

ADVICE TO EMERGENCY SERVICES
AND CIVIL EMERGENCY PLANNING STAFF

TRANSPORT ACCIDENTS INVOLVING NUCLEAR WEAPONS

INTRODUCTION

1. The purpose of this document is to give personnel on Police, Fire, NHS and Local Authority Emergency Planning staffs common guidance on transport accidents involving nuclear weapons, and the procedures that should be followed. It is intended to be distributed to officials and officers who might be involved in planning the response to such accidents, and supplements the training given by MOD to senior officers in emergency services and civil emergency planning staff.

2. Nuclear deterrence is part of Britain's overall defence policy. As long as Britain possesses nuclear weapons there will be a need to move them from one place to another - for operational reasons, and also because the weapons are regularly maintained. It must however be emphasised that:

a. The risk of a nuclear weapon transport accident resulting in a nuclear explosion can be discounted; the safeguards in warhead design and transport practice make such a result effectively impossible.

b. The risk of a hazard arising from the presence of radioactive material or the conventional explosives in a warhead is extremely remote, but cannot be totally excluded in all conceivable accident scenarios. It is this sort of hazard with which this guidance deals. Such an accident has never happened with a British nuclear weapon. We go to great lengths to maintain this record. Apart from the safety features built into the weapons themselves, they are always transported in containers which are designed and tested to protect the weapon from impact and fire in credible accident scenarios. These physical precautions are supplemented by detailed procedures governing weapon transport.

3. In short, very considerable effort is expended to ensure the safety of nuclear weapons and their modes of transport; the attached guidance relates to an event which we are determined should never happen. Nonetheless, the MOD recognises its responsibility to plan to cope with the consequences of a nuclear weapon accident, unlikely though it is.

1. NUCLEAR WEAPON TRANSPORT

1.1 Nuclear weapons can be moved by road, air or sea. All such movements are conducted by specially trained teams, and are kept to a minimum.

1.2 When transported by road, the weapon containers are moved in vehicles which have specially designed cargo bodies which will minimise damage to a weapon container and its contents. The convoy of military vehicles includes a fire tender and the military crew of the convoy includes a first aid team and personnel equipped to monitor for radioactive release. Civil police forces are always notified in advance when a weapon convoy is routed through their areas, so that they can advise of alternative routes if they are aware of local road hazards.

1.3 When transported by air, only multi-engined military transport aircraft are used. Movement of nuclear weapons by sea is carried out only in Ministry of Defence (MOD) vessels specifically equipped and approved for the purpose.

1.4 The MOD is the nominated lead Department within central government for organising the response to a transport accident involving nuclear weapons. The MOD maintains a nuclear accident response organisation, and the necessary contingency plans. These MOD plans recognise the relevant responsibilities of the local civil emergency services and authorities for public safety. MOD response forces at the scene of an accident will, of course, provide specialist advice and assistance to civil authorities.

2. POSSIBLE CONSEQUENCES OF AN ACCIDENT

2.1 Key points to remember are:

- even accidents as severe as multiple road traffic accidents are unlikely to damage a nuclear weapon to the extent necessary to create any special hazard;
- the weapon containers are designed to withstand prolonged exposure to the temperatures encountered in fuel fires, and are tested to ensure they do;
- it is only in the highly unlikely event of the weapon being ruptured and its contents dispersed by fire or explosion that the special hazards described below will occur.

3. POSSIBLE HAZARDS

Radiological hazards

3.1 For those unfamiliar with the principal types of ionising radiation, it should be noted that at Chernobyl, persons approaching the site were at risk from gamma or beta radiation emitted by the radioactive materials in the damaged reactor. These types of radiation can penetrate the human body. By contrast, the dominant radioactive hazard involved in a nuclear weapon accident would come from the element plutonium, which emits alpha radiation, which is quite different to beta and gamma radiation. Alpha radiation is stopped by ordinary clothing or even the outer layer of a person's unbroken skin. Particles of plutonium would have to be actually lodged in a person's body before they could do damage. Unless the casing of the weapon itself is breached, none of the radioactive materials within the weapon can endanger even those who are in close proximity to it.

3.2 Depending on the type of weapon, other radioactive materials such as uranium and tritium, or non-radioactive but toxic materials such as beryllium and lithium, might be present. The quantities involved and the characteristics of these other materials are such that they could be a hazard only to personnel who have to approach very close to badly damaged weapons, eg in order to rescue casualties. For this reason, firefighters should wear chemical protection suits and positive pressure breathing apparatus. The radiological hazards to personnel who do not have to enter the load compartment in a road transporter (or the weapon stowage compartment in a ship, or a crashed aircraft cargo hold) are essentially confined to those from the dispersal of plutonium, possibly in a finely divided form, and in particular the inhalation hazard that such particles present.

Plutonium

3.3 If very small particles of plutonium metal or plutonium oxide are created by fire or explosion, the primary hazard results from such particles entering the lungs by inhalation. Plutonium could also enter the bloodstream by ingestion or if deep wounds contain contaminated fragments. However, absorption into the vascular system will be slow.

3.4 Plutonium also presents a toxic hazard, but protection against the radiation hazard will amply guard against the toxic effect.

High explosive hazards

3.5 Nuclear weapons contain chemical high explosive. The blast hazard from the high explosive in one of our nuclear warheads would always be outweighed by the hazards from flying metallic fragments except within a few tens of metres of a severely damaged weapon. Advice on the actions that should be taken to minimise risk of injury from a conventional explosion is given at paragraphs 5.4 and 5.5.

3.6 If a nuclear weapon and its container are severely damaged and the high explosive partially explodes, there is a risk that pieces of unreacted explosive might be scattered in the vicinity of the damaged weapon. As in a conventional munitions accident, a small residual risk is presented by such pieces which might explode if disturbed in a particular way, possibly by treading on them. Identification of any such scattered fragments will be difficult for a non-expert. All debris, particularly any resembling pieces of wax, chalk or gravel should not be handled or disturbed by non-specialists, except to save life.

3.7 Specialist MOD teams will remove any pieces that have been dispersed. If emergency services have to approach a weapon which has exploded, for example to save life, before MOD personnel confirm that the area or route is clear of debris which might include pieces of explosive, then any risk of injury from scattered explosive will be minimised by taking care not to step on scattered debris unnecessarily.

4. ALERTING THE EMERGENCY SERVICES

4.1 In the event of a transportation accident involving a nuclear weapon, the appropriate Police Control would be notified by MOD staff using special procedures (to counter hoaxes). The Police Control should then alert the other emergency services. At relevant Royal Navy bases there are separate plans for accidents to naval nuclear propulsion reactors, and the emergency services are alerted by a cascade call-out procedure. The same procedure would be followed if a nuclear weapon was involved in an accident on the base.

Road Transport

4.2 In any accident involving a convoy which is carrying a nuclear weapon, the convoy commander will have at his disposal sufficient equipment and trained men to provide an initial fire fighting capability, to assess whether or not there has been any radioactive release and to alert and brief the emergency services. Back-up specialist MOD forces will be summoned immediately by the convoy commander.

4.3 A Transport Emergency Card (Tremcard), similar to that carried by drivers of hazardous loads, will be carried by the officer in charge of the escort accompanying a nuclear weapon convoy. This will be given to the officer in charge of the first fire brigade appliance attending the scene. A copy is at Annex A.

Air Transport

4.4 Our nuclear weapons are transported by air only in multi-engined military transport aircraft. The use of air transport for nuclear weapons is kept to a minimum. In any incident involving an aircraft which is carrying a nuclear weapon, the RAF will immediately dispatch a Special Safety Support Element (SSSE) to the scene. The SSSE is "on call" during all movements of nuclear weapons by air.

4.5 The RAF authorities will notify the appropriate Police Control if they know or suspect an aircraft carrying nuclear weapons has crashed in the area for which that Control is responsible. This information should be passed by Police Control to the other emergency services. The police officer taking charge at the scene will therefore know at the outset, or receive early notification from his Control, that the aircraft is carrying a nuclear weapon. If a Police Control is unsure whether a nuclear weapon is present in a crash involving a large multi-engined military transport aircraft, a check can be made directly with the RAF Duty Officer in MOD London, using special procedures, to obtain the necessary information. All police forces have details of the necessary numbers and procedures.

Sea Transport

4.6 During all sea transport operations, specialised MOD teams are present throughout the movement. If assistance from civil agencies is required, the Royal Navy's Incident Commander will advise the civil incident officers of any likely hazards.

5. IMMEDIATE ACTIONS - SUMMARY AT ANNEX B

Emergency Services

5.1 The overall responsibilities of the civil emergency services are the same for a nuclear weapon accident as for any other type of major incident. The civil police will be responsible for co-ordinating the overall response to the incident, whilst the fire service will co-ordinate activity within the cordon area whilst fire fighting and rescue activities are taking place. The senior officers of all Emergency Services on-site should seek advice from the senior military officer present.

5.2 On being alerted that a nuclear weapon is involved in the accident, approach to the accident site should be made from an upwind direction if possible. The essential requirement for emergency service personnel in the vicinity of a damaged weapon, or where weapon damage is suspected, is to protect the mouth and nose to counter any risk of plutonium inhalation, as will be described below. Where a weapon is being transported by road or sea, the military escort will have spare sets of respirators or face masks. For air transport, the Special Safety Support Element (see para 4.4) carries spare face masks. In all circumstances, some protection from plutonium inhalation will be provided by any medical face mask or industrial anti-dust mask.

5.3 Firefighters who might have to go close to damaged weapons in order to extinguish a fire or rescue casualties should wear positive pressure breathing apparatus and chemical protection suits which will provide protection against all radiological and chemical risks. Firefighters not in close contact with weapon debris will be adequately protected from any plutonium contamination by breathing apparatus and their normal firefighters' clothing.

5.4 If a fire is still burning at the accident site the priority is to rescue casualties and, because of the specific presence of nuclear weapons, to extinguish the fire and cool the weapons or their containers. Do not move or disturb weapons or their containers. Fire or explosion represents the most significant risk of plutonium being dispersed as an inhalation hazard. Therefore it is important that fires are extinguished as soon as possible, and weapon containers cooled by water spray even after any fire is put out. Cooling jets should be fixed in position if this is practicable, to allow firefighters to withdraw. The spray should be kept in operation until the military Incident Commander advises that it is no longer necessary.

5.5 In the event of an aircraft crash, military personnel might not be immediately available on site to advise the emergency services as they arrive on the cargo or munitions being carried. Standard MOD advice sets out the action to be taken if conventional munitions are involved in fires in such circumstances, and this advice should also be followed if the presence of nuclear weapons is suspected. So, in all cases where:

- advice from military personnel is not available, and
- an incident is suspected to involve an unknown quantity of ammunition or explosives, and
- fire has reached or is hazarding the load, then
- evacuate immediately to 600 metres and take cover.

The containers in which our nuclear weapons are transported offer substantial protection, even during prolonged exposure to fuel fires. In all circumstances where military personnel escorting our nuclear weapons are available on site, they will give advice on whether to continue firefighting or to evacuate.

Radio transmissions

5.6 Radio transmissions can cause electrical pulses in circuits near the transmitter. This is sometimes termed RADHAZ (Radio Frequency Radiation Hazard). This effect will not cause a detonation of the main conventional high explosive charge in a nuclear warhead, no matter whether the nuclear weapon is intact or damaged. However, if both the weapon container and the case of the weapon itself are damaged as a result of a severe accident, then there is a remote possibility of some other minor conventional electro-explosive devices being set off by adjacent radio transmissions. This would pose a hazard to personnel in the immediate vicinity of the weapon. As a precaution, the following restrictions on radio frequency transmissions in the vicinity of a nuclear weapon transport accident should be imposed immediately.

5.6.1 All radio frequency transmitters (including personal and vehicle radios, and portable cellular telephones) must be switched off within a radius of 10 metres of a nuclear weapon or any of its damaged components which have been scattered by the accident.

5.6.2 Radio frequency transmitters with an Effective Radiated Power output of greater than 5 watts must be switched off within a radius of 50 metres of a nuclear weapon or any of its damaged components which have been scattered by the accident. For simplicity, this can be taken to apply to all vehicle-mounted transmitters.

After a conventional explosion

5.7 If the conventional explosive in a nuclear weapon partially explodes, pieces of unexploded material might be scattered. Consequently, to protect against any significant hazard from such scattered explosive pieces, military forces will advise that a cordon should be set up, typically at 300 metres from a weapon that has exploded. Assistance will be offered by military forces on site to establish and maintain this cordon.

5.8 The civil Police will be responsible for keeping the civilian population away from the site and for traffic direction. Military personnel will provide assistance if requested. Once the civil police has arrived at the scene, Service security units at the site will act only in support of them.

Monitoring and Decontamination on-site

5.9 Seriously injured casualties must be taken away for urgent treatment. Apart from such casualties and their escorts, if there has been a release of radioactive material, then other persons who have been within the cordon area or in the smoke plume should not leave the area until they have been monitored by the Service specialists. To avoid the possibility of inhaling or ingesting material from contaminated hands or clothing, there should be no eating, drinking or smoking until monitoring and decontamination is carried out. Potentially contaminated items inside the cordon, including clothing, equipment or vehicles, should be left inside the cordon until proven to be uncontaminated, or satisfactorily decontaminated, or sent for disposal under controlled conditions.

5.10 Beta and gamma monitoring instruments will not detect alpha radiation. Military teams have appropriate monitoring instruments and equipment. Emergency service personnel who have entered the smoke plume should inform their senior officer so that priority monitoring can be arranged for them.

Military forces on site

5.11 The senior military officer present obviously plays a key role in view of his specialist knowledge, and it is important that there is close liaison with him. The Service safety escort will begin initial firefighting, first aid and monitoring procedures immediately. Regardless of the circumstances, the Service escort will be augmented by further specialist military teams which will deploy rapidly to the accident site. They are trained and equipped to deal with a nuclear weapon accident, and will be under command of an officer who will assume the role of the Military Incident Commander. He will take charge of all other military personnel at the site, and will liaise with the Civil Emergency Service Incident Officers in control at the scene.

5.12 If a release of radioactive material has occurred, monitoring by specialist Service units will continue to establish the extent of the release. If necessary, the cordon around the accident site will be extended. Service teams will set up a temporary health control point to monitor people leaving the cordon area and decontaminate them if necessary. This will be positioned on the upwind cordon boundary.

5.13 Military personnel will wish to set up a security cordon if a nuclear weapon is involved in any incident, irrespective of whether the weapon is damaged. This is distinct from the safety cordons covered in paras 5.5 and 5.7. Its size will depend on the particular circumstances of the accident, and will be set up in consultation with the civil police.

6. CASUALTY TREATMENT

6.1 To save life, the over-riding priority is to treat serious trauma casualties, irrespective of any confirmed or suspected contamination. If immediate hospital treatment is essential, casualties should be taken to the nearest accident and emergency facility. For other casualties with confirmed or suspected contamination, every effort will be made to monitor and decontaminate them on site. If confirmed or suspected contaminated personnel are sent to hospitals, the number of hospitals receiving them should be minimised. If possible, for such cases, hospitals should be chosen with appropriate monitoring and decontamination facilities. The local NHS ambulance service will know where they are. The NAIR (National Arrangements for Incidents involving Radioactivity) handbook has a list of hospitals which gives guidance.

6.2 Advance notice must be given to the receiving hospital. Arrangements might have to be made to divert other casualties (ie, arising from other accidents, or confirmed uncontaminated casualties from the weapon accident) to other hospitals, because of the disruption that will ensue at the unit receiving contaminated cases.

6.3 Ambulance personnel dealing directly with casualties with suspected or confirmed contamination should wear face masks, disposable gloves and protective coveralls. "Infectious diseases" protective clothing is suitable.

6.4 Confirmed or suspected contaminated casualties should be wrapped in blankets where possible for transport to hospital. This will minimise vehicle contamination. If the ambulances used for this purpose are not returned to the accident site to transport further contaminated cases, these vehicles should be "quarantined" after delivering casualties. This means they should be isolated behind guarded barriers until they can be monitored for contamination. Specialist MOD teams can perform this task. Ambulance crews who deliver suspected or confirmed contaminated patients should be kept apart, and should not eat, drink or smoke until they are monitored for alpha contamination and decontaminated: if necessary, this can be done at the health control point that MOD forces will set up at the accident site.

6.5 Hospital staff will be adequately protected by wearing surgical gowns, surgical Wellington boots, surgical gloves, surgical hats and masks. Contamination of hospital facilities can be contained by isolating the area holding contaminated casualties, committing staff only when necessary and switching off ventilation systems. All potentially contaminated clothing, equipment etc. should be retained after use in sealed bags for monitoring and subsequent decontamination or controlled disposal. Additional monitoring equipment and medical advice will be provided by the Ministry of Defence from specialist teams that form part of the MOD's national response organisation.

Immediate Hospital actions

6.6 The priority is to treat the patient for any serious conventional injuries.

6.7 Retention of inhaled particles of plutonium contamination in the lung or elsewhere in the body depends on the particle size and chemical composition. Inhalation of particulate contamination by casualties is the dominant radioactive hazard. After a nuclear weapon accident, the plutonium present will be virtually insoluble. Plutonium intake into the bloodstream through shallow wounds or via the gastrointestinal tract is practically negligible. Normally, most plutonium can be removed from cuts and superficial wounds when the scab or surface crust is removed. Plutonium intake into the bloodstream by injection or by entry into deep wounds can be more serious, although absorption into the vascular system is slow.

6.8 Early biological samples will aid in the diagnosis and management of plutonium contaminated casualties. The most important biological samples in the early stages are nose swabs (one from each nostril), which should be labelled with the name of the patient and the time and date that the swab was taken. (Nasal passages can be cleared within two hours and artificially low readings are therefore possible after this period.) Other biological samples required are throat swabs, nose blows, urine and faeces. Collection of samples should take place over a period of a week at least. From these samples computer modelling can give an initial estimate of the amount of plutonium in the lungs. The UK has specialised facilities for monitoring and treating serious cases of internal plutonium contamination. MOD radiation medicine specialists will advise on these aspects.

6.9 Finally, if the accident has resulted in fatalities, temporary mortuary facilities should be considered to avoid contaminating hospital mortuary facilities and disrupting normal routines. Advice to the Coroner or Procurator Fiscal will also be provided by the Ministry of Defence.

7. PUBLIC PROTECTION

7.1 In extreme circumstances, the principal hazard to the general public away from the actual accident location would be a downwind plutonium inhalation hazard - but only if such material was released from the warhead by fire or explosion.

Shelter/Evacuation

7.2 Immediate advice on the conventional explosive hazard close to a damaged warhead is given at paras 5.5 and 5.7. MOD advice on radiological hazards will follow the guidelines predetermined by the National Radiological Protection Board (NRPB). These are based on the dose of radiation that is averted by adopting a specific countermeasure - in this case, shelter or evacuation. The NRPB makes recommendations in the form of Emergency Reference Levels, which are converted by MOD into Emergency Action Guidance Levels to allow a decision to be made quickly on the basis of known or likely contamination levels.

7.3 The senior military officer present will recommend moving personnel within any cordon area to the cordon boundary at the upwind end, for monitoring and, if necessary, decontamination.

7.4 It must be emphasised that the particular circumstances of an accident will dictate the correct action on any wider implementation of shelter/evacuation, and that the final decision on the actions to be taken to protect the public will rest with the civil authorities, as is normal for peacetime emergencies. The following information should assist in making decisions.

7.5 If a warhead explodes or burns, the highest levels of any surface contamination are likely to be found within the cordon which would be set up around any high explosive hazard. Some radioactive material might also be carried downwind. Downwind of the accident, outside an evacuated cordon area, shelter will generally be the best and most practical protective measure that can be implemented immediately. "Shelter" in this context means no more than staying inside a building, closing doors and windows and switching off ventilation systems which draw in air from outside the building.

7.6 Early estimates of the distance over which sheltering, or evacuation beyond an initial cordon area, would be advisable are likely to be approximate. The number of weapons damaged, the severity of damage, and the prevailing and predicted weather conditions are all relevant factors. Detailed calculations will be performed by MOD experts as quickly as possible for the particular circumstances of an accident.

7.7 It is recognised that civil authorities might need advice if circumstances arose in which no MOD adviser was immediately available on site. In such circumstances, if nuclear weapons are present and an explosion of the conventional explosive in the warhead is thought imminent, immediate sheltering is advisable out to 5 km downwind over a 45 degree arc to counter a potential inhalation hazard.

7.8 The statement warning the public should cover the points listed in Annex B.

8. CENTRAL GOVERNMENT SUPPORT

8.1 The MOD will co-ordinate the Central Government actions in the event of a nuclear weapon transport accident. Response plans are drawn up and exercised to ensure that advice will be available from other Government Departments, such as the Department of the Environment and the Ministry of Agriculture, Fisheries and Food (or the equivalents in territorial Departments such as in the Scottish and Welsh Offices), and from national bodies such as the NRPB (National Radiological Protection Board). This advice will cover food restrictions; the shelter, evacuation or relocation of the public; environmental restoration etc.

9. FURTHER MOD SUPPORT FORCES

9.1 Further units of the Ministry of Defence's Nuclear Accident Response Organisation will be sent to the accident scene as quickly as possible. These will include medical experts, health physicists, weapon specialists, additional monitoring units, decontamination experts and the engineering teams listed below. MOD personnel on site following a serious accident posing a radioactive hazard might total 400 within 24 hours, with some 150 vehicles and equipment trailers.

9.2 One of the first follow-up elements to arrive for a road transport or aircraft accident will be a field headquarters, which will arrive by helicopter. The Field HQ will be led by a senior RAF officer, assisted by advisers, who will take over from the **Military Incident Commander** the overall responsibility for all military activities associated with the local response to the accident. He will be designated the **Military Co-ordinating Authority (MCA)** and will liaise directly with the civil authorities and with MOD headquarters. For an accident at sea or on a Naval Base, a Naval Flag Officer will become MCA.

9.3 A military Engineering Support Force will be sent to assist in restoring the site. It will include weapons and explosive ordnance disposal experts, a repair and salvage unit, and general engineering support.

9.4 A team of warhead and radiological experts from the Atomic Weapons Establishment at Aldermaston will provide specialist advice and assistance for the safe recovery of any damaged weapons and their components, and on the decontamination and restoration of the site.

9.5 To supplement the initial temporary post, a Health Control Post will be established to control access to the hazard area and to monitor and decontaminate personnel on exit. Teams will monitor the area surrounding the incident, and the results will be analysed in a mobile laboratory at the site.

9.6 MOD security personnel will assist the civil police and protect military equipment and facilities. Finally, communications, logistics, catering and administrative elements will be provided to support all the functions described above.

10. MEDIA AND PUBLIC INFORMATION

10.1 Issuing accurate and timely public information will be a priority. If a release of radioactive material is likely or has occurred, the Ministry of Defence will liaise with the civil authorities as quickly as possible so that public statements can be co-ordinated and members of the public can be told the actions they should take.

10.2 Military Incident Commanders are instructed to liaise with civil counterparts before making any media statements from the site. Establishing a combined media centre near to the scene will be a priority task for the Military Co-ordinating Authority and his local civilian counterparts. Representatives from the relevant Central Government Departments will also require to attend the combined media centre. All media enquiries at the scene should be referred to this combined media centre. Reporters arriving at the scene should be directed to the media centre. Before this is set up, enquiries should be directed to the police or senior military officer in attendance.

10.3 Care should be taken during the transmission of radio messages. The scope for widespread public alarm originating from partially overheard radio traffic must be remembered at all times. Hospitals treating casualties should also use their customary discretion in giving details of the patients in their care. In view of the potential for public confusion, press releases from all official bodies should be co-ordinated with the civil police and MOD, either centrally or on site.

ANNEX A

TRANSPORT EMERGENCY CARD

Cargo

NUCLEAR WEAPON/COMPONENT

Nature of Hazard

Explosive Risk - Explosive charge unstable when heated
Radiation Risk - Slight risk from Alpha particles

When heated explosive charge may soften or melt
If weapon is fractured, unstable explosive may be scattered
in vicinity of weapon
If weapon is jetting (flame under pressure) explosion
imminent, debris may be scattered within 600 m radius

Protective Devices

Chemical Protection Suit
Breathing Apparatus

EMERGENCY ACTION

- Take advice from RAF Officer in Charge of Convoy
- Send message to Fire Brigade Control "Radiation suspected" or "Radiation confirmed" as appropriate
- Keep all non essential personnel and public 600 m from incident
- Keep upwind

FIRE

- Keep containers/weapon cool by water spray if exposed to fire
- Continue to cool after fire is extinguished
- If weapon jetting lash spray branches

FIRST AID

- Evacuate casualties through RAF Control of Entry Point

Additional information:

A military and civilian police cordon will be deployed around the incident

All personnel and equipment will be monitored and decontaminated before leaving the area

POINT OF CONTACT

Senior RAF Officer in Charge - (Incident Commander)

SUMMARY OF KEY EMERGENCY ACTIONS

1. If damage to a nuclear weapon is suspected:
 - KEEP UPWIND IF POSSIBLE
 - EXTINGUISH ANY FIRES
 - COOL WEAPONS/CONTAINERS BY WATER SPRAY
 - RESTRICT RADIO FREQUENCY TRANSMISSIONS WITHIN 50 METRES
 - PROTECT THE NOSE AND MOUTH
 - DO NOT MOVE WEAPON OR CONTAINER
2. If a conventional explosion is thought imminent:
 - EVACUATE TO 600 METRES AND TAKE COVER
 - ADVISE PUBLIC TO SHELTER UP TO 5 KM DOWNWIND OVER A 45 DEGREE ARC TO COUNTER A POTENTIAL INHALATION HAZARD.
3. If a conventional explosion has occurred, military personnel will advise on the safety cordon distance around an exploded weapon, typically at 300 metres.
4. Key points of public shelter announcement (NB - only required in exceptional circumstances when a downwind plutonium inhalation hazard is thought imminent) are:
 - 4.1. An accident occurred at [TIME] [PLACE] which involved a nuclear weapon.
 - 4.2. There is no risk of an "atomic bomb" type of explosion.
 - 4.3. There is a risk of a hazardous dust cloud made up of very fine dust particles being carried downwind.
 - 4.4 People in the following areas [...name locations...] should take these precautions to minimise the risk of breathing hazardous dust particles.

ACTIONS:

- A. - Go indoors and stay there.
- B. - Do not try to collect children at school unless told to do so. The school authorities will look after them.
- C. - Close all doors, windows and ventilators. Switch off any ventilation or air conditioning systems drawing air from outside the building.
- D. - Do not leave the shelter of a building unless requested to do so by the police or other emergency services
- E. - Keep tuned to local radio/TV [name stations, frequencies]. Emergency services and military forces are responding to the accident. You will be informed when these precautions are no longer necessary.