

Toward an integrated, joint cross-border detection system and harmonized rapid responses procedures to chemical, biological, radiological and nuclear emergencies MIS-ETC Code: 774

Newsletter EMERSYS 6

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Training courses

One of the activity planned to be implemented in the framework of the EMERSYS project "Toward an integrated, joint cross-border detection system and harmonized rapid responses procedures to chemical, biological, radiological and nuclear emergencies", code MIS-ETC 774, is training of the operational staff.

Responsible to organize the Training Course T1 on "Chemical and Biological Emergency - theoretical aspects", was the Institute for Nuclear Research and Nuclear Energy-INRNE-P4, Bulgaria and to organize the Training Course T2 on "Radiation Protection in Radiological and Nuclear Emergency - theoretical aspects" was the Horia Hulubei National Institute for R&D in Physics and Nuclear Engineering - IFIN-HH - LP, Romania.

Operational staff in CBRN emergencies situation was from General Inspectorate for Emergency Situations-GIES-Romania (P2) and Directorate General for Fire Safety and Civil Protection (DGFSCP)-P3 Bulgaria.



See next page.



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The Training Course T1 on “Chemical and Biological Emergency - theoretical aspects”, and the Training Course T2 on “Radiation Protection in Radiological and Nuclear Emergency - theoretical aspects” were held in Sofia, Bulgaria, on December 2-7, 2014, having as objective to enhance the emergency expertise from the cross-border area by training the operational staff. Its target was the staff of the emergency management responsible authorities having attributions in the field of chemical, biological, radiological and nuclear emergencies.

For a clear understanding of the specific hazards and risks associated with chemical, biological, radiological or nuclear (CBRN) emergencies and of how they are to respond to CBRN emergency situations, the following topics were addressed:

CB Emergencies

1. **Military chemical weapons - classification**
 2. **Chemical weapons: history and chemistry**
 3. **Chemical weapons**
 - a. Lethal agents: nerve, blood and choking agents
 - b. Harassing agents: tear, vomiting agents, malodorants
 - c. Incapacitating agents: psychological agents, riot-control
 4. **First aid**
1. **Biological agents: history and basic characteristics**
 - a. Types of biological agents
 - Toxins
 - Bacteria
 - Viruses
 - Molds
 2. **Biological agents as a tool for terrorism**
 - a. Biological war types
 3. **Biosafety and biosecurity**
 - a. General strategy
 - b. Protection level
 - c. Proposed methods for biological protection
 - d. Evaluation of biological risk
 - e. Individual protection equipment
 - f. Biosecurity components
 - Physical protection
 - Protection of personnel
 - Protection of information
 - Transport protection
 - Materials control and reporting



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RN Emergencies

1. **Ionizing radiation - basics**
 - 1.1. Introduction.
 - 1.2. Basic physics used in radiation protection.
 - 1.3. Interaction of radiation with matter.
2. **Biological effects of ionizing radiation**
 - 2.1. Effects of radiation at the molecular and the cellular level.
 - 2.2. Deterministic effects.
 - 2.3. Stochastic effects.
3. **Dosimetric and radiation protection quantities**
 - 3.1. Dosimetric quantities and units.
 - 3.2. Radiation protection quantities. Operational quantities.
4. **Radiation detection and measurement. Detectors.**
 - 4.1. Principles of radiation detection and measurement.
 - 4.2. Radiation detectors.
5. **Nuclear reactors. Nuclear accidents**
 - 5.1. Nuclear reactors.
 - 5.2. Nuclear accidents.
6. **Radioactive sources and radiological devices - examples and identification**
 - 6.1. Identification of a radioactive source, device or transport package.
 - 6.2. Categorization of radioactive sources. Examples.
7. **Radiological accidents. Case study**
 - 7.1. Radiological accidents.
 - 7.2. Case study.
8. **International and European framework for radiation protection - regulatory system**
 - 8.1. Principles of radiation protection.
 - 8.2. The role of international organizations in radiation protection.
 - 8.3. Regulatory control.
9. **Intervention in emergency exposure situations. Risks associated with radioactive sources. Contamination and decontamination**
 - 9.1. General principles and types of events.
 - 9.2. Basic concepts for emergency response.
 - 9.3. Basic concepts for emergency preparedness for a nuclear accident or radiological emergency.
 - 9.4. Risks associated with radioactive sources.
 - 9.5. Contamination and decontamination

The Training Courses were attended by LP, P2, P3, P4 representatives and operational staff (40 participants) from Emergency Situations Inspectorates of Calarasi, Constanta, Dolj, Giurgiu, Mehedinti, Olt, Teleorman Counties and Fire Safety and Civil Protection Directorates of Dobrich, Montana, Plevna, Silistra, Ruse, V. Tarnovo, Vidin and Vratsa Regions.

After the training session the trainees were tested and evaluated.



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