

Security measures in transport of radiation source in Jordan

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1. Introduction

Radioactive materials are used in Jordan for peaceful applications in medicine, industry, agriculture, environmental science, education and research and military applications. Most of these radioactive sources used are imported, therefore trans-boundary movement is a significant factor in consideration of security measures during movement of these sources.

After 11/9 2001 event, IAEA efforts began to focus and concentrate on security in transport of radioactive materials, after the emergence of risks of using these sources in terrorist activities.

In 2002, Efforts were initiated by the IAEA to provide additional guidance for security in the transport of radioactive materials, based upon the new security requirements in the Recommendations on the Transport of Dangerous Goods.

This paper reviews some of the measures relating to the transport of radioactive materials in Jordan.

2. Responsibility in transport of radiation sources

2.1 Role of the state

The state's role in the transport of radioactive sources in the establishment of a system of adequate security for the transport of radioactive sources is to identify requirements necessary infrastructure for the security of radioactive sources during transport. Role of the state can be summarized as follows:

1. Designation of an independent competent authority responsible for the implementation, application, inspection and enforcement of the legislative and regulatory framework, including effective sanctions.
2. Setting objectives for protecting individuals, society and the environment from radiation hazards, including those that might result from a malicious act involving radioactive material in transport.
3. Development and integration of formal objectives and standards in security regulations.

4. Identification of the state's domestic threat and the prescription of requirements for the design and evaluation of the security system in transport.
5. Procedure for submission by the operator and, where appropriate, approval by the competent authority of a security plan prior to transport of radioactive material.
6. Development of a program for verifying continued compliance with the security regulations through periodic inspections and by ensuring that corrective actions are taken when needed.
7. Development of a policy to identify, classify and control sensitive information, the unauthorized disclosure of which could compromise the security of radioactive material in transport.
8. Determination of security clearance procedures, including a positive identification program (with an officially issued photographic identification or biometric record that positively identifies the individual), for persons engaged in the transport of radioactive material, commensurate with their responsibilities.

2.2 Jordan nuclear regulatory commission



2.3 Role of the operator

All operators have very important role in transport of radioactive materials, because they actually transport the radioactive materials. Therefore should have the responsibility for implementing and maintaining security measures for the transport of radioactive materials in accordance with national requirements. Operators should have emergency plans to respond to malicious acts involving radioactive material in transport, including plans for the recovery of lost or stolen material and for mitigating consequences.

3. Security groups

Security group	Source category	Example
A	1	Irradiator, gamma knife, teletherapy
B	2	NDT sources, HDR,MDR brachytherapy
	3	Gages, well logging gages
C	4	LDR brachytherapy
		Portable gages
D	5	X ray fluorescence devices
		Electron capture devices

4. Import and transit of radioactive materials in Jordan

Jordan nuclear Regulatory Commission (JNRC) issue licenses for the import of radioactive materials and awarded to companies with a view to start the import of radioactive materials, according to the Code of Conduct issued by the International Atomic Energy Agency relating to the security and safety of radioactive materials as a reference of Article 18 and article 13 from guidance on the import and export of radioactive sources to the conditions requirements on the import of radioactive materials, where Jordan 9 companies now holds the licenses for the import of radioactive materials and transport them to operators.

5. Security measures in transport of radioactive sources in Jordan

The transportation processes of radioactive materials are usually an interim phase in the life time of radioactive materials between production, use, storage and disposal of the materials. The potential radiological consequences of the loss of control due to theft of radioactive material during use, storage or transport do not differ in principle, although the potential consequences of an act of sabotage might differ very much depending on the location of the radioactive material.

5.1 General Security measures in transport of radioactive material in Jordan

The general security measures in transport of radioactive material in Jordan are consistent with international standard in this area and with IAEA standard, where this requirement are described in the IAEA publication (nuclear security series No.9 security in transport of radioactive material).

5.2 Enhanced security measure for security group A&B

These two groups get the most attention by JNRC in view of the seriousness of these materials of which radiation is high, the dangers of their use in terrorist acts.

JNRC imposes additional security measures to protect these sources from theft, to avoid the risk of their use in terrorist acts.

In general, transport of radioactive sources from these two groups is accompanied by a team from JNRC due to its high activity. The purpose is ascertaining the security of the transport process and ensuring safety of sources during transportation.

6. Conclusions

Transport is the stage where the radioactive source can be more susceptible to damage during the life cycle of the radioactive source.

Transfer of radioactive sources has most complex aspects. For this reason, it should include several national authorities such as Customs, public security, safety and security, transportation, vacation / licensing, civil defense.

Cooperation between the regulatory authority and licensees should be established to ensure the security of radioactive sources during the transport process, because the process depends on these interrelated efforts of the parties where you cannot neglect the role of the other party through this process.

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