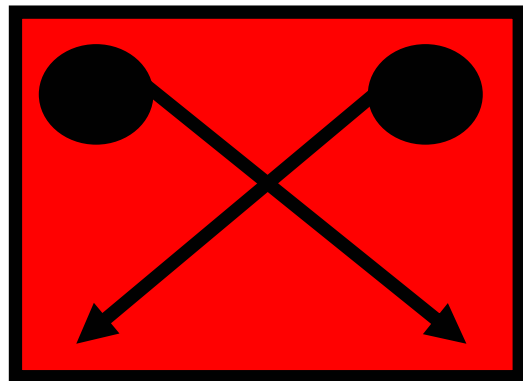
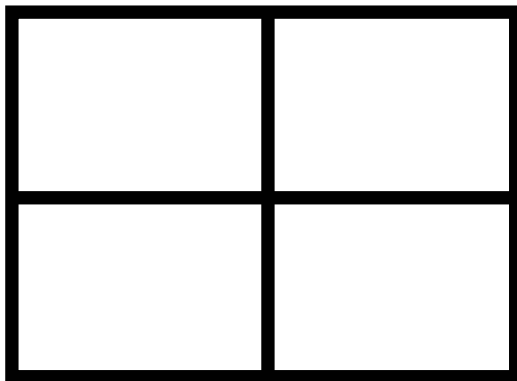




Federal Office
of Civil Protection and
Disaster Assistance

Framework Concept on the Decontamination of Injured Persons

The Federal-State Working Group



September 2006

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1. Foreword

The present framework concept was created by the Federal-State Working Group "decontamination of (Injured) Persons – Exchange and Consultation on Procedures and Concepts", based on the concept created by the state of Rhineland-Palatinate. Members of the working group are: Representatives of the states of Rhineland-Palatinate, Berlin, Bremen, Saxony-Anhalt, Northrhine-Westphalia and Bavaria, additionally the German Army and the Federal Office for Civil Protection and Disaster Assistance. The objective of the present concept is the formulation of a recommendation for decontaminating injured persons, which can be applied throughout the Federal Republic. This concept is based on existing hazard prevention potentials that need to be amended and optimised soon. It relates to personnel, materials, procedures and training. As soon as the state of Rhineland-Palatinate approves the implementation concept, it will be available for dissemination.

Before being treated in hospital, injured persons must be decontaminated. Basically, the decontamination should take place in the direct environment of the incident site. This can be implemented by mobile or prepared stationary decontamination facilities. Based on experience with terrorist attacks (e.g., Tokyo, 1995), hospitals must prepare themselves for contaminated injured persons.

2. Fundamentals

2.1 Terms

NBC-type hazardous substances are radioactive substances and materials (N-type hazardous substances), biological substances and materials (B-type hazardous substances) and chemical substances and materials (C-type hazardous substances), which may pose a risk to life, health and property. Because of their effectiveness, some of these substances may be used in military operations or by terrorists, in order to cause death or damage and injury to persons, livestock and plants.

BLS (Basic Life Support) are basic measures for the preservation of life.

Dekon is the term used for the decontamination of disaster relief personnel. *Dekon* is the rough cleansing process to reduce contamination of disaster workers and other persons (*Dekon-P*) or injured persons (*Dekon-V*) or equipment (*Dekon-G*).

The **hazardous area** is the area in which NBC-type hazards for humans, animals and property are identifiable or presumed to exist based on expert experience.

Hygiene in the sense of this concept serves to prevent the risk of incorporation and spreading NBC-type hazardous substances adhering to the body by following general rules of conduct and cleansing and disinfection measures.

Infection is the penetration of pathogens into the body and their proliferation inside the body. **Disinfection** reduces the number of germs on contaminated surfaces aiming to prevent the spreading of an infection.

Incorporation is the absorption of hazardous substances in the body. Incorporation may be caused via the respiratory tract (aerosols and gases in the air), by swallowing, through wounds or the skin (skin resorptive substances).

Contamination is the pollution of living beings, soil, water and objects with NBC-type hazardous substances.

Rescue personnel in the sense of this concept is the personnel of the rescue services, medical services and support services or other units with medical training.

Secondary contamination refers to contamination of personnel or areas by contaminated persons or items outside the hazardous area. Secondary contamination leads to an uncontrolled spread of NBC-type hazardous substances.

Spot Decontamination is a decontamination of certain parts of the body, in order to prevent incorporation in the course of providing emergency support.

Injured persons in the sense of this concept are all persons affected who were in the contaminated area without protective clothing and who require medical treatment.

2.2 Classification of injured persons

	Classification of injured persons	Required measures
1.	Capable of walking , contaminated, not visibly injured , and/or not requiring support during decontamination	Decon-P, panic prevention, if necessary, targeted transportation
2.	Capable of walking , contaminated and injured , and/or requires assistance during decontamination	If necessary, spot decontamination and emergency support, Decon-V , if necessary, transportation for further treatment
3.	On stretchers , contaminated and injured	Rescue, if necessary, spot decontamination and emergency support (BLS), Decon-V , transportation for further treatment

2.3 Requirements for medical care during decontamination of injured persons at the emergency service/disaster control interface

Since time is the most important factor in the decontamination of injured persons, the first measures have to be initiated immediately after the first units have arrived. The rescue workers and the firemen in whose emergency area the incident occurred therefore are responsible for providing initial support to contaminated injured persons. They are supported by government agencies, aid organisations and other institutions in accordance with the respective state law.

To meet this requirement, the participating parties must:

- work in close cooperation in order to compile the necessary medical material and technical equipment,
- select executives that deal with the segment NBC-type operations in order to assume leadership functions in the individual case,
- ensure training and further training of the personnel for the NBC-type segment,

- ensure prevention and aftercare according to occupational health regulations (e.g., suitability to work in protective clothing while wearing a breathing mask, aftercare following a NBC-type operation),
- ensure the integration of rapid-response groups and other first-aid and support units in the concept,
- stay in close contact to hospitals and prepare regulations for decontamination units in front of hospitals,
- ensure the current maintenance of necessary medical material and logistics planning with antidote depositories or hospital pharmacies,
- maintain the corporation with health authorities and/or other agencies, district and state administrations, general medical councils and other executive bodies.

3. Decontamination of injured persons

3.1 Introduction

The most effective decontamination of a person following an exposure to hazardous substances is the one that is performed on site immediately after contamination. This requirement, is fulfilled only by self-decontamination, because help from disaster relief personnel usually is not available within a very short period of time. Whether self-decontamination is performed immediately by the contaminated person or not, may be the deciding factor between life and death or at least between minor or severe injury.

From this it follows that self-decontamination must be taught within the framework of self-protection:

- Removal of contaminated clothing,
- mechanical removal of hazardous substances, biological and chemical warfare agents by means of devices. Injured persons must know that this kind of self-protection can be life-saving.

Following an incident involving NBC-type hazardous substances, one must basically assume that all persons that were in the hazardous area must be decontaminated. In order to protect

victims, on site decontamination must be performed as soon as possible. However, a possible contamination is to be removed from a patient's body on site for the following reasons as well:

1. If decontamination is delayed, further effects of the hazardous substance may lead to heavy damage of the patient's health,
2. Disaster relief personnel coming in contact with contaminated persons may also be contaminated,
3. Medical care units making contact with contaminated persons may also be contaminated. This may have a massive effect on providing further assistance to persons at risk, sick and injured persons.

The spread of contamination has serious effects on rescue workers and the medical infrastructure, as well as the outcome for the injured persons. In order to set up a medical infrastructure as soon as possible, rescue workers must be provided with corresponding protective clothing in the examination area of the decontamination site.

The decontamination of injured persons challenges the disaster relief personnel of various organisations in numerous ways. Apart from communication and cooperation, which must be planned and exercised in advance, there are the "usual" requirements at the disaster site, possibly a considerable potential of risks to which disaster workers, the directly affected population, injured persons and secondary supply structures (e.g., hospitals) are exposed as the result of hazardous substances or biological/chemical warfare agents.

A corresponding concept in consideration of appropriate decontamination systems (for the respective "target group") shortly after an exposure, above all must prevent the spread of contamination and furthermore putting disaster relief personnel at risk.

An early identification of the NBC-type hazardous substances is required, so that effective decontamination and suitable medical treatment can be effected. As a function of NBC-type contamination substances, this can be achieved by measuring, detecting, or sampling and analysis. This must be ensured.

As a further basis for the concept of decontamination of injured persons following an NBC-type incident, it is necessary to be familiar with the agents, their basic physiological characteristics and their risk potential. All participating disaster relief personnel has to have such basic knowledge, not only in order to offer best support to the patients, but also to protect as well themselves. The disaster relief personnel of rescue and medical services has to be familiar with diagnostics, specific antidotes and treatment protocols, as well as substances for decontamination.

Hazardous substances can be removed by physical means or neutralized chemically and/or disinfected. decontamination of the skin is most important in order to minimise hazardous influences as soon as possible. The decontamination of eyes and wounds should be performed in the first step. As for the decontamination of persons, one basically differentiates between:

- *Self-decontamination:* Decontamination performed by the affected persons themselves and decontamination by first-aid helpers
- *Decontamination of the persons affected (population):* Decontamination of uninjured persons by trained disaster relief personnel
- *Decontamination of injured persons:* Decontamination of persons capable of walking and patients on stretchers by trained disaster relief personnel
- *Decontamination of disaster relief personnel:* Decontamination of disaster relief personnel by trained disaster relief personnel.

The decontamination of injured persons is a complex task. It requires the assignment of a large number of disaster relief personnel, material and considerable time. Even with exact planning and drills, there only is a very small window of time for decontaminating injured persons and for taking the necessary early response.

It is recommended to define time criteria in accordance with state-specific conditions, in order to ensure the fastest possible readiness for action.

The number of decontaminated persons depends on the location of the incident and on the capacity of available decontamination options.

3.2 Protective equipment of rescue workers

Ambient air-dependent respiratory protection (full face mask with combined filter ABEK2 P3), chemical-resistant disposable protective clothing (not gasproof) and protective boots are recommended as personal protective gear. Alternatively, power assisted suits with comparable protective effect can be used.

The assigned rescue workers wear two pairs of investigation gloves on top of each other (preferably made of nitrile rubber).

During the preparation phase, the emergency physician is to put on this type of emergency equipment, while the breathing mask with combined filter, however, is provided only for optional use. In accordance with the concept and in order to preserve particularly the scarce emergency medical resources, the emergency physician, if acceptable, remains in the white zone. Upon entering the black zone, the physician is considered to be contaminated and therefore is no longer available for further practical treatment and for accompanying patients to the hospital.

3.3 Decontamination of a smaller number of injured persons (up to 5)

Patients on stretchers and patients capable of walking are decontaminated in varying areas. Subsequently, disaster relief personnel and their material are decontaminated. The injured persons are to be undressed. Arrangements are to be made for storing valuables and for providing replacement clothing. Before initiating the actual decontamination process, all injured persons are collected in the arrival area, where they are registered and classified according to patients "on stretchers " and patients "capable of walking".

In the area of the decontamination specific triage (“examination”), the urgency of treatment before the decontamination process is determined. Then follows partial decontamination of the face and – if measuring of oxygen and an intravenous drip is provided – partial decontamination of an arm. In order to protect the patient from the effects of aerosol during a so-called spot decontamination and/or subsequent decontamination of the entire body, a disposable oxygen mask with reservoir is applied. The oxygen unit should possibly remain in the white zone.

Blood pressure should be measured on the decontaminated arm, a pulse oxymeter (device should remain in the white zone if possible) and – if medically necessary – an intravenous drip should be applied. According to the emergency physicians' instructions, the patient will be administered drugs and the necessary antidotes. In case of large, open wounds, they will be subjected to spot decontamination and covered (e.g., OpSite dressing).

Subsequently, the entire body is decontaminated with water and soap and/or the prescribed surface-active agent. Apart from these decontaminants, situation-related special decontaminants or disinfectants may be used. Subsequent to the decontamination, in radiological situations, proof of freedom from contamination is to be provided. With C-type incidents the proof of freedom of contamination should be provided so far as available. For biological contaminations, no reliable onsite analytical method is currently available.

Before handing over the patient to the team in the white zone, the intravenous drip is supplied and the medical accessories remaining in the decontamination area are removed. If monitors have remained in the white zone, the sensors on the monitors are unplugged and transferred to the black zone. If possible, they are assigned to device decontamination.

In the white zone, the rescue workers should be available with an emergency physician. Furthermore, there should be contact with the fire brigade, which informs the emergency physician of known hazardous substance characteristics and, upon request, provides further information from the existing data collection or poison control call centres.

During the supply in the black zone, the emergency physician monitors the procedure of employees in the black zone, gives instructions and orders the administration of drugs. These drugs are prepared by the emergency personnel in the white zone and provided in a predefined transfer area. Now the patient is supplied as usual and transferred to the hospital.

The objective is that after decontaminating the patient's entire body, the patient is no longer at risk from the hazardous substance and may not contaminate other people. Incorporated hazardous substances must be neutralised by administering antidotes and/or in the clinic by surgical debridement or pharmacotherapy. Body regions, which withdrew from decontamination, are to be covered and documented in detail.

In the case of mass contamination injuries, employees trained according to this concept can use the above mentioned material for examination and initial treatment as well as for structuring the medical treatment location until staff is available to handle the extensive damage situation. In this case, apart from examination, their work particularly focuses on immediate life-saving actions. This includes quick, proper undressing, in order to remove large quantities of hazardous substances. After that, one can start with the registration process.

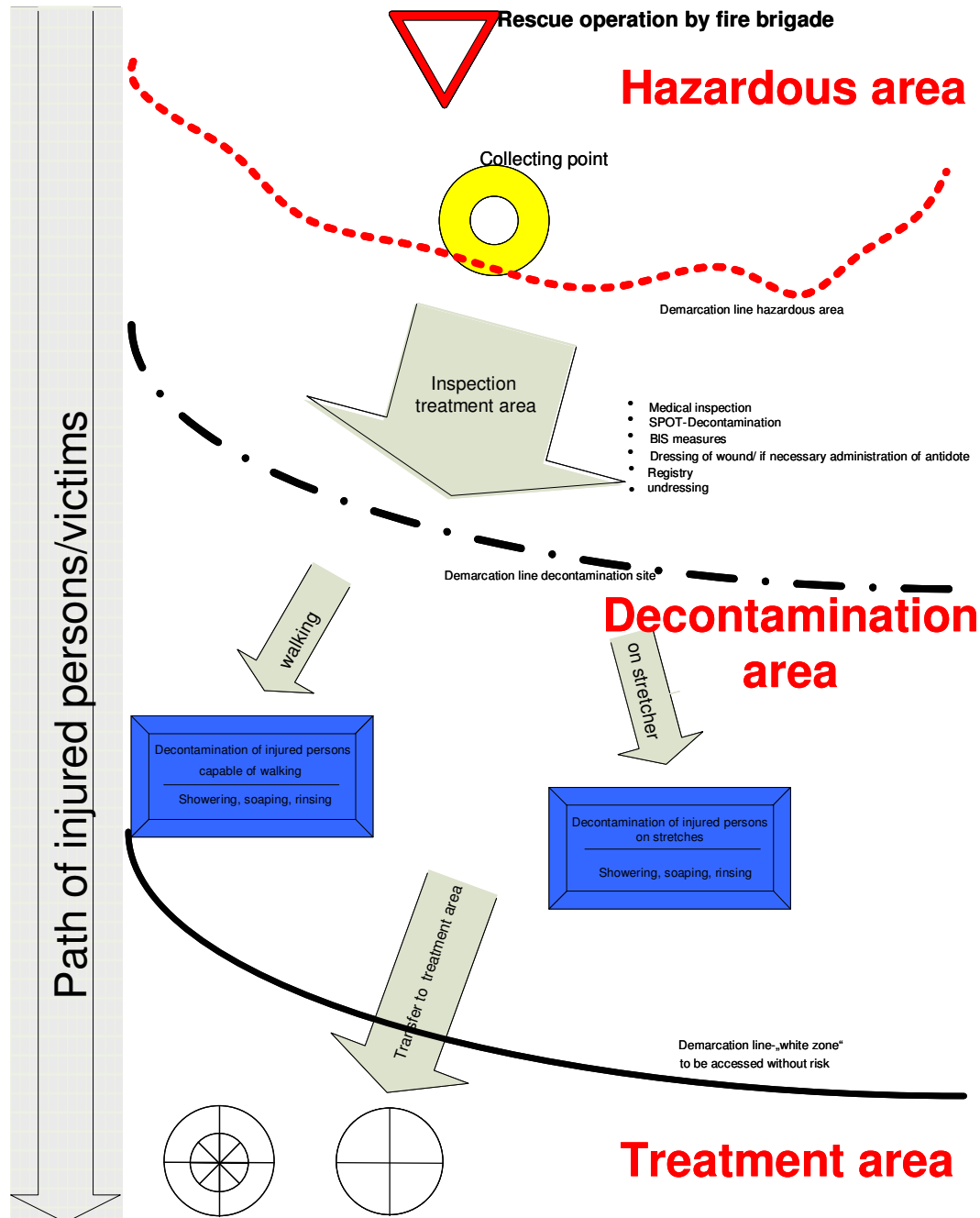
Further, patients, whose treatment is urgent, may be released for further treatment to a medical treatment location to be set up or for transportation to a hospital only after they have been completely decontaminated, in order to protect these areas from the spread of contamination.

3.4 Decontamination of injured persons in case of a mass casualty incident

The segment in which measures for decontamination of injured persons and casualty is initiated is referred to as the "decontamination site for injured persons". This site is set up outside the hazardous area (damage site) – as a rule it is set up in front of the actual medical treatment location. The decontamination site for injured persons is managed by the section manager of the fire brigade. He is supported by a managerial assistant in the individual segments of the decontamination site for injured persons. They are responsible for communication, logistics and coordination.

The decontamination site for injured persons is subdivided into unclean section (black zone) and a clean section (white zone). The boundaries, access roads and separation lines must be clearly marked and function as a lock. The decontamination site for injured persons is to be structured in such a way that the succession of decontamination measures is inevitable (“one-way” principle).

Space Planning and One-Way Road Principle for the "decontamination site for injured persons"



The decontamination site for injured persons contains apart from the examination area (registration and decontamination examination of injured persons), the decontamination treatment area for contaminated persons on stretchers and persons capable of walking, as well the boundary between the contaminated ("black") zone and the contamination-free ("white")

zone. The decontamination site for injured persons will be jointly set up and maintained by members of the fire brigade and the emergency and medical services.

Before the actual decontamination, all injured persons will be issued with a registration card for injured persons. During the decontamination examination¹, the examination category as well as the subdivision into "walking" and "lying" will be determined. At the decontamination treatment site, the initiated treatment may possibly be spot decontamination, basic life support (BLS), administration of antidotes and watertight covering of wounds.

In the decontamination area, lying and walking injured persons will be separated and decontaminated by means of showers.

Before passing the boundary line to the "white" zone, the above contamination test for excluding the spread of contamination can be performed. As the result of the transfer at the boundary, the patient reaches the "white" support zone (medical treatment location) where the emergency treatment is provided. In the subsequent assignment area, the transportation of patients is organised. This phase is superfluous, if the decontamination site for injured persons is located directly next to the hospital or is part of the hospital.

The proposed system initially should be adequate for an efficient treatment of 10 contaminated injured persons and eventually it should be able to treat up to 50 patients within a medically acceptable period. Several parallel systems would have to be set up to be able to treat a larger number of patients correspondingly.

3.4.1 Organisation of the decontamination site for injured persons

All areas of the decontamination site for injured persons are to be manned by firemen and rescue workers with defined tasks. Support groups are to be assigned between the individual segments. They should accompany or carry patients from the decontamination examination area and move them either "on stretchers" or "walking" to the decontamination site. In the case of patients on stretchers, rescue workers must be assigned to accompany patients.

¹ Domres, Bernd et al., „Zivilschutz-Forschung – Aufbau und Ablauf der Dekontamination und Notfallversorgung Verletzter bei Zwischenfällen mit chemischen Gefahrstoffen“ [“Civil Protection Research – Structure and Procedure of the Decontamination and Emergency Support of Injured Persons in the Case of Incidents with Hazardous Chemical Substances”], 2005

Overview of Tasks of Personnel Assigned at the decontamination Site

Area	Tasks	Personnel
Hazardous area	Rescue operation	Fire brigade
Boundary between hazardous area and decontamination site for injured persons	Transferring personnel to the decontamination site for injured persons	Fire brigade
Entry area, Examination area (Collecting point, patient collecting area)	Collecting point for persons capable of walking, implementation of decontamination examination, Registration card for injured persons/registration Undressing Separation (patients capable of walking/stretchers patients)	Fire brigade Rescue workers if available: Emergency physician
Decontamination treatment area	Partial/spot decontamination BLS measures	Fire brigade Rescue workers Emergency physician
Decontamination area (Showers)	Patients capable of walking Showering under instruction (Schedule: 1 minute showering, 3 minutes soaping, 2 minutes rinsing) Stretcher patients Showering (schedule: see above)	Fire brigade (supporting rescue workers) Fire brigade (assisting rescue workers)
Boundary between decontamination site and white zone	If necessary, proof of contamination Transfer to rescue/medical and support services	Fire brigade Any helper
Treatment site (or other medical support option, hospital)	Further medical support and clothing Transfer to other treatment options, if necessary, transportation Transfer to other treatment options, possibly transportation	Rescue workers, emergency physician (hospital personnel, physician)

3.4.1.1 Entry and examination area

The entry area is the collecting point of the decontamination site for injured persons for all persons arriving from the hazardous area. After having been registered, persons capable of walking will go unassisted to the examination area, while stretcher patients are carried by helpers in protective clothing and breathing masks, who will carry them from the collecting point to the examination area.

Firemen delivering patients to the "decontamination site for injured persons" may not be assigned to follow-up duties from this area.

The arriving patients are registered (registration card for injured persons) and undressed. It is necessary to ensure that all clothing first is searched for valuables (e.g., jewellery, money, ID cards, etc.). Valuables will be registered, secured accordingly (e.g., placed in plastic bags with ID number) and stored separately from the contaminated clothing. Contaminated clothing also is to be stored securely. Subsequently, all accumulated waste is to be moved to the waste-disposal area. This task requires at least two helpers.

Stretcher patients should always be undressed by two helpers. As a rule, patients should lie on their back, possibly in accordance with the described procedure, but, if necessary, they may lie on their side or stomach. Patients capable of walking are requested to undress quickly.

The medical personnel of the examination area should be manned by an emergency physician and/or a paramedic, until the physician's arrival, who performs the decontamination examination and is supported by at least two additional helpers from the group of rescue workers.

The examination result is to be documented, identifying the patient.

Transport facilities (e.g., scoop stretchers, transport boards, spine boards) must be available for transporting stretcher patients within the decontamination area. Always watch out for potential spread of contamination.

3.4.1.2 The decontamination treatment area

Following the decontamination examination and prior to body decontamination, injured persons, if necessary, will receive a basic treatment in the decontamination treatment area. It always starts with a spot decontamination (e.g., of wounds, obviously contaminated parts of the body and planned puncture sites, rinsing of eyes and face) followed by life-preserving basic measures (basic life support = BLS), dressing of wounds, covering wounds with watertight material and, if necessary, administration of antidotes.

This basic treatment serves to stabilise injured persons to enable them to survive the following decontamination process.

The treatment measures, which can be implemented in this area, are limited, since helpers operating in a contaminated area, wear full body protective clothing and the time they are able to spend with each individual is somewhat limited. Following a careful spot decontamination of the skin and the gloves of the care worker, intravenous injections and infusions can be performed. Further, the bleeding of wounds of injured persons can be stopped, in which the limiting factor is the time required for stopping the bleeding, rather than the risk of further contamination.

3.4.2 Implementation of decontamination treatment

3.4.2.1 Preparation phase

After setting up and preparing the operational readiness (including providing general material), preparations are to be made, which are monitored by the subsection leader of the tent (paramedic, possibly with management training). These include especially the following measures:

Providing material for spot decontamination:

- Each work area should be provided with sponges, gloves, decontamination solutions, etc.
- Infusions, analgesics and antidotes at the individual workplaces

3.4.2.2 Treatment phase

The treatment phase is subdivided into spot decontamination, stabilisation, if necessary, administration of antidotes, inhalation protection and dressing of wounds (protection against incorporation). During the spot decontamination, a rough decontamination of specific, locally limited regions is to be performed prior to the actual overall decontamination process. In doing so, an incorporation of a hazardous substance is to be reduced and/or avoided while performing medical procedures or in the case of injuries.

Spot decontamination is to be performed in close cooperation with firemen and rescue workers in the following standardised sequence:

1. Eyes (including application of goggles)
2. Nose-throat area (application of nose-mouth protection)
3. Puncture points and watertight cover by means of adhesive bandage
4. Wounds and watertight dressing by means of adhesive bandage
5. Visible contaminated parts of the body

After removing all clothing, visible contaminations are rinsed and removed by sponging. The eyes, nose-throat area and puncture points are cleaned with water. Wiping is allowed in the case of spot decontamination of puncture points.

An indwelling venous cannula is covered with self-adhesive films. During spot decontamination, cleaning can prevent the absorption or incorporation of active agents as a result of medical measures. Penetrating foreign bodies are left in the wounds. Subsequently, the surrounding area is dried with a sterile compress. Then the wound is covered with a sterile compress and closed with a self-adhesive film.

Patients who require an (assisted) breathing mask will be accompanied to the decontamination tent and handed over to the emergency personnel. Other patients will be picked up as per instruction.

Patients capable of walking, who arrive from the decontamination examination, will initially be received by rescue workers and stay in the front area until their transfer for treatment.

The treatment is limited to spot decontamination, infusions, administration of drugs, antidotes, dressing and covering of wounds. The material necessary for the examination and treatment will be held in a central storage area. Treated persons subsequently will be transferred to the decontamination area of patients capable of "walking".

3.4.2.3 Final decontamination

The body decontamination of patients capable of walking and stretcher patients will be performed in the *decontamination area for patients "capable of walking" and/or "stretcher" patients*.

Patients "capable of walking", who possibly require medical treatment at a later time, rather than immediate action, will be decontaminated in a standing position in the *decontamination area for patients capable of walking* in accordance with standard procedures. This is the only method of achieving a reliable decontamination. If proof of decontamination is effected (optional), this will take place before the transfer to personnel of the treatment area in the white zone.

3.4.2.3.1 Decontamination of patients "capable of walking"

The firemen will receive patients "capable of walking" in the decontamination area and initiate the decontamination process. It is suggested that the area be separated into sections for men and women. Patients should support one another. If this is not possible, a helper from the fire brigade or the rescue workers should provide support. Patients then will go to the decontamination shower (showering 1 minute, soaping 3 minutes, rinsing 2 minutes) and after it has been determined that they are free from contamination (optional) they proceed to the boundary line, where they will be dressed and subsequently be taken to the "clean" treatment area (treatment site). There should be a sufficient supply of clothing at the competent agency's disposal.

3.4.2.3.2 Decontamination of "stretcher patients"

The decontamination of "stretcher patients" is subdivided into three segments. In the entry area there will be two firemen who take over the patient and place them on a suitable transportation facility. Then patients are decontaminated by two other firemen in the presence of an experienced paramedic. The following standardised procedure must be observed:

1. Start decontamination from head to toe. For this purpose, the patient is next washed off using a hand-held spray with water (28 °C) for one minute, starting at the clean area and working towards the unclean area, that is, first at the head, then the neck, the lower half of the face, joints of the hand and areas, including skin areas, around injuries. Subsequently, the rest of the body is cleaned.
2. The patients are lifted laterally in order to eliminate contaminations on the back.
3. The patient is thoroughly lathered with a mild washing lotion (shower gel pH-neutral) for about 3 minutes using sponges. Special attention should be paid to the head, behind the ears, under the arms, in the pubic area, in the anal fold and between the toes and fingers. The nose and mouth must be rinsed with water. Sponges are changed with each patient, in order to prevent the potential spread of contamination.

After intensive soaping with the sponge, the patient must be rinsed with water for two minutes. Rescue workers will offer assistance.

Following the decontamination, the patient will be taken to a transfer point and placed on a clean stretcher to be provided by rescue workers on the "clean" side of the boundary. Subsequently, the transfer to the white zone and personnel of the treatment area. The clean transportation means will be returned to the inspection area. Before leaving the decontamination site for casualties, all disaster relief personnel must pass through the lock. Should the capacity of the decontamination area for "stretcher patients" be exhausted, the decontamination site for casualties "capable of walking" may be used.

The rescue workers will monitor the decontamination site for stretcher casualties.

Three persons (one rescue worker and two firemen) are required to decontaminate a "stretcher patient". For the entry procedure, two additional firemen are required, for the proof of contamination three firemen, and for exit procedure two additional firemen. The ambient temperature and humidity determine the length of their work and the recovery phases. A frequent change of personnel may be required.

The boundary line represents the boundary between the contaminated and the uncontaminated area. It must be clear and visible (with warning tape or similar marking), in order to prevent potentially contaminated persons from entering the "clean" area. This may necessitate the deployment of police. Access to the "clean" treatment areas is allowed only through the decontamination site.

4. Existing equipment and additional requirements for fire brigades and aid organisations for implementing the concept

4.1. Fire brigades

4.1.1 Current equipment for civil protection

The basis of this decontamination concept is the decontamination of persons and equipment for civil defence. It forms the starting basis for decontaminating disaster relief personnel and casualties capable of walking. It can be assumed that about 30 persons/hour from the general population can be decontaminated.

4.1.2 Additional equipment

4.1.2.1 Mobile decontamination units for stretcher patients

The expansion of the decontamination site by a station for stretcher patients requires a facility (e.g., tent, trailer, roller container) for treating two stretcher patients with the possibility of wet decontamination. The unit must be connected to the hot water supply and, if necessary, to the heating system of the decontamination equipment for persons.

It must be possible to set up the decontamination system quickly and with few personnel. Furthermore, it must be strong and weather-resistant. It must be able to accommodate two stretcher platforms parallel and one support system for two stretchers arranged in tandem. At each station, two hand shower systems for wet decontamination must be installed. The stretchers must be designed for wet decontamination. A heat aperture must be provided.

Depending on the injury pattern and the degree of contamination, it must be possible to process 6-20 patients per hour.

4.1.2.2 Protective clothing

During their work in the examination and decontamination treatment area, rescue workers become active in the contaminated area. They require light, protective clothing, gloves and a respiratory protective mask with filter. Protective shoes are a requirement.

Protective equipment for

Decontamination of victims: Full face mask (normal pressure),
Filter (ABEK2P3),
Protective clothing Type 3 according to EN 466,
Protective gloves CE-Kat III (according to
EN 420, 455, 388 and 374),
Disposable protective gloves CE-Kat III (according to
EN 420, 455, 388 and 374)

4.2. Rescue/Medical Services

4.2.1 Current equipment for the rescue/medical services

No protective clothing for decontamination is provided either in emergency service vehicles, or in units of the medical services and other units. With the exception of federal equipment, special equipment such as a shower tent and material used for decontamination (refer to checklists) are not provided.

4.2.2 Required equipment for the rescue/medical services

The rescue/medical services personnel will be deployed together with firefighters at the decontamination site for injured persons. Therefore, they will require the same protective equipment.

Providing both the material and training (including medical suitability examination) requires detailed planning in order to have a sufficient number of rescue personnel available.

4.2.3 Required personnel in the rescue/medical services

Rescue workers will provide medical support to injured persons during decontamination. The number of rescue workers will depend on the actual situation.

Emergency personnel will be able to treat casualties before and after decontamination only if the necessary protective equipment is available.

The operation of the decontamination site for injured persons requires the support of various special services (among other things, emergency services, disaster units, rapid response groups and other units of aid organisations). After these units arrive, the rescue workers may be redeployed, if necessary. Additional rapid response groups should be requested in due time since workers in protective clothing need to be replaced at fairly short intervals.

Annex

(For information – not part of the framework concept)

Record of the Resolution
of the 18th Meeting of the Committee
"Fire Brigade Matters, Disaster Protection and Civil Defence"
of Working Group V of the Permanent Conference of the Ministry of the Interior and
Senators of the States
of 6. / 7.9.2006 in Bremen

**Item 14 Decontamination of (injured) persons;
Final version of the framework concept of the Federal-State Working Group**

Reporting: BMI

Note: 1. Resolution of the AFKzV of 14. / 15.9.2005 (16th meeting), item
20 on the agenda
2. Framework concept of 23.8.2006 (Annex)

Resolution:

The AFKzV approves the final version of the framework concept for decontamination of injured persons of the Federal-State Working Group of 23.8.2006, and recommends to the states to take into consideration this framework concept when developing new concepts.

Tactical Flow Diagram

