

**NATO UNCLASSIFIED**

**NATO STANDARD**

**ATP-84**

**CHEMICAL, BIOLOGICAL,  
RADIOLOGICAL AND NUCLEAR  
(CBRN)  
DEFENCE EQUIPMENT –  
OPERATIONAL GUIDELINES**

**Edition B Version 1  
APRIL 2014**



**NORTH ATLANTIC TREATY ORGANIZATION**

**ALLIED TACTICAL PUBLICATION**

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**NORTH ATLANTIC TREATY ORGANIZATION (NATO)**

**NATO STANDARDIZATION AGENCY (NSA)**

**NATO LETTER OF PROMULGATION**

11 April 2014

1. The enclosed Allied Tactical Publication-84 Edition B Version 1, CHEMICAL, BIOLOGICAL, RADIOLOGICAL AND NUCLEAR (CBRN) DEFENCE EQUIPMENT – OPERATIONAL GUIDELINES, which has been approved by the nations in the MCJSB, is promulgated herewith. The agreement of nations to use this publication is recorded in STANAG 2352.
2. ATP-84 Edition B Version 1 is effective upon receipt. It supersedes ATP-84 Edition A, which shall be destroyed in accordance with the local procedures for the destruction of documents.
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4. This publication shall be handled in accordance with C-M(2002)60.



Dr. Cihangir Aksit, TUR Civ  
Director NATO Standardization Agency

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**RECORD OF SPECIFIC RESERVATIONS**

[nation]	[detail of reservation]
BEL	<p>1. General reservation : Complete implementation of the STANAG will only be realized gradually according to available funding and technological developments e.g. Mat as described in B-2 3.c; C-1 1.a; C-2 2.a; C-4 1.c,d,f&amp;g; C-5 2.a; C-7 1.c are not available until now within BEL Def</p> <p>2. C.4 - Analytical Lab: BEL has not the intention to acquire a deployable radiological or biological analytical Lab in the near future.</p> <p>3. D-1 1.a : BEL directives concerning the applicable timeframes for taking protective measure are 9 sec for Vapour and ASAP for Blisters</p>
BGR	<p>1. Due to lack of equipment and trained personnel Bulgarian Armed Forces cannot implement the requirements in the area of biological weapons.</p> <p>2. Due to lack of technical equipment Bulgarian Armed Forces cannot implement mobility requirements for COLPRO defence.</p>
CZE	The Czech Republic will fully implement equipment described in Annexes B and C of ATP-84(A) only to units deployed in NATO operations.
DEU	Annex B, Page B-2, Item 3.b: DEU Role 2 and 3 Medical Treatment Facilities in total are currently not deployable into a CBRN threat environment.
EST	Applicable only to NATO declared and deployed forces according to CBRN threat evaluation in designated operational areas.
FRA	<p>a) Implementation of STANAG 2352, Edition 7 There is a complete inconsistency between:</p> <p>1. The sentence « This STANAG is implemented when forces concerned are equipped with the items detailed in this agreement. », extracted from the STANAG (Ratification Draft 1),</p> <p>2. and the sentences « Participating nations agree to be guided by this STANAG when providing CBRN defensive equipment for their forces » and « The provision of individual, unit and specialist CBRN Defense unit equipment is a national responsibility », that are extracted from paragraph 1.2 of Allied publication ATP 84(A).</p> <p>France considers ATP-84(A) as a set of recommendations and an overarching document for defining CBRN defence equipment requirements (see the interoperability requirement stated at the beginning of the STANAG). France believes that implementing the STANAG covering ATP-84(A) means that it will be widely circulated and promoted through its inclusion in her normative reference system for weapons programs; it does not mean equipping forces concerned. This STANAG is not correct and therefore should not be promulgated as is ; France requests that the above sentence in 1. be deleted and proposes to replace it by the following sentence: "This STANAG is</p>

	<p>considered as being implemented when ATP-84(A) has been promulgated nationally, included into national documentation and used by forces concerned.”</p> <p>b) Radiological, biological and chemical deployable laboratories France will not implement the definition of the radiological, biological and chemical deployable laboratories that is proposed in Annex C.4. of ATP 84(A). Reason: the definition of these deployable laboratories refers to STANAG 4632 Edition 1 that France decided not to ratify (“non-ratification decision”). France does recognize the need to have deployable laboratories available, based however on her own qualitative criteria.</p>
GBR	<p>GBR will procure the capabilities described in accordance with the agreed NATO Capability Targets as opposed to the contents of this STANAG. GBR will implement the STANAG in terms of understanding what NATO refers to as a minimum capability level for comprehensive CBRN defence and ensuring the UK will meet these capability requirements where the CBRN threat warrants the capability to be deployed or held at readiness.</p>
HRV	<p>At the moment Croatia is not able to fully implement this STANAG. Instead of that, Croatia will implement this STANAG gradually in accordance with realization of equipping plans. Units nominated for participation in Peace Support Operations and specialized CBRN Defence unit will take precedence in equipping according to guidelines described in STANAG 2352.</p>
ITA	<p>Para 1.3.10 and Annex "B" Para 1.B: Italian Army and Air Force have not all the equipment specified in the ATP - 84 (a) V.1.</p>
LTU	<p>LTU has no plans to equip specialist CBRN defence units in accordance with requirements of ATP-84(A) annex C.</p>
NOR	<p>Wash Down Systems and COLPRO onboard ship will only be included in new ships. Biological Detection-/Identification-/Monitoring- / and Survey equipment will be purchased pending on available technology and will be distributed and used according to national regulations. Portable decontamination set for vehicles and chemical identification kit for CBRN recce teams will be purchased pending on future acquisition plans and available technology.</p>
POL	<p>The STANAG will be implemented gradually with the procurement of new CBRN Defence equipment.</p>
ROU	<p>Currently, the Romanian Armed Forces are not fitted with all equipments required by STANAG 2352 Edition 7.</p>
<p>Note: The reservations listed on this page include only those that were recorded at time of promulgation and may not be complete. Refer to the NATO Standardization Document Database for the complete list of existing reservations.</p>	

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<b>CHAPTER 1 INTRODUCTION</b>
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**1.1. AIM**

The aim of this publication is to provide a NATO agreed document detailing CBRN defense equipment requirements based on the main threats from CBRN Weapons or devices and potential hazards originated (resulting) from Toxic Industrial Materials (TIM) within operational area in general and deployed NATO forces in particular. The equipment requirements should follow the 5 components of CBRN defense and consider NATO Essential Operational Capabilities (EOCs) such as mobility and deployability. These requirements should also identify capability gaps, which prioritized should be main focus of future developments.

**1.2. AGREEMENT**

1. Participating nations agree to be guided by this publication when providing CBRN defensive equipment for their forces.
2. The provision of individual, unit and specialist CBRN Defense unit equipment is a national responsibility.
3. The scales of equipment in this publication are applicable to NATO declared and other deployable forces of national armed forces as well as civilians deployed in NATO-led operations. The scales for NATO International Headquarters will be provided in separate directives issued by appropriate commanders.
4. Based on the technical development and multirole capability of modern detection devices, it is assumed and accepted that one instrument may perform several functionalities (e.g. detection, provisional identification and monitoring).
5. All Chemical and Biological detectors must meet criteria described in AC/225(JCGCBRN)D(2011)0003(PFP) – Chemical and Biological Warfare Agents (CBWA) Early Warning and Detection Triptych.
6. All Nuclear and Radiological detectors must meet criteria described in NATO Allied Engineering Publication AEP-75 (D/104) – Capability and Systems Requirements for Nuclear and Radiological Detection, Identification and Monitoring Equipment.
7. All Decontamination equipment must meet requirements described in STANAG 4653 – Combined Operation Characteristics, technical Specifications and Test Procedures and Evaluation Criteria for Decontamination Equipment (Decontamination Triptych).

8. All Individual Protection Equipment must meet the requirements described in STANAG 4548 – Operational Requirement, Technical Specifications and Evaluation Criteria for NBC Protective Clothing.

All Collective Protection Equipment must meet the requirements described in STANAG 4634 – Collective Protection (COLPRO) in a Chemical, Biological, Radiological and Nuclear (CBRN) Environment – AEP-54, and STANAG 2515 – Collective Protection in a Chemical, Biological, Radiological and Nuclear Environment (CBRN – COLPRO) – ATP-70.

9. This STANAG does not deal with prophylactic, diagnostic or therapeutic CBRN medical equipment to be used by medical specialists.

### **1.3. DETAILS OF THE AGREEMENT**

10. To achieve the aim of this publication, in accordance with the five components of CBRN defense; Detection, Identification and Monitoring, CBRN Information Management, Physical Protection, Hazard Management and Medical Countermeasures and Support, NATO forces are to be equipped to defend themselves, by their parent nations as follows:

- a. IAW Annex A and as a minimum, each individual should be provided with individual protective equipment to survive an attack from CBRN weapons and devices and hazards resulting from intentional or accidental release of Toxic Industrial Materials and continue the mission in a CBRN environment.
- b. All Units should have the required equipment to continue their mission in a CBRN environment IAW Annex B to this STANAG.
- c. Specialist CBRN Defense units should have the equipment to guarantee the accomplishment of CBRN defense missions and tasks before, during and after a CBRN incident; requirements IAW Annex C to this STANAG.

11. There is a particular need for adequate training equipment to permit regular training in order to sustain a satisfactory state of preparedness against CBRN attacks and/or TIM release. Ideally this training equipment should resemble the operational equipment as far as possible.

<b>ANNEX A TRI-SERVICE CBRN DEFENSE INDIVIDUAL PROTECTION EQUIPMENT (IPE)</b>
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Item <sup>1</sup>	Quantity <sup>2</sup>	Remarks
<b>1. <u>DETECTION, IDENTIFICATION AND MONITORING</u></b>		
a. Chemical detection equipment	Min. 1	Equipment may be an electronic or chemical/physical device or a set of detection papers / tapes, including a sufficient number of replacement papers / tapes.
b. Individual dosimeter	1	Desirable: 1 per individual, Acceptable: for army, navy and air force units: 1 dosimeter per group, conducting the same task at the same moment.
<b>2. <u>PHYSICAL PROTECTION</u></b>		
a. Protective mask	1	In haversack or carrier, spare canister or filter elements should be included IAW national regulations. Specialized respiratory protection should be provided for personnel, i.e. aircrew, whose function precludes wearing a standard issue respirator. Industrial respirator-filters should be available, IAW with national regulations.
b. Protective ensemble	As required	The quantity necessary is based on providing protection to enable operations for 24 hours in a contaminated environment. Specialized protective ensembles should be provided for those personnel, i.e. aircrew, whose function precludes wearing a standard protective ensemble. Protective clothing designed to withstand Toxic Industrial Materials (TIMs) should be available for a limited number of personnel. Spare ensembles in accordance with national regulations.

<sup>1</sup> For description see Annex D

<sup>2</sup> The quantities of equipment required by personnel to sustain operations in a CBRN environment are not considered

Item	Quantity	Remarks
3. <u>HAZARD MANAGEMENT</u>		
a. Chemical & Radiological Decontamination kit	1	
4. <u>MEDICAL COUNTERMEASURES AND SUPPORT</u>		
a. First aid self treatments	Min. 1	Items and quantity according to medical STANAGs as mentioned at "Related Documents".



<b>ANNEX B      UNIT/INSTALLATION<sup>3</sup>   CBRN DEFENSE EQUIPMENT</b>
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Item	Quantity	Remarks
<b>1. <u>DETECTION, IDENTIFICATION AND MONITORING</u></b>		
a. Radiological and Nuclear dose-rate meter	Min. 1	Quantity depending on role, mission, method of operation and dispersion of the unit. Gamma and Beta detection capability may be provided by one device or two separate.
b. Dosimeter reader	Min. 1 per bn size unit	If dose-rate meters are not direct readable, number IAW national regulations.
c. Dosimeter, configuration	Min. 1 per bn size unit	If not provided by dosimeter reader.
d. Chemical point detector	Min. 1	Quantity depending on instrument performances, unit-deployment, etc.
e. Radiological & Chemical remote detector		Desirable. Quantity depending on instrument performances, unit deployment, etc.
f. Chemical stand-off detector		Desirable.
g. Biological stand-off detector		Desirable.
h. Combined Chemical and Biological stand-off detector		Desirable.

<sup>3</sup> Installation is to consider as a military facility e.g. HQ, Sea port, Ship, Airfield, Logistic base.

Item	Quantity	Remarks
<b>2. <u>CBRN INFORMATION MANAGEMENT</u></b>		
a. Warning and reporting equipment, marking signs set	Min. 1	Each unit/installation must be equipped with means for warning and reporting as well as marking signs as described in STANAG 2521.
b. CBRN automatic data processing system		Desirable.
<b>3. <u>PHYSICAL PROTECTION</u></b>		
a. Impermeable suit <sup>4</sup>		Number in accordance with national regulations.
b. Collective protection system		As minimum to: mission critical elements of command and control assets including Wing Operations Centers and C2 elements in harbors, critical elements of ROLE 2 (enhanced) and ROLE 3 Medical Treatment Facilities, rest and recuperation facilities, including APOD and SPOD, deployed in a CBRN threat environment.
c. Cover material chemical proof		Available in sufficient quantities including replacements, to cover equipment, supplies, etc.

<sup>4</sup> A permeable suit with a rubber apron could also offer an appropriate protection to e.g. decontamination personnel

Item	Quantity	Remarks
4. <u>HAZARD MANAGEMENT</u>		
a. Portable decontamination set	Min. 1 per vehicle	Quantity IAW the vehicles/equipment amount.
b. Decontaminants		Available in sufficient quantities for items 4.a. and 4.c.
c. Ship installed wash-down system		Each ship should be equipped with a countermeasure wash-down system.
d. Radiac calculator <sup>5</sup>	1 per CBRN specialist or CBRN branch in a Command Post	Manually or electronically operated.
5. <u>MEDICAL COUNTERMEASURES AND SUPPORT</u>		
a. Medical Items		Scale according to medical STANAGs as mentioned at “Related Documents” or IAW national regulations.

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<sup>5</sup> The function of this item may be subsumed in a “CBRN automatic data processing capability” (if present at this level)

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<b>ANNEX C      SPECIALIST CBRN DEFENSE UNIT EQUIPMENT<sup>6 7</sup></b>
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**C.1.    CBRN RECONNAISSANCE UNIT**

Item	Quantity	Remarks
<b>1. <u>DETECTION, IDENTIFICATION AND MONITORING</u></b>		
a. CBRN reconnaissance and survey vehicle <sup>8</sup>	Min. 1 per CBRN recce team / squad	Quantity depending on unit-deployment and national regulations.
b. Radiological, biological and chemical sampling equipment		Depends on the number of required sampling parties per unit in accordance with national regulations and CBRN structure.
c. Radiological Contamination monitoring equipment	Min. 1 per CBRN recce team / squad	
d. Biological point detector <sup>9</sup>	Min. 1 per CBRN recce team / squad	

<sup>6</sup> Nations without "Specialist CBRN Units" should incorporate equipment mentioned in ANNEX C as far as possible in the list of "Units/Installations" (ANNEX B)

<sup>7</sup> "Specialist CBRN Units" should also have the equipment of regular "Units/Installations" (ANNEX B)

<sup>8</sup> The task of this item may be performed by more than one device or instrument in one or more installations, in accordance with national regulations

<sup>9</sup> The tasks of (some of) these items may be performed by one single device of instrument

Item	Quantity	Remarks
e. Biological identification kit	Min. 1 per CBRN recce team / squad	Not required if biological point detector is capable of providing provisional identification.
f. Chemical stand-off detection equipment		Desirable. Quantity depending on instrument performances, unit-deployment, etc.
g. Chemical Point detector	Min. 1 per CBRN recce team / squad	
h. Chemical Identification kit	Min. 1 per CBRN recce team / squad	Not required if chemical point detector is capable of providing provisional identification.
i. Chemical remote detector		Desirable. Quantity depending on instrument performances, unit deployment, etc. Maybe performed by point detector (if technically available).
<b>2. <u>CBRN INFORMATION MANAGEMENT</u></b>		
a. CBRN automatic data processing system	Min. 1 per CBRN recce plt	

Item	Quantity	Remarks
<b>3. <u>PHYSICAL PROTECTION</u></b>		
a. Advanced respiratory protection		Self Contained Breathing Apparatus. Especially for personnel (e.g. mass-protection spectrometer operators) handling Vapour confirmation monitors outside vehicles with collective protection. Quantity depending on unit deployment and national regulations.
b. Advanced impermeable suits		For the same category of personnel mentioned above (Item 3.a.). Quantity also depending on unit deployment and national regulations.
<b>4. <u>MEDICAL COUNTERMEASURES AND SUPPORT</u></b>		
a. Medical items		Scale according to medical STANAGs as mentioned at "Related Documents" or according to national regulations.

**C.2. BIOLOGICAL DETECTION, IDENTIFICATION AND MONITORING UNIT**

Item	Quantity	Remarks
<b><u>1. DETECTION, IDENTIFICATION AND MONITORING</u></b>		
a. Biological survey system	Min. 1 per BIO-DET team	Quantity depending on unit-deployment and national regulations
b. Biological sampling equipment		Depends on the number of required sampling parties per unit.
c. Biological point detector		Quantity depending on instrument performances, unit-deployment, etc.
d. Biological remote detector	Min. 12 per BIO-DET plt	Quantity depending on instrument performances, unit-deployment, etc. Maybe performed by point detector (if technically available).
e. Biological identification kit		Quantity depending on unit organization, not required if biological point detector is capable of providing provisional identification.
f. Aerosol confirmation monitor (biological)		Quantity depending on unit organization.
g. Biological stand-off detection equipment		Desirable. Quantity depending on instrument performances, unit-deployment, etc.



Item	Quantity	Remarks
<b>2. <u>CBRN INFORMATION MANAGEMENT</u></b>		
a. CBRN automatic data processing system	Min. 1 per BIO-DET plt	Quantity in accordance with national regulations.
<b>3. <u>PHYSICAL PROTECTION</u></b>		
a. Advanced respiratory protection		Self Contained Breathing Apparatus. Especially for personnel (e.g. mass-protection spectrometer operators) handling Vapour confirmation monitors outside vehicles with collective protection. Quantity depending on unit deployment and national regulations.
b. Advanced impermeable suits		For the same category of personnel mentioned above (Item 3.a.). Quantity also depending on unit deployment and national regulations.
<b>4. <u>MEDICAL COUNTERMEASURES AND SUPPORT</u></b>		
a. Medical items		Scale according to medical STANAGs as mentioned at "Related Documents" or according to national regulations.

**C.3. DECONTAMINATION UNIT**

Item	Quantity	Remarks
<b><u>1. DETECTION, IDENTIFICATION AND MONITORING</u></b>		
a. Equipment to assess level of contamination before and after decontamination		Quantity depending on instrument performances, unit-deployment, etc. Point detectors may be used.
<b><u>2. PHYSICAL PROTECTION</u></b>		
a. (Im)permeable suits for decontamination purposes		Quantity depending on instrument performances, unit deployment, etc.
<b><u>3. HAZARD MANAGEMENT</u></b>		
a. Power-operated decontamination apparatus		In special decontamination units / stations.
b. Steam cleaning system		May be a part of above mentioned (item 3.a) or separate.
<b><u>4. MEDICAL COUNTERMEASURES AND SUPPORT</u></b>		
a. Medical items		Scale according to medical STANAGs as mentioned at "Related Documents" or according to national regulations.
b. Decontamination equipment for contaminated casualties		Scale according to medical STANAGs as mentioned at "Related Documents" or according to national regulations.

**C.4. DEPLOYABLE ANALYTICAL LABORATORY**

Item	Quantity	Remarks
<u>1. DETECTION, IDENTIFICATION AND MONITORING</u>		
a. Radiological, biological and chemical sampling equipment. Forensic level of sampling capability		Depends on the number of required sampling parties per unit.  Desirable.
b. Radiological deployable analytical laboratory	1	IAW STANAG 4632
c. Chemical deployable analytical laboratory	1	IAW STANAG 4632
d. Biological deployable analytical laboratory	1	IAW STANAG 4632
e. Radiological contamination monitoring equipment		Quantity depending on equipment performance, unit deployment, etc.
<u>2. CBRN INFORMATION MANAGEMENT</u>		
a. CBRN automatic data processing system	1 per CBRN-LAB-FRWK	Quantity in accordance with national regulations.

Item	Quantity	Remarks
<b>3. <u>PHYSICAL PROTECTION</u></b>		
a. Advanced respiratory protection		Self Contained Breathing Apparatus. Especially for personnel (e.g. mass-protection spectrometer operators) handling vapor confirmation monitors outside vehicles with collective protection. Quantity depending on unit deployment and national regulations.
b. Advanced impermeable suits		For the same category of personnel as mentioned above (item 3.a). Quantity also depending on unit deployment and national regulations.
<b>4. <u>HAZARD MANAGEMENT</u></b>		
a. Equipment to provide decontamination to laboratories		Quantity depending on instrument performances, unit-deployment, etc.
<b>5. <u>MEDICAL COUNTERMEASURES AND SUPPORT</u></b>		
a. Medical items		Scale according to medical STANAGs as mentioned at "Related Documents" or according to national regulations.

<b>ANNEX D DESCRIPTION OF CBRN DEFENSE EQUIPMENT</b>
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**1. DETECTION, IDENTIFICATION AND MONITORING**

- a. Chemical detection equipment. Equipment that is capable of discovering a chemical hazard below the concentration which will cause injury / casualties to unprotected individuals and allows personnel to take protective measures within the required timeframes (9 sec for Vapour and 15 sec for blister).
- b. Chemical identification kit. A kit which provides the means to provisionally identify the different types of detected chemical agents or toxic industrial chemicals.
- c. Chemical point detector. A device or system employed to detect / recognize and alert an operator of the emergence, presence or absence of CWA or hazards at the point of interception<sup>10</sup>. This device may also have the capability to provide provisional identification of CWA.
- d. Chemical remote detector. A chemical point or stand-off detector employed at a distance from the protected force element (observer)<sup>11</sup>.
- e. Chemical stand-off detection equipment. A stand-off detector reacts to distant events or hazards, in order to provide early warning. A chemical stand-off detector must be able to rapidly detect, identify, locate and provide relative concentrations of CWAs in all forms. A chemical stand-off detector may be employed from fixed sites, ground mobile, ships, aircraft and unmanned aerial / ground vehicle platforms.
- f. Biological point detector. An instrument that will discover and alert an operator of the presence of an aerosolized biological agent or toxin.
- g. Biological remote detection device. A point or stand-off detector employed at a distance from the protected force element (observer)<sup>12</sup>. Desirable this instrument should detect the presence of a man-made aerosol cloud which fits the particle size parameters of a biological agent or a toxin at a specified distance. The instrument must be capable of providing early warning of a possible biological attack to downwind units.
- h. Biological identification kit. A kit that provides the means to provisionally identify the different types of detected biological agents or toxins.
- i. Biological aerosol confirmation monitor. An instrument that confirms the presence of a biological agent or toxin at a location or spot equal to or above the concentration which will cause injury / casualties to unprotected individuals (further specifications still to be determined).

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<sup>10</sup> IAW AAP-21

<sup>11</sup> IAW AAP-21

<sup>12</sup> IAW AAP-21

- j. Biological stand-off detection equipment. A stand-off detector reacts to distant events or hazards in order to provide early warning. A biological stand-off detector must be able to rapidly detect, identify, locate and provide relative concentration of BWA aerosol clouds. A biological stand-off detector may be employed from fixed sites, ground mobile, shipboard, aircraft and unmanned aerial / ground vehicle platforms.
- k. Individual dosimeter. An instrument designed to measure the ionizing radiation dose received by an individual. It may be direct (i.e. self) reading or indirect (i.e. non-self) reading.
- l. Radiological and Nuclear dose-rate meter. An instrument that is capable of:
- (1) determining the degree of radioactive contamination (including in water) or to check the effectiveness of decontamination measures;
  - (2) determining the dose-rate of residual gamma radiation and the presence of beta radiation in a contaminated area;
  - (3) measuring low level radiation dose-rates.
- m. Radiological contamination monitoring equipment. An instrument that monitors the presence of Alpha, Beta and Gamma contamination.
- n. CBRN reconnaissance and survey vehicle. Confirmation of CBRN agents as well as for TIM, so far as achievable. The mission of a CBRN reconnaissance vehicle is to obtain information by visual observation or other methods, to confirm or deny the presence of a CBRN incident. As a minimum a CBRN reconnaissance and survey vehicle must accomplish all of the following tasks:
- (1) area reconnaissance;
  - (2) point reconnaissance;
  - (3) route reconnaissance;
  - (4) CBRN survey;
  - (5) CRN/TIM agent monitoring;
  - (6) tactical sampling of CBRN agents / TIM hazards;
  - (7) marking of contaminated areas;
  - (8) gathering of meteorological data for CBRN hazard prediction.
  - (9) transfer all gathered data in "real time".
- It is preferred that the vehicle offers collective protection (COLPRO) to its personnel. Unmanned vehicles / platforms should be used when possible.
- o. Biological survey system. Confirmation of BWA. The mission of a biological reconnaissance vehicle is to obtain information by visual observation or other methods, to confirm or deny the presence of biological hazards or attacks. As a minimum a biological reconnaissance and survey vehicle must accomplish all of the following tasks:
- (1) area reconnaissance;
  - (2) point reconnaissance;

- (3) route reconnaissance;
- (4) BWA survey and monitoring;
- (5) tactical sampling of BWA;
- (6) marking of contaminated areas;
- (7) gathering of meteorological data for CBRN hazard prediction;
- (8) transfer all gathered data in 'real time'.

It is preferred that the vehicle offers collective protection (COLPRO) to its personnel. Unmanned vehicles / robots should be used when possible. A CBRN reconnaissance and survey vehicle can also play a role of this vehicle, if additionally equipped for advanced biological detection, identification and monitoring.

- p. Radiological, biological and chemical sampling equipment. A kit that provides the possibility of sampling radioactive contamination, biological agents and chemical agents, including means for documentation and procedures for transport according to AEP-10 and AEP-49<sup>13</sup>.

## 2. CBRN INFORMATION MANAGEMENT

- a. Warning and reporting equipment. Instruments for warning and reporting, e.g. means for giving alarm and means for communications.
- b. CBRN automatic data processing system. A system that is able to perform all functions regarding hazard warning and hazard prediction according to ATP-45 and AEP-45.

## 3. PHYSICAL PROTECTION

- a. Protective mask. Functional equipment that provides at least a protection to the eyes and respiratory tracts against chemical and biological agents and, against inhalation of radioactive particles. Special additional features may be needed for special functions (aircrew, etc.). Special filter-elements to match TIM release may be needed at special locations / for special functions (for troops operating in the area where there may be a hazard from Toxic Industrial Chemicals (TICs) a general type of industrial filter must be available).
- b. Protective ensemble. A suit of equipment that provides protection for the body and parts of the head which are not protected by the protective mask, against percutaneous biological and chemical agents and that provides protection against alpha and beta particles of radioactive fallout or radioactive contamination. The ensemble may be one-piece, or may consist of different items such as coverall, gloves, CBRN under gloves, boots, CBRN sockets, etc.. Special personnel-categories may have a specially designed protective ensemble. The ensemble can be an over- or an undergarment.
- c. Impermeable / permeable suit for decontamination purposes. An impermeable / permeable suit, designed for special purposes (e.g. for decontamination personnel), which provides whole body protection against contact with liquid toxic

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<sup>13</sup> AEP-10 and AEP-49 will be cancelled on promulgation of AEP-66.

and biological agents, and radioactive fallout. At unit-level disposables are preferred.

- d. Advanced respiratory protection . Self Contained Breathing Apparatus (SCBA). A system that provides respiratory protection by using compressed air.
- e. Advanced impermeable suits. An impermeable suit, designed for use in combination with the SCBA or CBRN filters, which provides whole body protection against contact with liquid toxic and biological agents, and radioactive fallout. Using the filter overpressure system, it allows wearing for an extended period of time.
- f. Collective protection system. A system that provides protection to a group of individuals in a CBRN environment, which permit relaxation of individual CBRN protection, or for use by sub-units which, in certain situations, have to perform their mission without CBRN protective clothing in a CBRN environment (e.g. medical personnel and electronic equipment maintenance personnel). Two types can be distinguished:
  - (1) a filter-overpressure system that prevents the intrusion of unfiltered (contaminated) air;
  - (2) a ventilated face piece installation which provides filtered air, by means of flexible hoses, whether or not coupled onto a protective mask or a special face piece.

COLPRO facility fitted with a Contamination Control Area (CCA) and an airlock ensures that contamination does not enter the Toxic Free Area (TFA) of the COLPRO. The CCA is designed to ensure that personnel processing through do not cross contaminate the TFA.

- g. Cover material chemical proof. A protective material, which is to be applied over supplies, equipment, etc., to provide a barrier for an adequate time to prevent direct contamination with liquid chemical agents, biological agents and radioactive dust.

#### 4. HAZARD MANAGEMENT

- a. Decontamination set. A light-weight equipment to enable the individual to decontaminate the skin, parts of the clothing, equipment and the individual weapon.
- b. Portable decontamination apparatus. A light-weight apparatus for quick decontamination of essential parts of equipment (operational decontamination).
- c. (Steam) cleaning system. A system, which sprays hot water or steam on contaminated equipment in order to increase the effectiveness of a decontamination.
- d. Decontamination or cleansing station. A fixed or mobile installation where personnel can remove contaminated clothing and don clean clothing. The



installation may include a showering or bathing facility for decontamination purposes, if required according to decontamination policy.

- e. Power operated decontamination apparatus. A large capacity, power-operated apparatus for decontamination of equipment or structures.
- f. Decontaminants. A range of materials to perform effective and rapid decontamination of equipment or facilities from radioactive particles and biological or chemical agents. Materials that are not harmful to the environment prevail.
- g. Counter-measure wash-down system. A combination of pre-hazard precautions and decontamination efforts whereas the decontamination function of wash-down is a system which sprays seawater over a ship or parts of a ship to provide a constant moving film of water over the ship's surface.
- h. Radiac calculator. A device to perform the calculations/estimates of the radiation effects of nuclear weapon explosions.
- i. Radiological and Nuclear dosimeter (tactical). An instrument for determining the dose of gamma and neutron radiation received by the personnel of a group or a unit. A direct readable instrument is preferred.
- j. Dosimeter reader<sup>14</sup>. An instrument to read out both gamma and neutron doses monitored by individual and tactical dosimeters.
- k. Configuration for dosimeters. An instrument for resetting individual and tactical dosimeters.

## 5. MEDICAL COUNTERMEASURES AND SUPPORT

- a. First aid self treatments. As mentioned in the medical STANAGs (see: "Related Documents") or in national regulations.
- b. Medical items. As mentioned in the medical STANAGs (see: "Related Documents") or in national regulations.
- c. Equipment to provide decontamination of contaminated casualties. Device of system where contaminated casualties can be decontaminated and prepared for transportation (basic medical treatment is required) to Role 2 Medical Treatment Facility.

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<sup>14</sup> Only in cases the dosimeter is not direct readable.

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