

# **Regulatory Framework and Current Practices of the Radioactive Material Safe and Secure Transport in Albania**

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**Abstract.** Attempts for the establishing of a safe and secure radioactive material transport in Albania began a decade ago with formulation of the different regulation in the field of safe and secure handling of the radioactive materials. In 2004 a special regulation for the safe transport of radioactive material was prepared and approved by the National Radiation Protection Commission). This regulation has been based in the IAEA standards for the radioactive material transport and was reviewed periodically. The last regulation of the radioactive material transport was approved by Albanian government through a governmental ordinance. The transport of the radioactive material in Albania is performed by licensed subjects, which fulfill all requirements of the mentioned governmental ordinance. Based in the existing regulation, for each transport of radioactive material, a special permission is issued by NRPC. The issuing of permission allows competent authority to provide necessary information on transport regularity and to have under survey all transports of the radioactive material carried out inside the country. Last year were issued more than 80 permissions for the transport of the different types and categories of the radioactive sources.

## **1. Introduction**

The transport of radioactive materials has been considered as an important issue since the beginning of the different activities related with radioactive sources in Albania in the '70 years. The first regulation on the safe handling of the radioactive materials and other radiation sources has paid very careful attention the problems of the radioactive material transport [1]. In this regulation were adopted the existing IAEA standards for the transport of the radioactive material, including the categories of the transport packages, types of the packages and their labeling. Special attention was paid to the package dose ratio values in the surface and in 1 m distance (transport index).

A special vehicle was imported by Albanian authorities to meet the needs for the transport of radioactive sources, especially after the establishing and functioning of the nuclear medical centers, which used molybdenum-technetium generators.

After 1990 years in Albania was undertaken a great deal to revise all existing regulation in the field of nuclear application, especially after publication of the IAEA Basic Safety Standards [2] and the Radiation Protection and Safety of Radiation Sources [3]. Albania has participated actively the IAEA Model Project and through efforts of Albanian and foreign specialists a modern of radiation protection infrastructure has been established. The supervision of all activities involving a radiation source in Albania is exerted through the National Radiation Protection Commission (NRPC), which was established based in the Albanian Parliament Law No. 8025, date 0911.1995 [4]. For everyday controls and

inspections of the mentioned activities was established the Radiation Protection Office (RPO) as executive body of the NRPC.

Last year was established the Nuclear National Agency (NNA) as an organ responsible for control of the activities related with nuclear materials, including their transport, fulfilling in the same time an obligation of Albania in the frame of the IAEA Additional Protocol approval.

## **2. The transport regulatory framework**

Based in the recommendations of the IAEA for the safe transport of radioactive materials, NRPC has decided in 2004 to prepare a specific regulation for this activity. A group of Albanian specialists begin the preparation of a draft based in the IAEA materials and considering the past experience and local condition. This draft was discussed with different interested groups from medicine, industry and education. Before final approval, some consultations and opinion exchanges were organized with IAEA experts.

The regulation was based in  $A_1$  and  $A_2$  values for transport packages type and contains the following type packages: exempted packages, industrial packages, packages of type A and type of B(U) and B(M) packages. Concerning the radioactive contamination of the packages surfaces are adopted the values of  $4 \text{ Bq/cm}^2$  for beta, gamma and low toxicity alpha emitter and  $0,4 \text{ Bq/cm}^2$  for all other alpha emitter as upper limits of radioactive contamination of the packages surface.

Radiation level in the surface for the exempted packages was less than  $0,5 \mu\text{Sv/h}$ . For types A and B packages the dose ratio was less than  $2 \text{ mSv/h}$  in the surface. The last figure was also applicable for the surface of the transport vehicles.

All packages, other than exempted packages, were involved in the following categories, which are based in the radiation level in surfaces and in 1 m distance (transport index): I – white, II – yellow and III – yellow. For all mentioned levels are adopted the IAEA standards. All packages, other than exempted packages, have a label in two opposite side. The transport vehicles, must have also in all its outer surfaces the signs of the radioactive danger. Last time exist some opinions, based in the security of the radioactive sources, if this sign needed to stamp in outer or inner surface of the transport vehicles, aiming not to attract the attention of malevolent groups or public during the transport process of radioactive materials, but in the same time to have the necessary information in the case when an transport accident occurs.

In regulation it is foreseen the presence of a radiation protection qualified person during the loading, transport and unloading process. The transport of radioactive packages together with other dangerous materials and undeveloped films is strictly prohibited.

The transport of the radioactive materials needed to be accompanied by the necessary documents with following information: the statement of the consignor related with content and labeling of packages, the precise address of the consignee, chemical and physical properties of radioactive materials, package category and transport index.

Last year with proposal of the NRPC and other interested groups, the regulation for the safe transport of radioactive materials, after some revision which were carried out in the light of the respective IAEA documents [5], was issued as the governmental ordinance No. 488, date 23.06.2010 [6].

### **3. The current practice of the transport**

The implementation of the regulation for the safe transport of the radioactive materials is in charge of the NRPC. Based in the current practice every subject interested for a transport of radioactive materials inside the country is obliged to have a license for handling of radioactive materials, which is issued by the NRPC. For each transport, the interested subject other than the license, ought to possess a special permission issued by NRPO on request, for the transport of the radioactive sources of the categories 1 and 2 after the Code of Conduct [7] and issued by RPO for the radioactive sources of categories 3, 4 and 5. For security reasons, the transport of radioactive sources of categories 1 and 2 is accompanied by police escort.

The same procedures are valid also for transport of the source which are imported or exported. The customs authorities are obliged to have a copy of the transport permission, to ensure for the safe and secure transport of the radioactive materials.

The request for having a special permission for each transport to our opinion is a good practice, which allows the competent authorities to provide necessary information on transport regularity as well as to have under rigorous survey all moving of the radioactive sources inside the country. We believe that having a real-time information of the transport, there are less chances for lost of radioactive sources or other irregularities with radioactive sources. The mentioned procedures for import and export of the radioactive sources also allow regulatory authorities to update the national inventory of the radioactive sources in case of their import and/or export.

The transport of the radioactive materials in Albania is performed by licensed subjects, which fulfill all requirements of the mentioned governmental ordinance. The license is issued to interested subjects by the NRPC and the Ministry of the Transport. In the country for the moment there are two licensed subjects for the transport of radioactive materials, a public subject – Center of Applied Nuclear Physics and a private ones. The licensed subject for the transport of the radioactive materials is obliged to have a special permission, issued by RPO for each transport.

For the last year competent authorities have issued more than 80 permissions for the transport of the different types and categories of the radioactive sources. The main activities which require regular transport of the radioactive sources are related with medical centers, especially nuclear medicine centers, for transport of molybdenum-technetium generators and Ir-192 sources for high dose-ratio brachytherapy. In addition there are regular transports of the Am-241/Be and Cs-137 sources for oil industry and other radioactive gauges and Ir-192 for industrial radiography. A significant increase in the transport of the radioactive material is foreseen for this year related with the entering in the functioning of the new nuclear medicine centers and oil industry companies.

The special care which is shown toward the transport process of the radioactive materials has served as a prerequisite for avoiding the transport accidents. During many years there was not registered any incident or accident inside the country in transport of the radioactive materials.

Albanian authorities have paid special attention to the dissemination of the transport regulation provisions to the users, aiming to upgrade the level of knowledge and implementation during different transport practices. Elements of the safe transport of the

radioactive materials are involved into the universities curricula and into the programs of training courses in the frame of radiation protection education.

#### **4. Conclusions**

The existence of the special regulation for safe transport of radioactive materials is a solid base for exerting of this kind of transport in accordance with international accepted standards and rules. Albania is in an on-going process related with implementation of the different regulation in the field of radiation protection, safety and security of radioactive sources. Great effort are concentrated in the educational and training process of the users and administrators, as a *sine qua non* condition for developing of a safe and secure handling of radioactive sources, including their safe and secure transport. This process is carried out in parallel with strengthening of the supervising activities toward the transport process of radioactive sources, which intend to improve and to ensure a safe and secure transport.

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