



Implementation of the CPPNM and its Amendment into the Czech Legislation

Eduard Kloboucek





Nuclear facilities in Czech Republic

- 2 NPP – Dukovany (4), Temelín (2)
- 3 nuclear research reactors – Řež (2), Czech Technical University in Prague
- Uranium mine in Dolní Rožínka (closed 2017)
- 3 radioactive waste repositories (1 closed)
- Deep geological repository in 2065?
- Fresh fuel and interim spent fuel storages







CPPNM and CPPNM/A in CR

- 1980 – CPPNM signed at Vienna and at New York on 3 March 1980.
- 1981 (1982) - The Czechoslovak Socialist Republic signed and ratified CPPNM with reservation concerning Article 17, para. 2
- 1991 - The Czech and Slovak Federal Republic deposited an instrument of withdrawal of the above-mentioned reservation
- 1993 – succeeded to the CPPNM
- 2010 – accepted CPPNM/A
- 2016 – CPPNM/A entry into force



Czech nuclear law - history

- Act No. 18/1997 Coll., On Peacefull Use of Nuclear Energy and Ionising Radiation (Atomic Act)
 - First comprehensive legislation in nuclear law
 - 27 Amendments
 - State Office for Nuclear Safety

- **New Act no. 263/2016 Coll., Atomic Act**



Act no. 263/2016 Coll., Atomic Act

- Complex reformation of the nuclear law started in 2010 - Synopsis of a new act
- Main goals:
 - Adapt the nuclear law to
 - New international legally binding instruments
 - New IAEA recommendations
 - New WENRA reference levels
 - ICRP 103
 - Lessons learnt from Fukushima and Stress tests
 - Lessons learnt from IRRS mission (2013)
 - Recent requirements of national legislation
 - Modernize the nuclear law from legislative perspective



Act no. 263/2016 Coll., Atomic Act

- European law
 - Council Directive 2009/71/Euratom - NSD
 - Council Directive 2013/59/Euratom - BSS
 - Council Directive 2011/70/Euratom – RAW and SNF
 - Council Regulation (Euratom) No 1493/93 – Transport (shipments)
 - Commission Regulation (Euratom) No 302/2005 – Safeguards
 - Council Regulation (EC) No 428/2009 – Dual use items
- International treaties (e.g.)
 - NSC
 - **CPPNM/A**
 - Joint Convention
 - NPT
 - Trilateral Treaty (IAEA, Euratom, CR)...
- IAEA (e.g.):
 - Fundamental Safety Principles
 - Site Evaluation for Nuclear Installations Safety Requirements
 - Safety of Nuclear Power Plants: Operation Safety Requirements
 - The Management System for Facilities and Activities
 - Code of Conduct on the Safety and Security of Radioactive Sources
- ICRP – recommendation no. 103 ...



Act no. 263/2016 Coll., Atomic Act

- Adopted as Act no. 263/2016 Coll., Atomic Act
 - On 14th July 2016
 - Replaces current Act no. 18/1997 Coll.
 - Only minor part (civil liability for nuclear damage) remains valid
- Enters into force on 1st January 2017
- Accompanied by Act no. 264/2016 Coll., amending related acts, e.g.:
 - Construction code
 - Mining law
 - Medical law
- Contains
 - 5 parts, 18 chapters
 - 240 articles
 - 2 appendices

Act no. 263/2016 Coll., Atomic Act

- Structure
 - General provisions and definitions
 - Nuclear energy utilization
 - Radiation protection in ionizing radiation utilization
 - Radioactive waste management
 - Type approval and transportation
 - Monitoring of radiation situation
 - Emergency management
 - **Security – Head IX - art. 159 to 164**
 - Non-Proliferation
 - Enforcement
 - Public administration



Implementing legislation - Decrees

- Decree No. 358/2016 Coll., on requirements for assurance of quality and technical safety and assessment and verification of conformity of selected equipment
- Decree No. 359/2016 Coll., on details of ensuring radiation extraordinary event management
- Decree No. 360/2016 Coll., on radiation situation monitoring
- **Decree No. 361/2016 Coll., on security of nuclear installation and nuclear material**
- Decree No. 362/2016 Coll., on the conditions for the award of the grant from the state budget in some existing exposure situations
- Decree No. 374/2016 Coll., on the accountancy and control of nuclear materials and reporting of information on them
- Decree No. 375/2016 Coll., on selected items in the nuclear area
- Decree No. 376/2016 Coll., on dual-use items in the nuclear area
- Decree No. 377/2016 Coll., on the requirements for the safe management of radioactive waste and on the decommissioning of nuclear installations or category III or IV workplaces
- Decree No. 378/2016 Coll., on siting of a nuclear installation
- Decree No. 379/2016 Coll., concerning the approval of some products in the field of peaceful use of nuclear energy and ionising radiation and the carriage of radioactive or fissile material
- Decree No. 408/2016 Coll., on management system requirements
- Decree No. 409/2016 Coll., on activities especially important from nuclear safety and radiation protection viewpoint, special professional qualification and training of persons ensuring radiation protection of the registrant
- **Decree No. 422/2016 Coll., on radiation protection and security of a radioactive source**
- Decree No. 21/2017 Coll., on ensuring nuclear safety of nuclear installation
- Decree No. 162/2017 Coll., on requirements for safety assessment according to the Atomic Act
- Decree No. 329/2017 Coll., on requirements for design of nuclear installation



Other legislation dealing with nuclear security

- Act No. 40/2009 Coll., Criminal Code.
 - Act No. 412/2005 Coll., On the Protection of Classified Information and Security Eligibility
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- Decree No. 374/2016 Coll., On the Accountancy and Control of Nuclear Materials and Reporting of Information on Them,
 - Decree No. 408/2016 Coll., On Management System Requirements
 - Decree No. 422/2016 Coll., On Radiation Protection and Security of a Radioactive Source



Nuclear security in CR

- Regulatory body – State Office for Nuclear Safety
 - Licensing (approval of documentation - physical protection assurance plan, physical protection assurance plan for the carriage of nuclear materials of categories I to III,)
 - Inspection
 - Enforcement (fines, licence withdrawal...)



- Licence holders – responsibility for nuclear security



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New institutes introduced by the 2016 Atomic Act

- Concept of nuclear security
- DBT
- Sensitive activities
- Security of uncategorized nuclear material
- Security of radioactive sources
- Vital area
- Security culture
- Graded approach, defense in depth...



Concept of nuclear security

- Former legislation – only “physical protection“
- New AA came up with broader concept of security (security of nuclear installations, nuclear materials and sources of ionising radiation)
- Incorporation of sensitive activities, computer security...



Design Basis Threat

- Combination of prescriptive and performance-based approach
- DBT is established by the decision of State Office for Nuclear Safety on the basis of a binding opinion of the Ministry of the Interior, the Ministry of Defence and the Ministry of Industry and Trade
- Annual meetings of ministries and other stakeholders – regular updates of DBT
- The method of ensuring physical protection of nuclear installations and nuclear material shall correspond to the hazards arising from the design basis threat
- Classified document

Sensitive activities

New Atomic Act

membership in a statutory body of a Licence holder

organisation and management of the operation of a nuclear installation

direct management of the operation of a nuclear reactor

management of radiation
extraordinary event responses in accordance with an on-site emergency plan or emergency regulations

unaccompanied entry into a vital area

unaccompanied entry into an area where nuclear material of category I or II is located and management of this material

- Obligatory security clearance from National Security Office
- Growth of people performing sensitive activities
- 3 years interim period
- Former act based on the functions, new one on actual entry



Uncategorized nuclear material

§ 162

Security outside physically protected areas and sensitive activities

(1) The security of nuclear material not classified in the categories referred to in § 159 shall be ensured by placing it in a locked, enclosed area and by keeping a record of any authorised access to it to ensure that it is protected against unauthorised access.



Note: Categorisation of nuclear material in CR

Decree No. 361/2016 Coll., on security of nuclear installation and nuclear material
(Annex)

CATEGORISATION OF NUCLEAR MATERIAL

No.	Material	Form	Category		
			I	II	III ^{c)}
1.	Plutonium ^{a)}	Non-irradiated ^{b)}	2 kg and more	Less than 2 kg but more than 500 g	500 g or less but more than 15 g
2.	Uranium ²³⁵ U	Non-irradiated ^{b)} Uranium enriched to 20% ²³⁵ U or more	5 kg and more	Less than 5 kg, but more than 1 kg	1 kg or less, but more than 15 g
		Non-irradiated ^{b)} Uranium enriched to 10% ²³⁵ U but less than 20%		10 kg or more	Less than 10 kg, but more than 1 kg
		Non-irradiated ^{b)} Uranium enriched above natural concentration but less than 10% ²³⁵ U			10 kg and more
3.	Uranium ²³³ U	Non-irradiated ^{b)}	2 kg and more	Less than 2 kg, but more than 500 g	500 g or less, but more than 15 g
4.	Irradiated nuclear fuel			Depleted or natural uranium, thorium or low enriched nuclear fuel (less than 10% of fissionable content) ^{d)}	



Security of radioactive sources

§ 164

Security of radionuclide sources

- (1) Licence holders performing activities in planned exposure situations and notifying persons using a type-approved minor source of ionising radiation shall
- a) secure the radionuclide source against unauthorised access, use or relocation by applying a graded approach, taking into account the security category and the method of management of the radionuclide source,
 - b) instruct and verify the knowledge of workers with access to the radionuclide source of the security requirements and
 - c) ensure security of radionuclide sources of security categories 1 to 3.
- (2) Implementing legislation shall establish the method of ensuring security of radionuclide sources, including radionuclide sources of security categories 1 to 3.



Decree No. 422/2016 Coll., on radiation protection and security of a radioactive source

Vital area

Former legislation	New Atomic Act
guarded area	guarded area – III.NM
protected area	protected area – II. NM
inner area	inner area – I. NM
	vital area

Decree No. 361/2016 Coll., on security of nuclear installation and nuclear material

Article 4

The following areas shall be delineated in a nuclear power installation with the use of a defence in depth

a) **The vital area**, if any intentional damage to the systems and components relevant to nuclear safety located within this area can directly or indirectly result in a radiation accident; in particular, this involves the areas, in which there are main control rooms and auxiliary shutdown rooms, nuclear reactor control systems, backup power sources, safety systems for residual heat removal from the core, reactor hall and spent nuclear fuel storage pool;



Security culture

- Article 30 AA

(7) The persons referred to in § 29(1)* shall introduce the management system in a manner ensuring that through this system are permanently developed and regularly evaluated characteristics and attitudes of persons performing activities related to the use of nuclear energy and activities in exposure situations and of their personnel, which ensure that nuclear safety, radiation protection, technical safety, radiation situation monitoring, radiation extraordinary event management and **security** are approached with a seriousness corresponding to their importance (hereinafter „safety culture“).

*) enumerated licence holders



Graded approach, defense in depth...

- Graded approach
 - Anyone who uses nuclear energy or performs activities in exposure situations when ensuring ..,security shall utilize a graded approach, depending on the magnitude of potential exposure and its possible consequences (hereinafter “graded approach”), shall be applied.
- Defense in depth
 - Defence in depth means a method of protection based on multiple independent levels providing a graded protection against the possibility of exposure of workers and the general public, propagation of ionising radiation and release of radioactive substances into the environment,
 - ...areas shall be delineated in a nuclear power installation with the use of a defence in depth...
- Two person rule
 - If physical persons enter the inner or vital area, the simultaneous presence of at least two physical persons authorised to access unaccompanied and with comparable knowledge of the technology in the area visited shall be ensured.



Implementation of offences in Criminal Code

CPPNM/A	Act No. 40/2009 Coll., Criminal Code
Article 7 (1) (a)	§ 282 – Unauthorised Production and Possession of Nuclear Material § 140 – Murder § 145 – Grievous Bodily Harm § 293 - Environmental Damage and Environmental Hazard
Article 7 (1) (b)	§ 205 – Theft, § 173 – Robbery
Article 7 (1) (c)	§ 206 – Embezzlement, § 209 - Fraud
Article 7 (1) (d)	§ 282 - Unauthorised Production and Possession of Nuclear Material
Article 7 (1) (e)	§ 276 - Damage and Compromise of Operation of Publicly Beneficial Facility
Article 7 (1) (f)	§ 175 - Extortion
Article 7 (1) (g)	§ 175 - Extortion
Article 7 (1) (h)	§ 21 - Attempt
Article 7 (1) (i)	§ 20 – Preparation, § 24 - Participant
Article 7 (1) (j)	§ 20 - Preparation
Article 7 (1) (k)	§ 20 - Preparation



Current situation and future prospects

- End of the interim period for adapting to this Act
- Licence holders finished updates to their documentation and SUJB approved those updates
- End of the interim period for security clearance from National Security Office in case of sensitive activities
- Regular meeting of authorities regarding DBT update
- IPPAS mission in CR in November 2020



Thank you for your attention.

eduard.kloboucek@sujb.cz