REGULATION OF THE TRANSPORT OF RADIOACTIVE MATERIALS IN THE CZECH REPUBLIC

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SUMMARY

The organization responsible for safe transport of radioactive materials in the Czech Republic is the State O for Nuclear Safety (SUJB). One of the activities of the SUJB is supervision and control of nuclear and other radioactive materials transportation including radioactive wastes.

Transport of radioactive materials in the Czech Republic is ruled by Act No. 18/1997 on Peaceful Uses of Nuclear Energy and Ionizing Radiation Act (*Atomic Act*) and by Regulation of the SUJB No. 143/1997 on Transportation of Assigned Nuclear Material and Radionuclide Sources (*Transport Regulation*). However the transport of dangerous goods generally is regulated by Laws and Regulations of Ministry of Transport and by Regulations of Ministry of Foreign Affairs, implementing ADR and COTIF/RID.

The principles of all regulations concerning the transport of the radioactive materials were created on the basis of IAEA Safety Standards, Safety Series No 6, 7, and 37 (*IAEA Regulations*). There are no differences in the regulations and requirements for national and international shipments.

Our paper describes competencies and duties of SUJB concerning transport of radioactive material, legislative base of this activity and some differences between *IAEA Regulations* and requirements of the regulations of the Czech Republic:

COMPETENCIES AND DUTIES OF SUJB

The State Office for Nuclear Safety is the Czech regulatory authority responsible for supervision of nuclear safety of nuclear facilities and supervision of radiation protection in the Czech Republic. The State Office for Nuclear Safety (SUJB) is a governmental body with its own budget. The head of the SUJB is Chairman, appointed by the Government of the Czech Republic. The authority and responsibility of the SUJB is stipulated by Act No. 18/1997 on Peaceful Uses of Nuclear Energy and Ionizing Radiation Act (*Atomic Act*) and by associated legislation. Responsibilities of the State Office for Nuclear safety include:

- State supervision of nuclear safety of nuclear facilities, radioactive waste management, and spent nuclear fuel.
- State supervision of nuclear materials, including accountancy and control.

- State supervision of selected materials, facilities and technologies used in the nuclear field, as well as double-purpose materials and facilities.
- State supervision of ionizing radiation protection.
- Application of the Atomic Act and associated regulations, which the SUJB is authorized to issue under the Atomic Act.
- Within the process of Czech Republic's preparation for joining the European Union, the SUJB was engaged in the harmonization of the Czech and EU legislation in the field of nuclear safety and radiation protection, as well as in filling out the relevant parts of the EU Questionnaire.
- Coordination of the Radiation Monitoring Network of the Czech Republic and international exchange of radiological data.
- Professional cooperation with the International Atomic Energy Agency.
- Providing relevant information concerning nuclear safety to public (e.g. submitting SUJB Annual Report to the Government of the Czech Republic and to the public etc.)

In accordance with the responsibilities, the SUJB is divided into three Sections, which are all headed by the SUJB Deputy Chairmen, and an independent Department:

- Section of Nuclear Safety, which includes the Nuclear Safety Assessment Department, Components and Systems Department, and Nuclear Materials Department;
- Section of Radiation Protection, which includes the Radiation Source Applications Department, Natural Radiation Sources Department, Department of Radiation Protection at Nuclear Facilities and in the Environment, and an independent Department of the Health Aspects of Radiation Protection,
- Section of Management and Technical Support, which includes the International Cooperation Department, Financial Department, and Office Bureau,
- Independent Department of Emergency Preparedness (reporting directly to the SUJB Chairman), which fulfils the function of the Crisis Coordination Center and coordinates the Radiation Monitoring Network.
- The SUJB also incorporates its Regional Centers.
- The SUJB is also the managing authority of the National Radiation Protection Institute (SURO) in Prague.

Within the Nuclear Materials Department there is Transportation and Storage Unit, controlling transport of radioactive materials and storage of fresh, irradiated and spent nuclear fuel. The Unit is competent to issue approvals of shipment of radioactive material, design approvals of package as well as cask for storage and disposal of radioactive materials. In the case of experimental reactors the Unit controls all movement of fuel and in the case of nuclear power plant reactor fuel movement with exception of manipulation with fuel in the reactor hall.

For information there is the list of activities for the year 1996. Seven international transports of spent nuclear fuel were accomplished under supervision of the Transportation and Storage Unit. Six were spent fuel transports from the Bohunice nuclear power plant (NPP) in Slovakia back to Dukovany NPP. The seventh was transit from the Greifswald NPP in Germany to the Paks NPP in Hungary. Furthermore, four international transports involved uranium concentrate; three were from industrial plants of the company DIAMO, a.s., to France, one was headed for Russia. Seven international transports of fresh nuclear fuel were also realized. Six were combined transports by aircraft, trucks, and train, transferring fresh fuel from Russia to Dukovany NPP, one transported fuel from Russia to the Nuclear Research Institute at Rez.

In addition, there were two inland transports of uranium concentrate and five in-plant transports. Number of transports which approvals are not required (excepted, industrial, Type A, and Type B(U) packages not containing fissile material) can be estimated to several thousands.
During the year, the Unit accomplished five inspections of nuclear materials transport, which revealed that the requirements of nuclear safety and radiation protection as well as the requirements stipulated by the SUJB decisions issued for the individual transports were satisfied.

The Unit reviewed and subsequently issued design approval of five transport containers certified abroad, and validated two such containers.

TRANSPORT RULES

The competency SUJB in the field of transport of radioactive material is based on the Atomic Law and on the applying regulations as follow:

Regulation of the SUJB No. 142/1997 on Design Approval of Packaging for Shipment Storage or Disposal of Radionuclide Sources and Nuclear Materials and on Design Approval of Ionizing Radiation Sources and some Manufactured Articles for Handling Ionizing Radiation Sources (*Design Approval Regulation*)

Regulation of the SUJB No. 143/1997 on Transportation of Assigned Nuclear Material and Radionuclide Sources (*Transport Regulation*)

Regulation of the SUJB No. 144/1997 on Physical Protection of Nuclear Material and Nuclear Installation and on its Inclusion into Particular Category (*Physical Protection Regulation*)

Regulation of the SUJB No. 219/1997 on Particulars for Assurance of Emergency Preparedness of Nuclear Installation and Ionizing Radiation Source Workplace and on the Requests on the Internal Emergency Plan Content and Emergency Rules Content (*Emergency Preparedness Regulation*)

Transport of radioactive materials as a class 7 of dangerous goods is also subsidiary regulated by following laws and regulations:

Act No. 111/1994 on Road Transport, as Amended
Regulation of Ministry of Transport No. 187/1994 Applying Road Transport Act
Regulation of Ministry of Foreign Affairs No. 64/1987 on European Agreement Concerning the International Carriage of Dangerous Goods by Road (ADR)

Act No. 266/1994 on Railway, as Amended
Regulation of Ministry of Transport No. 132/1964 on Railway Transport Rule, as Amended
Regulation of Ministry of Foreign Affairs No. 8/1994 on Convention Concerning the International Carriage of Goods by Rail (COTIF), Appendix B, Uniform Rules Concerning the International Carriage of Dangerous Goods by Rail (CIM), Annex 1, Regulations Concerning the International Carriage of Dangerous Goods by Rail (RID), Class 7

Act No. 114/1995 on Inland Waterway Navigation

Regulation of Ministry of Transport No. 17/1966 on Air Navigation Rule, as Amended

However all mentioned laws and regulations ruling the transport of the radioactive materials in the Czech Republic were created by implementing of the IAEA Safety Standards, Safety Series No 6, 7, and 37 (*IAEA Regulations*) to the national legislative. The implementation of the IAEA Safety Standard Series No. ST-1 depends on amending of the particular international agreements as COTIF/RID, ADR etc.
There are no differences in the regulations and requirements for national and international shipments.

ATOMIC ACT

From transport point of view the most important paragraphs are in chapter 1.
Paragraph 2 defines the basic terms as radiation protection, physical protection, emergency preparedness, radiation incident, radiation accident, and nuclear items containing also nuclear materials, which are source material and special fission material. The last term "special fission material" is not in the Czech Atomic Act defined in accordance with "fissile material" from the IAEA Safety Standards, Safety Series No 6 but with "special fissionable material" from Article XX of the Statute of the International Atomic Energy Agency, it means that there is not mentioned isotope Pu^{241}
Paragraph 3 describes competencies of the SUJB as regulatory body. Concerning transport of radioactive materials, the SUJB issues licenses for transportation and storage of nuclear material, and radionuclide sources determined in an implementing regulation as well as issues design approval of packaging for transportation and storage of nuclear material and appointed radionuclide sources.
Chapter 3 paragraph 9 letter m) determines that approval granted by the SUJB is required for transportation of nuclear material and radionuclide sources, specified in implementing regulation.
Paragraph 13 describes obligatory content of approval application:

- identification of applicant (name and surname, birth registration number, permanent address, etc.)
- the type and extent of activity for which the license is applied for, activity location and time period, etc.
- The following documents must be attached to a license application:
- the court registry record certificate for the applicant or statutory body members of company applying for a license; the court registry record certificate must be dated maximum of 3 month before the license application date,
- the statement of Commercial Register in case of a company applying for a license,
- a document proving professional competence of the applicant,
- insurance certificate covering nuclear damage liability or a certificate of other financial security as per paragraph 36,
- a certificate proving security for return acceptance, of nuclear material or radionuclide sources, if the importation or transit transportation is not completed,
- transport instructions: mode, routing, etc,
- risk assessment,
- radiation protection program,

- driver license for transportation of dangerous goods class 7 - radioactive material (road transport only),
- track certificate for transport of dangerous goods class 7 - radioactive material (road transport only),
- certificate of accordance of used packaging with approved design of packaging,
- emergency rule,
- proposal of inclusion of transported nuclear material to particular category from physical protection point of view, if applicable,
- physical protection program (nuclear material transport only),

(last three items has to be confirmed by SUJB).

Paragraph 14 says that the SUJB shall make decision concerning transport approval within time period of 60 days.

Paragraph 15 describes obligatory content of license. The license determines namely conditions for performance and termination of the licensed activity, required from the viewpoint of nuclear safety, radiation and physical protection, besides applicant identification and subject, extent of activity to be licensed and the license validity time period.

Paragraph 20 stipulates duties of a licensee for shipment:

- verify that a recipient is authorized to manipulate with nuclear material or ionizing radiation sources,
- provide the transportation and transport of nuclear material and in implementing regulation determined radionuclide sources in manner as determined in the implementing regulation and according to requirements determined in subsidiary regulations,
- to supply for transport, nuclear material and, in an implementing regulation determined, radionuclide sources, in packaging design approved by the SUJB only,
- ensure that during the transport and transportation, neither radionuclide escape nor exposure of persons does not exceed limits and standard values specified in implementing regulation, and ensure physical protection of nuclear material transportation according to implementing regulation.
- to ensure that carrier reports their entrance or leave in regard of the territory of the Czech Republic to a border customs office and submits to this customs office the exemplification of a relevant license and, in case of a transit, an entrance the exemplification of a valid license of the receiving country where the nuclear items or radionuclide sources are to be released to, from the Czech Republic.

Paragraph 23 determines namely packaging for shipment and storage and cask for disposal of radionuclide sources and nuclear material for which is design approval obligatory and describes the procedure. The SUJB shall make decision concerning design approval within time period of 12 months. Obligatory contents of the application, together with a specification of documents to be attaches and an approval method are determined in implementing regulation No. 142/1997. In case of products listed in the regulation, the background documents required by the SUJB to issue the design approval includes a documentation of testing performed at expenses of the applicant. Only persons appointed in advance by the SUJB shall perform the tests. A manufacturer or importer of these packaging and casks is obliged to verify identity of characteristics and parameters of particular products with the approved type and prove it, in manner determined by the SUJB in the design approval.

Chapter 5 is dealing with civil liability for nuclear damage. Provisions of the international convention (Vienna Convention of 21 May 1963) legally bounding the Czech Republic are applied to civil liability purposes.

Paragraph 35 stipulates the licensee liability for a nuclear damage caused by each single nuclear event is limited, in case of transportation, to the amount of CZK 1,500 million. The amount of insurance in this case shall not be less than CZK 200 million.
The state guarantees to cover proved claims for compensation of nuclear damage, if they are not covered from the mandatory insurance up to the amount of CZK 1,500 million after exhausting of payment of insurer in the amount of CZK 200 million.
Chapter 6 describes inspection procedure, rights and duties of inspectors and list of penalties, which SUJB is in capacity to impose for violation against Atomic law.

TRANSPORT REGULATION NO. 143/1997

Subject of this regulation is stated at paragraph 1.
Paragraph 2 defines items, which are not defined at Atomic Act as the consignor, the carrier, the consignee and the special arrangement in agreement with IAEA Regulations. Because it is not possible to change definition already used in Atomic Act, there is used term "special fissile material and ^{241}Pu" which is equal to "fissile material" as it is used in IAEA Regulation.
Paragraph 3 stipulates cases of transport when approval of SUJB is obligatory:

a) shipment of fissile material
b) shipment of radionuclide source with activity exceeding 3000 A_1 in the case of special form radioactive material and 3000 A_2 in the case of other than special form radioactive material
c) special arrangement

Paragraph 4 describes details of submitted documentation, which has to be confirmed by SUJB (emergency plan, proposal for category of physical protection, see paragraph 13 of Atomic Act).
Paragraph 5 specifies in more details the duties of consignor concerning transport of radioactive material (see paragraph 20 of Atomic Act).
Attachment 1 defines special form radioactive material according IAEA Regulations.
Attachment 2 contains list of exceptions when the approval of fissile material shipment is not obligatory. These exceptions are the same like Exceptions from the requirements for packages containing fissile material in IAEA Regulations.

Producer or consignor has to require for approval of competent authority (SUJB) due to SS6, ST1 and Czech legislation.

Item	SS6	ST1	AA 18/97, R 142/97, R 143/97
low dispersable radioactive material	it is nor reflected	approval	it is not reflected
package containing 0.1 kg or more of uranium hexafluoride	it is not reflected	approval since yr.2001	it is not reflected
package type C	it is not reflected	approval	it is not reflected
package B(M) >3000 A_1, A_2 or 1000TBq	approval	approval	approval certificate is required also for B(U)
shipment of fissile material and ^{2411}Pu with TI> 50	approval	approval	approval of shipment of fissile material and ^{2411}Pu is always required
radiation protection program for special use vessels	approval	approval	it is not reflected

Shipment has to be announced due to SS6, ST1 and Czech legislation

Subject	SS6	ST1	AA 18/97, R 143/97
shipment B(U) >3000 A_1, A_2 or 1000TBq	YES	YES	YES, also approval is required
shipment C >3000 A_1, A_2 or 1000TBq	it is not reflected	YES	YES, also approval is required