Northern Ireland
Fire & Rescue Service

Protecting Our Community

SERVICE TRAINING NOTE

HAZMAT 12a

IOR Initial Operational Response – Remove Remove Remove

Date:	6 July 2018
Version:	1.0
Prepared by:	Resilience Department & Learning & Development Centre

VERSION CONTROL

VERSION No.	ACTION	PREPARED BY	APPROVED BY	DATE ISSUED
1.0	New Service Training Note	WC B Sands	GC P Martin	06.07.18

INDEX

NOTES

1. Aim

To provide all NIFRS personnel with the knowledge and understanding of how to safely apply the Remove Remove Remove principles as part of the initial Operational Response to a CBRN/Hazmat incident.

2. Learning Outcomes

At the end of this session all personnel will be able to:

1. Recognise the signs and symptoms of a CBRN/Hazmat incident.
2. Apply the STEPS 1 2 3 Plus.
3. Apply Wet or Dry decontamination appropriately.
4. Operate Improvised and Interim Decontamination.
5. Understand the term Clinical Decontamination.
6. Understand the term Mass Decontamination.

3. Introduction

This training note is concerned with the Initial Operational Response to an incident which involves contaminated members of the public and provides advice and guidance to personnel in the event of a Chemical, Biological, Radiological or Nuclear (CBRN) release. A HAZMAT incident and a CBRN incident both involve the release of hazardous materials into the environment in some manner. However, with a CBRN incident, the release is deliberate as opposed to accidental, with the intention of causing harm or injury to the public or responders

The procedures in this guidance are equally applicable to incidents involving other hazardous materials and can be implemented at any level of incident, not just a major incident.

It focuses on the multi-agency first response and the initial life-saving phase of a CBRN incident, and is intended to enable control room personnel and first responders to facilitate or undertake lifesaving actions as soon as possible. This approach also promotes close inter-agency

working, which is vital in responding effectively to a CBRN incident.

NOTES

Previous protocols for the response to a CBRN incident, dictated that unprotected emergency responders should withdraw from the scene and await the arrival of specialist trained and equipped assets. However, recent evidence has pointed to a need for a more rapid and flexible approach.

Research has indicated that a rapid response is critical for effective life-saving following a CBRN release. Specific actions, which include the removal of casualties from the areas of gross contamination and the removal of their outer clothing during the first fifteen minutes, can save life and can be achieved without putting emergency responders at undue risk of exposure.

A significant change to current procedures is the introduction of disrobing and decontamination at the first response. The new approach outlined in this document, and underpinned by the first responders flow chart, asks control room personnel and first responders to consider informing callers of, or undertaking, a range of rapid lifesaving tasks (STEPS 1-2-3 Plus).

The critical actions to be implemented to reduce harm and ensure a rapid intervention can be summarised by the following –

See Appendix A

The **overall responsibility for decontamination of persons contaminated with, or suspected of being contaminated with, hazardous materials remains with the Ambulance Service,** although the Fire and Rescue Service will support these activities. NIFRS has a statutory duty to remove contamination in large casualty events where the release has been deliberate (CBRN), and will work in partnership with the Ambulance Service at all types of incident and responders.

NOTES

The type of decontamination carried out should be advised by the Ambulance Service, but this does not prevent FRS crews from commencing the appropriate form of decontamination if Ambulance Service is not in attendance. A strategy should be agreed with Ambulance Service at the earliest opportunity in line with the Joint Emergency Service Interoperability Principles (JESIP) decontamination is defined as:

> *The reduction of contamination to lower the risk of harm or further harm to contaminated persons and lower the risk of cross contamination.*

In general terms, decontamination procedures are divided between the decontamination of responders, and the decontamination of the public. The principles of what is to be achieved through the decontamination processes are the same; however, it can expected that when dealing with responders, they are anticipated to have been contaminated whilst wearing at least some level of Personal Protective Equipment (PPE). This can range from structural fire kit or other ensemble, up to the wearing of a gas tight suit.

Decontamination can range from improvised decontamination by persons responding to an immediate and necessary need prior to the arrival of emergency services on scene, through to full and comprehensive casualty and responder decontamination until the final emergency responder leaves the Inner Cordon.

4. Decontamination Options

The decontamination process starts by removing the casualty from the Hot Zone to a place of relative safety within the Inner Cordon and by the removal of their outer clothing. When determining the location of the place of relative safety, crews should, if possible, move the casualty uphill and upwind from the source. Wind direction can be monitored using the simple method shown below.

NOTES

The various available methods of decontamination are considered within four general categories:

IMPROVISED DECONTAMINATION

Improvised decontamination is the use of an immediately available method of decontaminating members of the public prior to the use of specialist resources (e.g. removal of clothing, rinsing or washing using on-site facilities etc.).

INTERIM DECONTAMINATION

Interim decontamination is the use of standard equipment to provide a planned and structured decontamination process for large numbers of the public prior to the availability of purpose designed decontamination equipment. Generally, this will only be applicable in circumstances where WET decontamination is needed and the number of casualties warrants simultaneous action.

CLINICAL DECONTAMINATION

Clinical decontamination is the process where contaminated casualties are treated individually by trained healthcare professionals using purpose designed decontamination equipment.

MASS DECONTAMINATION

The planned and structured procedure delivered by the Fire and Rescue Service using purpose designed decontamination equipment where there are large numbers of contaminated casualties.

5. Initial Operational Response (IOR)

NOTES

IOR is the start of a contamination incident response; the first responders are expected to commence lifesaving activities within the first 15 minutes at a scene and to manage the scene until further assistance arrives.

The need to commence the IOR depends on the type of contamination, the availability of a means of decontamination and the symptoms experienced or displayed by the contaminated people.

Initial Operational Response involves:

- **Removing** or directing casualties away from the area of gross contamination to an area of relative safety
- **Removing** contaminated clothing
- **Removing** the contaminate by utilising available blue roll on appliances to commence the dry decontamination.

IMPROVISED DECONTAMINATION

Improvised decontamination should be performed on all disrobed casualties, unless medical advice is received to the contrary. **Dry decontamination should be considered the default process** for an incident involving chemicals unless the use of water is justified (see below).

Generally, in the very early stages of an incident and **dependent on the symptoms and needs of contaminated people,** improvised decontamination may be initiated by casualties, other people or emergency service personnel. Decontamination Packs on all appliances will contain items that will allow either dry or wet decontamination to be completed. The box itself can be used as a bucket.

DRY DECONTAMINATION (DRY PEEL)

Unless casualties are demonstrating signs and symptoms of exposure to caustic or irritant substances for example, redness, itching and burning of the eyes or skin, having been removed from the areas of contamination, clothing should be removed and exposed skin surfaces should be blotted and rubbed with any available dry, absorbent material such as paper tissue (e.g. blur/white roll). All

waste material arising from decontamination should be bagged if possible.

NOTES

WET DECONTAMINATION

Water should **not** be used for decontamination unless casualty signs and symptoms are consistent with exposure to a caustic/corrosive substance such as a acid or alkali or the contamination has been identified as biological or radiological in nature. Wet decontamination may be performed using any available source of water such as showers, taps, fixed installations, hose-reels, sprinklers etc.

When using water, it is important to try and limit the duration of the decontamination to less than 90 seconds and, ideally, to use a washing aid such as a cloth or sponge. Where possible, the **RINSE-WIPE-RINSE** method of decontamination should be attempted. However, as a general rule, any form of washing with water is preferable to none. This procedure is detailed in Appendix B.

Improvised decontamination should not involve overly aggressive methods to remove contamination as this could drive the contamination further into the skin.

Casualties should be moved to a safe location to be triaged and prioritised y the ambulance service before onward transportation, if required.

Following improvised decontamination, remain cautious and observe signs and symptoms in the decontaminated person and in unprotected staff.

If water is used to decontaminate casualties this may be contaminated, and therefore be itself, hazardous. It would then be a potential source of further contamination spread. However, emergency responders should continue to operate in the appropriate level of PPE when monitoring and assessing casualties who remain in the warm zone.

INTERIM DECONTAMINATION

In the early stages of an incident, and dependent on the casualties symptoms and numbers, it may be decided (where possible in conjunction with Police and Ambulance Commanders) to establish interim decontamination. This decision should be taken whilst balancing the risks to individuals and the environment.

Considerations include:

NOTES

- Little disrobe provision
- No re-robe provision
- No/limited provision of warm water
- Limited ability to contain waste run-off
- Personal dignity issues
- Contamination of frontline FRS equipment

There is no national standard for interim decontamination. However, interim decontamination has the advantage of being a more structured and controlled method than improvised decontamination.

Where interim decontamination is established and used, disrobe packs should be deployed if necessary prior to and (if available) after interim decontamination as people await passage through full clinical decontamination or mass decontamination systems.

The length of spraying time will depend on the circumstances of the contamination, but it should be kept as short as possible to minimise discomfort and the threat of hypothermia. Those being decontaminated should be asked to assist in the process by turning their bodies and rubbing their skin to achieve maximum effect. Soap or detergency should be provide if available. Immediately following spraying , the opportunity should be provided to shelter, dry and dress in clean clothes.

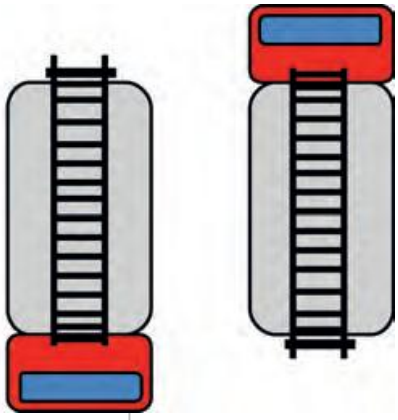
People decontaminated using interim decontamination should then be referred for consideration of the need of further decontamination when available.

The following is an example of how standard pumping appliances can be used to provide interim decontamination.

Position two appliances approximately 1.5 to 2 meters apart, with the near side of both vehicles parallel to each other.

NOTE:

(Ensure the exhausts face outermost), and the bodies of the vehicle in line with each other so the rear locker on one vehicle is opposite the front locker of the other vehicle



SET-UP THE SHOWER FRAME

Separate a short-extension ladder and place the widest extension up against one appliance inline with the middle locker to use to gain access to the appliance roofs.

At no time should operational staff mount the roof of an appliance. Position other extensions of ladders to bridge the gap between the vehicles (ensure the ladder pawls are against the roof of the vehicle).

Using both hose reels from each vehicle. Lock each branch open and set to wide spray on maximum flow. Hang the branches over rounds nearest to the vehicle and position branch to spray inwards. Ensure all windows and doors are shut, and lockers closed as far as possible.

Set in to the nearest hydrant or other water supply and charge hose reels to 10 - 20 bar. Adjust nozzles to ensure a good ‘mist’ affect is achieved.

CLINICAL DECONTAMINATION

Clinical decontamination is the responsibility of the Ambulance Service.

Clinical decontamination is the process where contaminated casualties are treated individually by trained healthcare professionals using purpose designed decontamination equipment.

It will be carried out at the scene utilising Ambulance Service decontamination structures, staffed by Ambulance Service personnel wearing appropriate PPE and Respiratory Protective Equipment (RPE).

However, in exceptional circumstances and where resources permit, these may need to be augmented by Fire Service personnel working under Ambulance Service supervision.

Additionally, the Ambulance Service Incident Commander may request that the Fire and Rescue Service MD1 structures (if available) are set up to cater for clinical decontamination because:

- There are a higher number or a higher ration of P1 and P2 contaminated casualties than expected and
- The Ambulance Service decontamination structures and personnel are unavailable.

Fire and Rescue personnel are not trained to carry out clinical decontamination. Fire and Rescue Service personnel would only assist with the clinical decontamination on any P1 and P2 casualties.

NOTES

The Ambulance Service defines casualties and prioritises in the following manner:

> Priority 1 (P1) Casualties: Patients with a high priority for either immediate emergency medical care or immediate emergency life-saving decontamination or both
>
> Priority 2 (P2) Casualties: Less severely affected patients who need either emergency medical care or early decontamination to prevent further intoxication
>
> Priority 3 (P3) Casualties: Patients with slight to moderate intoxication and without contamination at a level that requires immediate action. Of these P3 casualties a percentage will leave the scene and self-present to local hospitals and clinics.

6. Mass Decontamination

Mass decontamination is the planned and structured procedure delivered by the Fire and Rescue Service using purpose designed decontamination equipment where there are large numbers of contaminated casualties.

The Fire and Rescue Service will set up and maintain mass decontamination structures to enable large numbers of contaminated people to proceed without physical assistance through the structure.

This decision should be taken in consultation with the Ambulance Service with regard to symptomology of casualties and the type of decontamination required i.e. WET. In the absence of the Ambulance Service, the Fire Service Incident Commander may make this decision unilaterally.

MD1 structure (below) is designed for wet decontamination although they may be used during inclement weather to aid the dry decontamination of large numbers of casualties.

In the event that P3 casualties are unable to proceed unassisted through the MD1, and sufficient resources are not available to provide assistance, then they should be directed to the clinical decontamination.

NOTES

Appendix A

NOTES

REMOVE, REMOVE, REMOVE
Reducing harm to the public and keeping responders safe

This guidance note provides first responders across the UK emergency services on early self-help actions following:

- **suspected deliberate *or* accidental exposure to a hazardous substance (vapour, powder or liquid)**
- **a corrosive substance attack**

This guidance is:

- able to be implemented by all frontline officers and staff without specialist protective equipment.
- relevant for **any** potential hazardous substance incident, **not** just CBRN
- designed to create a single, consistent self-help message across the initial response and beyond
- endorsed by Public Health England specialists and emergency services CBRN leads
- based on the policy: ***Initial Operational Response (IOR) to a CBRN incident*** (Home Office, July 2015)

All UK frontline emergency services personnel have already have been trained in IOR. That training remains valid. This refreshed IOR messaging is simply designed to make core elements of IOR quicker and easier to absorb, remember and apply. The messaging will also be introduced to the business and crowded places security sector.

This simplified IOR message is **'REMOVE, REMOVE, REMOVE'**:

Helping you to use the **REMOVE, REMOVE, REMOVE** protocol:

- ***ADVISE:*** familiarise yourself with the simple, self-help actions to take
- ***REASSURE:*** explain why you advise these actions
- ***REMEMBER:*** what else must YOU do?

NOTES

When should you use REMOVE, REMOVE, REMOVE?

Following a report of deliberate or accidental exposure to a substance ☑

Following a report of a suspected 'acid attack' ☑

If something simply does not look or feel right ☑

Conduct a dynamic risk assessment in accordance with training.

Share with emergency services colleagues at the scene to achieve a joint understanding of risk.

Consider STEP 123+: are there three or more casualties incapacitated without an obvious cause?

REMEMBER: Exposure is not always obvious. **SIGNS CAN INCLUDE:**

The presence of hazardous or unusual materials.

A change in environment, such as unexplained vapour, odd smells or tastes.

Unexplained signs of skin, eye or airway irritation, nausea, vomiting, twitching, sweating, disorientation, breathing difficulties.

If you believe a hazardous substance may be present, ACT:

NOTES

- ensure you and any other individuals nearby maintain a safe distance to avoid exposure yourselves
- ensure hazardous material or CBRN trained personnel have been contacted
- communicate with the casualties in plain language and provide reassurance specialist help is on the way
- consider secondary threats and hazards
- report to control room as soon as is possible using M/ETHANE
- **action the REMOVE, REMOVE, REMOVE protocol**

REMEMBER

Effective situation reporting from the scene is vital to ensure that correct information can be disseminated appropriately to enable all agencies to maintain shared situational awareness.

Any situation report should contain the following information based on the M/ETHANE system of reporting.

M/ETHANE:
M - Major Incident declared/ standby
E - Exact location
T - Type of incident
H - Hazards
A - Access and egress
N - Number of casualties
E - Emergency services required

Responders should gather the required information as a priority on arrival at scene and disseminate to their control rooms and other agencies on scene as soon as possible.

The lack of one piece of information should not delay initial reporting.

1. REMOVE individuals from the immediate area

NOTES

ADVISE

• affected individuals should **REMOVE** themselves from the immediate area
• fresh air is important
• head uphill as well as into the wind if possible
• if safe to do so, bring others who may be affected
• if skin is itchy or painful, they must urgently find a water source

REASSURE

• leaving the immediate area will avoid further exposure to any material in the air
• if skin is itchy or painful, lots of water is essential for fast treatment and reducing harm

REMEMBER

• you may need to shout or direct from a safe distance to avoid exposure yourself
• you will likely have to improvise and think on your feet
• remain alert - incidents involving a hazardous substance can change very quickly
• continue to REPORT: use M/ETHANE
• all three services are expected to attend the scene if the victim is still at the scene

2. REMOVE… outer or affected clothing

NOTES

ADVISE

• to **REMOVE** their outer clothing if it has been affected by the substance
• try to avoid pulling clothing over the head if possible
• not to attempt to remove clothing stuck to the skin
• not to smoke, eat or drink
• once this has been done, to move away from the discarded clothing

REASSURE

• removal of outer clothing reduces the risk of further exposure (to material trapped in the clothing) by up to 80%
• removing clothing over the head increases the risk of the eyes, mouth and nose coming into contact with hazardous substance, which may then pass into the body
• the discarded clothing may present a hazard to anyone nearby as it may be covered in or have absorbed the hazardous material and may give off harmful fumes or particles
• smoking, drinking or eating, or touching the face or eyes may pass hazardous material from the hands into the body by inhalation, swallowing or absorbing through the eye membrane
• **if clothing has stuck to the skin, trying to pull it off risks further harm. Removal will be done by a medical professional as soon as it is practical and safe to do so**

REASSURE

• you will likely have to improvise, and think on your feet – can you access blankets, or spare clothing?
• remain alert - incidents involving a hazardous substance can change very quickly

3. REMOVE the substance

NOTES

ADVISE

"Is your skin painful or itchy?"

NO:
• REMOVE the substance using a DRY absorbent material to soak it up or brush it off

YES:
• RINSE the affected area with lots of water
• until they arrive ANY available water source should be used to rinse the affected part of the body
• water should be applied continuously until ambulance or medical personnel advise you to stop
• as far as possible try to avoid the water running onto unaffected parts of the body (advise casualty lean head forward, hold arms out as appropriate)
• if the casualty has a corrosive substance in their eyes then the responder may have to open the casualties eyes to help flush with water. Care should be taken to avoid contact with the substance and to avoid the water running onto other parts of the casualty's face or body as far as possible.
• to step away again to a clean area and wait for specialist responders and further medical care
• the casualty should NOT leave the vicinity until they are assessed by medical personnel. They may still require further specialist medical support and decontamination.

REASSURE

• continue to communicate with casualties and reassure throughout
• the actions taken give the best chance of reducing harm
• the casualty should not leave the scene as they may suffer delayed symptoms or still have a small amount of hazardous material on them which could present an ongoing risk of being spread to others

REMEMBER

NOTES

• the casualty should NOT leave the vicinity until they are assessed by medical personnel. They may still require further specialist medical support and decontamination.
• continue to pass information to your control, (M/ETHANE)
• casualties may be in shock or suffering other symptoms, consider the impact of shock or being wet and cold on their welfare
• remain aware of new or increased signs & symptoms in casualties and others in the vicinity, including responders

Appendix B

NOTES

WET DECONTAMINATION OF CASUALTIES

The 'RINSE-WIPE-RINSE' Method of Improvised Wet Decontamination Equipment

For the effective application of the RINSE-WIPE-RINSE method of skin decontamination, the following is required:

1. Water, preferably warm.
2. A bucket or other container (5-10 litre capacity) or a shower head with clean, preferably warm, running water.
3. A second bucket (5-10 litre capacity) for use with a water (preferably warm) and detergent mix.
4. Detergent.
5. A sponge or soft brush.

Procedures

If walking casualties can self-decontaminate then this is the best approach to take.
Emergency service personnel should supervise and assist as required.

The recommended procedure for applying the RINSE-WIPE-RINSE method is as follows:

1. Make up a water/detergent solution of 0.5% detergent in warm water (5ml of detergent per litre of water or about three squirts of liquid detergent into a bucket of water).
2. Having removed the contaminated person's clothes, RINSE the affected areas with clean water (no detergent) using showerheads or buckets. RINSE from the highest point downward, ensuring that any sponge or brush used does not come into contact with the casualty or their clothing.
3. The RINSE should be applied to contaminated areas of skin only, to avoid spread to uncontaminated areas.
4. Using the water/detergent mix detailed in 1.
5. WIPE the affected areas of skin with a wet sponge or soft brush. RINSE the decontaminated casualty with clean warm water (no detergent) to remove the detergent and any residual chemicals.
6. Dry the skin with a clean towel.
7. This process should not take more than three to five minutes for an individual walking casualty.

Repeat the RINSE-WIPE-RINSE procedure only if skin contamination remains obvious. (Persistent chemical warfare agents are poorly soluble in water and might require extended or repeated application.)

NIFRS Decontamination Packs will contain detergent and sponges. The box can be used in place of a bucket for the application of the above method.

NOTES