives.

c. If negative for explosives the package must be packed in a safe container, plastic bag or drum and sealed. The container must then be decontaminated by hand. 1,5% Chloride or Hypochloride solution is adequate. Standard mask and decontamination gear is necessary.

d. In the case of absent vapour hazard, persons who were in direct contact with the parcel (i.e. handled the parcel or within 1m radius of the parcel) should be managed as follows:

i. If there is no indication of powder on the body wash the hands and face with water.

ii. If there is powder on the body, decontaminate the person while dressed by washing with water. Immediately after decontamination persons must be removed to hospital for swabs. Thereafter, at home, the contact must shower and wash clothes again.

e. Persons not in close contact (> 1m distance) need not be decontaminated.

f. After removal of the parcel the area or room must be decontaminated.

g. Only surfaces directly in contact with the package or where the powder fell as well as an area of 10m around the contaminated surfaces need to be decontaminated.

h. The decontaminant to be used is a solution of 1.5% Hypochloride (Milton, Jik, Chlorine solutions etc) or ordinary chlorine solution of 1,5%.

i. Contaminated areas and objects can be cleaned with cloth by hand. Wash the surface thoroughly and rinse with clean water.

j. It is not necessary to cordon an area larger than 30 meters around the contaminated area or the specific room wherein the package was found.

k. The area is safe immediately after decontamination.

l. Small amounts of contaminated fluids may be disposed of in the normal sewage system, while larger volumes must be kept in containers for specialist treatment, such as autoclaving.

Management of Specimens

8. Specimens are evidence and must be handled as such. Additionally, the following apply:

   a. The substance is packed in a plastic bag, which is then placed into another plastic bag, or in a sealed plastic container by the SA Police Service.

   b. The bag/container must be clearly labelled indicating the type of investigation required e.g. "For Anthrax Investigation", and also clearly marked as a "Biological Hazard" before transportation to the laboratory for analysis.

Management of Contacts

9. If persons in the vicinity of a suspected substance answer positive to one or more of the following questions, they should be regarded as contacts:

   a. Did you handle the article or any of the material?

   b. Did you inhale, touch or taste any powder or get it on your skin?

   c. Were you sitting or standing next to the person who handled the article?

   d. If there is powder on the body, decontaminate the person while dressed by washing with water. Immediately after decontamination persons must be removed to hospital for swabs. Thereafter, at home, the contact must shower and wash clothes again.

   e. If no other source of specimen is available and only the clothes have suspicious substance on them such clothes must be handled as evidence.

   f. Contacts must be referred to the closest appropriate health care facility for investigation and follow-up.

SECTION II: DISSEMINATION THROUGH VIOLENT MEANS

10. Cases of dissemination of biological agents through violent means such as explosions are managed in accordance with the procedures described in Part I.

11. In all cases where there is a concern that a biological agent has been disseminated, special detection methods for biological agents must be applied.

12. Standard chemical protective equipment usually provides protection against biological agents as well.

PART IV

INCIDENTS INVOLVING RADIOACTIVE MATERIAL

INTRODUCTION

1. Most incidents involving radioactive material are expected to occur on sites that are specifically authorized to use, handle and or process such materials. As part of the authorization conditions, emergency preparedness and management plans commensurate with the maximum potential hazard or threat are maintained.

2. Radioactive materials and sources are, however, transported to and from authorized sites. Thus, transport accidents could potentially result in incidents that involve such materials. The transport of radioactive materials is subject to international transport regulations, which prescribe stringent packaging and other transport requirements. Clear labelling and use of placards on vehicles and packages are compulsory for most consignments.

3. Industrial radiography involves the use of sealed radioactive sources. This activity potentially requires the handling and use of such sources in the public domain, where accidents could occur, resulting in the loss of sources in an unshielded configuration.

4. Incidents of deliberate dispersal of radioactive material may occur. Radioactive material could be dispersed with the aid of explosive devices, as an act of sabotage. These are described as "dirty bombs". The presence of radioactive substances is expected to contribute to the propaganda value and level and outrage associated with such acts.

5. Although the likelihood for incidents involving radioactive material is low, provision has to be made for incidents with criminal and non-criminal intent. This section covers general guidelines to be considered in the case of incidents involving radioactive material. The key point is to handle these emergencies in a similar manner to all other emergencies but to also contact the Emergency Control Centre at Necsa (ECC) at the telephone number provided on page 53 when radioactive material is present or when any doubt exists regarding the presence of radioactive material.

SECTION I: HAZARD POTENTIAL OF INCIDENTS

Incident type	Radioactive material type	Likely cause	Hazard potential of radioactive material	Comments on hazard and response
1. Transport	Sealed sources and dispersible radioactive material	Accident-criminal and non criminal	Generally non-life threatening. High perceived risk	Sealed sources transported in shielded containers. Individuals close to unshielded sources or dispersible radioactive sources will be exposed. It could cause direct radiation, contamination and loss of property

2. Sources	High activity sealed sources	Accident – non criminal or theft – criminal	Potentially life threatening. High perceived risk	Hazard depending on the time exposed to and distance from an unshielded source
3. Deliberate dispersion of radioactive material- Terrorist treat	Wide range of radioactive material types possible	Sabotage-criminal	Generally non-life threatening. Extremely high perceived risk	Dispersed radioactive material could cause contamination that could result in the exposure of individuals and loss of property.

SECTION II: REGULATORY AUTHORITIES

6. In all incidents and emergencies involving radioactive material the relevant regulatory authority shall be informed. They will be informed by the licensee, permit holder, operator (individual authorized to posses, use or transport radioactive material) or by the Emergency Control Centre at Necsa (ECC) in terms of the ENA convention (see section 4 below). The Regulatory Authorities of South Africa are:

NATIONAL NUCLEAR REGULATOR

PO Box 7106

Centurion

0046

Phone: 012-674-7100

DEPARTMENT OF HEALTH

Directorate of Radiation Control

Private Bag X62

Bellville

Phone: 021-948-6162

SECTION III: THREATS AND COUNTERMEASURES

7. The following main goals for emergency response apply to incidents that are associated with radioactive material:

   i. Prevention of threshold (deterministic) health effects in workers and the public.

   ii. Minimize the probability of non-threshold (stochastic) health effects in workers and the public

Threats during Transport

a. Transport consignments are packaged in accordance with international transport regulations. Significant quantities of radioactive material are limited to transport in transport containers designed and tested to withstand credible accident impacts. Consignments are also placarded and labelled in accordance with international requirements, as indicated in Section VI.

Consignments are also accompanied by transport documentation providing emergency response information, including a UN number and contact details. Transport of radioactive materials is done by informed and trained carriers.

b. The carrier shall immediately take initial life saving and first aid actions, without concern for the hazard associated with the presence of radioactive material, isolate the source of radioactivity, if possible and notify local emergency response services as well as the emergency centre referenced in the transport documentation.

c. First responders should take the initial actions appropriate for the UN numbers or labels affixed on the item being shipped and inform the appropriate agency which will request assistance from the Emergency Control Centre (ECC) at Necsa. (contact details on page 53)

Source Threats

8. First responders and physicians should be sensitive to indicators of radioactivity or radiation symptoms. Even if radiation or contamination is suspected, the first responders should promptly implement life saving action and provide first aid for serious injuries without delay or waiting for radiological monitoring. They should also isolate the source of exposure by removing all workers and members of the public from its location to a maximum practicable distance. The relevant agency should then be informed and it will request assistance from the Emergency Control Centre (ECC) at Necsa as appropriate. If the incident involves a source that is under the control of the operator, the operator should implement the immediate action procedures, including measures to control the source of potential exposure, protect people nearby and report any uncontrolled sources. The operator should also inform the appropriate agency and provide technical support to first responders and emergency response teams.

Terrorist Threats

9. These may include bomb threats, bombings, sabotage, theft of radioactive material, or other criminal acts potentially resulting in an actual or perceived radiation emergency. The objective of the perpetrators is to create terror. Experience has shown that the public's perception of risk may be more important than the actual risk. Response should include provision of consistent information regarding the true risk.

10. The response to these emergencies may involve a tactical response. A clear chain of command is essential and the SAPS will be the lead agency. A single source for the control and dissemination of information should be established. Radiological response personnel should be aware of the importance of not interfering with the collection or preservation of evidence. Law enforcement response personnel should be aware of the additional safety concerns that may occur due to the presence of radioactive material. Assistance should be requested from the Emergency Control Centre (ECC) at Necsa as appropriate.

11. First responders should implement life saving actions promptly and provide first aid for serious injuries without delay and without waiting for radiological monitoring, while, at the same time, using the maximum personal protective (skin and breathing) equipment available. Decontamination of patients or other persons is similar as prescribed for chemical emergencies (Part I).

SECTION IV: EARLY NOTIFICATION AND ASSISTANCE (ENA) IN CASE OF NUCLEAR ACCIDENTS OR RADIOLOGICAL EMERGENCIES

12. South Africa is a signatory of the ENA conventions and Necsa is the designated Competent Authority in the RSA. The functions and responsibilities of the competent authority include the following:

    a. Contact point for national assistance in the case of radiological emergencies.(Activation of Radiation Protection Specialists (RPS) and Nuclear Emergency Response teams.)

    b. Contact point to obtain national and international technical expertise in the various fields of radiation protection, and to reply to requests for information or assistance.

    c. Reporting of national nuclear related incidents and disasters to international bodies (IAEA)

    d. Reporting of incidents and emergencies that involve radioactive material to the appropriate Regulatory Authority.

13. The Emergency Control Centre at Necsa (ECC) acts as the ENA contact point. The ECC is manned 24h per day and can be reached at:.

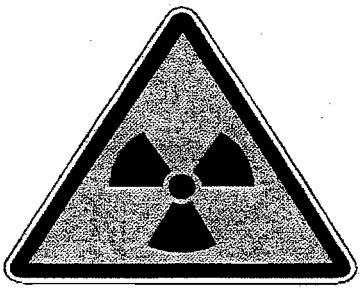
    Telephone: 012-305 3333

SECTION V: APPROACH IN THE CASE OF AN EMERGENCY THAT INVOLVES RADIOACTIVE MATERIAL

- Most of the incidents that involve radioactive material are expected to occur as incidents where the radiological characteristic of the material is the primary concern. An emergency where the presence of radioactive material is associated with another primary threat is also credible. Emergencies that involve radioactive material are managed similarly to other types of emergencies with the early involvement of the appropriate Regulatory Authorities and specialists in the field of radiation protection.

SECTION VI: INFORMATION

a. Section extracted from an information document on the transportation of radioactive material issued by The Department of Minerals and Energy and The National Nuclear Regulator).



Additional Documentation Accompanying the Consignment

Each consignment requires additional documentation such as a shipping documents and a consignor's note, which provides the following information:

- Names and addresses,
- Radioactive contents, total activity, physical and chemical form
- Label information
- Special transport restrictions
- Consignors declaration
- Notification and emergency instructions for transport accidents.

Notifications to the Competent Authority

In the case of certain types of consignments a formal notification must be provided to the competent authority of the country to, or through which, a shipment is scheduled to pass. Examples would include spent fuel shipments outside territorial waters.

Transport Accidents Involving Radioactive Materials

In the case of transport accidents involving radioactive materials, it is possible that radioactive material carried in certain types of packages or containers could be released resulting in localized contamination of the road surface, surrounding areas and possibly individuals. All consignments carried by road are required to carry emergency phone numbers and details of the consignment in order to immediately notify the NNR, the consignor, police and emergency services of the incident.

The emergency response to such an accident would include the following:

- Notifying the authorities and emergency services
- Identifying the type of material and potential hazard
- Barricading off the accident area and any spillages
- Controlling traffic around the accident site
- Monitoring for contamination on road surfaces, vehicles and individuals
- Removing contaminated areas and items (e.g. soil and tarmac)
- Contaminated individuals would be removed to a special facility to be decontaminated, monitored and counseled regarding their exposure
- Monitoring of the area after clean up

Individuals or their property which was contaminated during such an accident can make a claim for nuclear damage against the consignor. The NNR can be contacted with regard to such claims.

National Nuclear Regulator
PO Box 7106
Centurion
0046
Phone: 012-674-7100
Facsimile: 012-663-5513
Email: nnr@nnr.co.za

References:

[1] IAEA (Draft Safety Guide DS-105): Arrangements for Preparedness for a Nuclear or Radiological Emergency. IAEA

Public Management for Excellence Du Toit and van der Waldt 2000

Human Resource Management for SA Grobler 2003

Disaster Management Act (57 of 2002)

GLOSSARY

ACRONYMS

CBR: Chemical or Biological Agents or Radioactive Materials

CBRD: Chemical, biological Radiological Defence

DMC: Disaster Management Centre

DOC: Disaster Operations Centre

ECC: Emergency Control Centre

EMS: Emergency Medical Service

HAZMAT: Hazardous Materials (Dangerous Goods)

HQ: Headquarters

IC: Incident Command

ICP: Incident Command Post

ICS: Incident Command System

TIO: Technical Information Officer

JOC: Joint Operational Centre

LERP: Local Emergency Response Plan

MSDS: Material Safety Data Sheet

Necsa: South African Nuclear Energy Corporation

PIO: Public Information Officer

RPS: Radiation Protection Specialists

SAPS: SA Police Service

SITREP: Situation Report

SOP: Standard Operating Protocol/Procedure

WBS: Work Breakdown Structure

DEFINITIONS

Public Information Officer – An Official at the DMC or on the scene (cold zone)responsible for preparing and coordinating the dissemination of public information in cooperation with other responding national, provincial, and local agencies.

Crime Scene Technician - A specially trained member of the Local Criminal Record Centre or the Forensic Science Laboratory (FSL) who takes control the Crime Scene Processing Team.

Crime Scene Processing Team – A team of crime scene experts assigned to assist the Crime Scene Technician with the processing of the crime scene.

Buddy system – Elements functioning in the hot zone that consist of two persons working together.

Hazard - A rare or extreme event that can lead to a disaster.

Risk - The expected loss (economical, time, infrastructure or resources) caused by a particular phenomenon.

Vulnerability - The degree of loss to a given element (economical, time, infrastructure or resources).

Threat - The peril that has the ability to interfere with a incident to the extent that it causes damage or loss.

CONTACT NUMBERS

The Emergency Control Centre at Necsa (ECC) acts as the ENA contact point. The ECC is manned 24h per day and can be reached at: Telephone: 012-305 3333

Sasol Emergency Call Centre	0800 112 890
New Castle Fire & emergency Services	034-312-1222
Bethlehem- Dihlabeng Fire	058-303-5161
Riemland Control Eastern Free State	058-863-3351
Pietermaritzburg – Msunduzy Fire	033-845-5900
Durban – Ethkwini Fire	031-309-4341
Richards Bay – Mhlatuzi Fire	035- 797 3313
Umtata Fire	047-532-4444
East London – Buffalo City	043-705-9000
Potchefstroom Fire	018-293-1111
Kimberley – Sol Plaaitjie Fire	53- 832- 4211
Bloemfontein – Mangaung Fire	051-405-8290
Welkom – Matsjabeng Fire	057- 352-2222
Cape Town Fire	021-487-2097
Port Elizabeth – Nelson Mandela Metro Fire	041- 585-1555
Middelburg Fire	013-253-1121
Nelspruit Fire – Mbombela Fire	013-753-3331
Pietersburg – Pholokwane Fire	015-290-2000
Rustenburg Fire	014-590-3333
Vereeniging – Sedibeng Fire	016-440-1000
Johannesburg Fire	011-331-3141
Pretoria – Tshwane Fire	012-310-6300
Boksburg – Ekhuruleni Fire	011-894-8000

66

Mossel Bay Fire	044-691-3722
Overberg District Fire	028-425-1157
Department of Transport Cape Town	021-465-7260
Department of Environmental Affairs	021-465-7240
Department of Water Affairs	021-464-150