

## **New safety and security requirements for the transport of nuclear and other radioactive materials in Hungary**

**T. Katona, K. Horvath, J. Safar**

Hungarian Atomic Energy Authority, Budapest, Hungary

**Abstract.** In addition to the promulgation of mode-specific regulations of international transport of dangerous goods, some Hungarian governmental and ministerial decrees impose further conditions upon the transport of nuclear and other radioactive materials.

One of these ministerial decrees on the transport, carriage and packaging of radioactive materials is under revision and it will require

- approval of emergency response plan (including security and safety contingency plan);
- report on transport incidents and accidents for classifying them in accordance with the INES scale;
- the competent authority to request experts' support for the approval of package designs, radioactive material designs and shipments.

Regarding the security of the transport of nuclear and other radioactive materials a new Hungarian governmental decree and a related guidance are about to be published which will supply additional requirements in the field of the transport security especially concerning radioactive materials, implementing - among others - IAEA recommendations of the NSS No9 and No14 [1-3].

The main and relevant features of the Hungarian nuclear regulatory system and the details of both new decrees regarding the safety and security issues of transport of nuclear and other radioactive materials will be discussed.

### **Introduction**

The Hungarian nuclear regulatory system is established by the Act on Atomic Energy. According to this Act the responsibility for supervising the peaceful, safe and secure application of atomic energy is shared between various ministries and other governmental organizations. They are the Hungarian Atomic Energy Authority (HAEA), the Police, the National Public Health and Medical Officer Service (NPHMOS), the National Tax and Customs Administration.

Supervision of the safe application of nuclear energy including the transport of nuclear and other radioactive materials is a governmental task delegated primarily to the HAEA as competent authority. The HAEA is a central public administrative organisation with its own general scope of authority and its own tasks and regulatory competence supervised by the government.

Regarding the transport of nuclear and other radioactive materials the main task of the HAEA is approval of transport package designs, special form radioactive material designs and some special transports requiring the approval of the national competent authority.

## Revision of the Decree on transport, carriage and packaging of radioactive materials

The legislation and legal control of safe transport of nuclear and other radioactive materials is under continuous improvement in Hungary according to the new international requirements and standards and according to the actual national needs. In addition to the promulgation of mode-specific regulations of international transport of dangerous goods (such as ADR, RID, ADN and ICAO TI) several other Hungarian ministerial decrees control the conditions and subsidiary details of the safe transport of nuclear and other radioactive materials. One of these ministerial decrees on the transport, carriage and packaging of radioactive materials is now under revision and it will include some important new requirements compared to the actual one. It will prescribe for example (i) approval of the emergency response plan by the competent authority; (ii) obligation of reporting transport incidents and accidents for classifying them in accordance with the INES scale; (iii) power for the competent authority to request experts' opinions and support from various institutes, universities and TSOs for the approval of package designs, radioactive material designs or some shipments.

More details regarding the above mentioned new requirements are as follows:

(i) Releasing new legislations concerning radioactive materials made most of the provisions of the decree on '*Safe rail transport of spent nuclear fuel*' out of date so it will be repealed when this new decree will be promulgated. Consequently some related legal provisions will be rearranged and extended as the approval of emergency response plan. Emergency response plans shall be created in order to be prepared for preventing or eliminating the consequences of a radiological accident or incident in the country.

(ii) The vehicle operator will be required to report all accidents and incidents occurred during the transport of radioactive material to the Police, the NPHMOS, the National Disaster Management Office, the competent Environmental Inspectorate, and in some cases with special licence to the National Transport Authority. All the extraordinary events related to the shipment shall be reported to the HAEA on a notification form within 12 hours via fax or e-mail. The reported information received on the notification form will be taken as a basis of the INES classification of events performed by HAEA. In case of an INES 1 or higher rated event, the HAEA shall inform the International Atomic Energy Agency about the occurrence or discovery of the incident within 24 hours.

(iii) The licensing fees of the HAEA will be specified in a different construction compared to the current activity in order to facilitate the conduct of proceedings for the applicants. According to the current standard procedure in those cases when the approval of the HAEA is necessary, the applicant must purchase the expert opinions in advance. According to this new draft, the expert opinions will be purchased by the HAEA, thus the cost and duration of the process will be rather disciplined compared to the current procedure, and these fees will be covered by the licensing fee paid to HAEA.

The amendment of this regulation will establish full compliance with EU standards and international transport requirements, and thus will enhance the safety of transport of dangerous goods.

## **New Hungarian governmental decree on physical protection and transport related guidance**

Concerning the security issues of transporting nuclear and other radioactive materials a new Hungarian governmental decree and related guidance are about to be published which will provide additional requirements. The draft of the governmental decree titled '*Physical protection of nuclear facilities, nuclear material, radioactive sources and radioactive waste and the related licensing and control system*' is dealing with not only the physical protection of shipments but it will regulate also the process of developing physical protection systems of a nuclear facility, physical protection of nuclear and radioactive materials and their shipment, as well as the preparation of the physical protection plan.

The aim of the physical protection of nuclear facilities and nuclear materials, radioactive sources and the radioactive wastes in Hungary is to deter, detect and respond to

- the sabotage resulting unacceptable radiological consequences;
- unauthorized removal of the nuclear material, radioactive sources and radioactive waste;
- the unauthorized acquisition of classified data and information

in the nuclear facilities and during the use, storage and transport of nuclear materials, radioactive sources and radioactive waste.

During the use, storage and transport of nuclear material, radioactive sources and radioactive waste the physical protection system ensures the prevention of approach or unauthorized removal (A-level), minimizing reasonably the possibility of approach or unauthorized removal (B level), reducing the possibility of unauthorized removal (C-level) or applying prudent security measures (D-level).

The physical protection system must ensure the effective cooperation of deterrence, detection, delay and response as physical protection functions. The detailed requirements for implementating deterrence, detection, delay measures according to the security levels (A, B, C, D) will be prescribed in the new decree.

The level of physical protection applied *during transport* of nuclear and other radioactive material shall be adequate to the threat category of the transported material (Table 1).

A guidance titled '*Physical protection requirements applicable during the transport of nuclear and other radioactive material*' will also be published in order to give practical support, with due respect to the internal requirements and recommendations on physical protection and to the draft governmental decree mentioned previously for the transporters/carriers of nuclear and other radioactive material for the development of physical protection of transport and the preparation of the physical protection plan. During transport, physical protection shall, in the first place grant protection against unauthorized removal; protection against sabotage – based on considerations on threat – shall be guaranteed by respecting the transport safety requirements.

The official authorization and control of the development and operation of physical protection system of nuclear facilities and nuclear material, radioactive sources and radioactive waste and their transport will be provided by the National Police Headquarters and the HAEA.

In endorsement procedures of alteration of physical security systems the HAEA will perform special authority functions.

Table 1. Materials and physical protection levels

Name of material	Minimum level of protection
Category 5. radioactive source	
Category 4. radioactive source	<b>D</b>
Category 4. radioactive waste	
Category 3. radioactive waste	
Category 2. radioactive waste	
Category 3. radioactive source	<b>C</b>
Category 2. radioactive source	
Category III. nuclear material	
Category 1. radioactive waste	
Category 1. radioactive source	<b>B</b>
Category II. nuclear material	
Category I. nuclear material	<b>A</b>

**Note:** during transport of non-listed material protection level equivalent to *Level D* shall be applied

According to the draft of this guidance different solutions should be used on road when the vehicle is moving and different ones shall be used when the vehicle stops and is parking. During longer stops (exceeding 1 hour), physical protection of the delivery on the vehicle shall be equivalent to the adequate (in accordance with the safety level of the transported material) protection level of facilities.

#### REFERENCES

- [1] INTERNATIONAL ATOMIC ENERGY AGENCY, Security in the Transport of Radioactive Material, Nuclear Security Series No. 9, Implementing Guide, IAEA, Vienna, (2008)
- [2] INTERNATIONAL ATOMIC ENERGY AGENCY, Nuclear Security Recommendations on Radioactive Material and Associated Facilities, Nuclear Security Series, No. 14, IAEA, Vienna (2011)
- [3] INTERNATIONAL ATOMIC ENERGY AGENCY, Nuclear Security Recommendations on Physical Protection of Nuclear Material and Nuclear Facilities, Nuclear Security Series No. 13, INFCIRC/225/Rev5, IAEA, Vienna (2011)