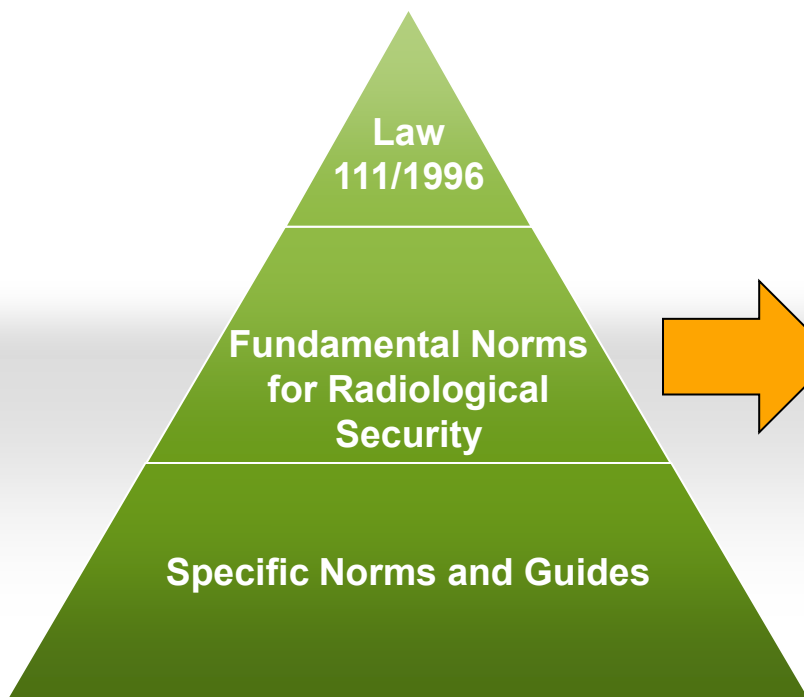


Workshop on the Implementation of Decommissioning Schemes under the Research Reactor Decommissioning Demonstration Project (R²D²P): Dismantling of the Higher Active Parts

Magurele (Bucharest), Romania, 22 – 26 June 2015

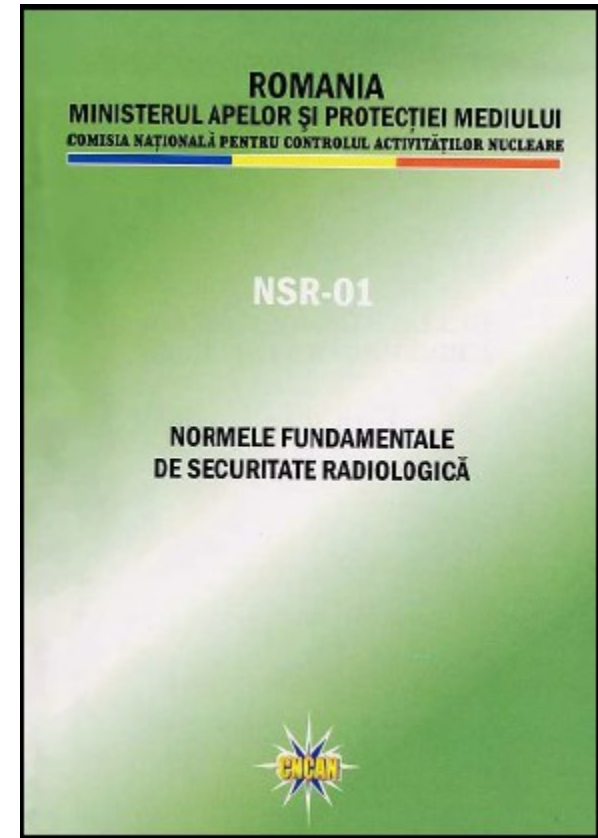
Radiation protection and regulatory issues

Romanian Legislation in Nuclear Domain



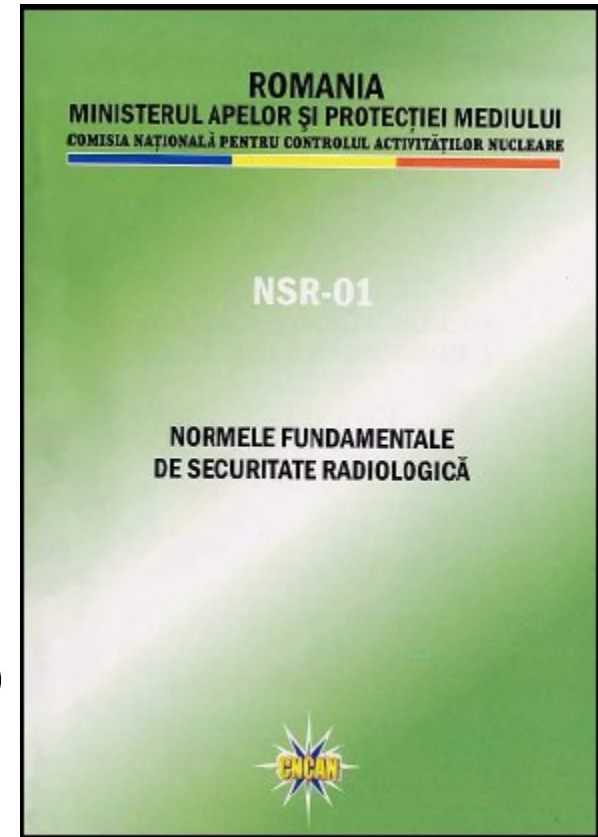
- ❑ Law no. 111/1996 on the safe deployment, regulation, license and control of nuclear activities
- ❑ National Commission for Nuclear Activities Control (CNCAN) is the competent regulatory authority in nuclear field having duties on:
 - ✓ Regulation
 - ✓ Licensing and
 - ✓ Control of nuclear Activities and Facilities

- Fundamental Norms on Radiological Safety transpose in the national legislation the 96/29/ Euratom Directive regarding the basic safety and health protection of the population against the dangers arising from ionizing radiation



Fundamental Norms for Radiological Security (NSR-01)

- ❑ Approved by the Order No. 14 of CNCAN president in 24.01.2000 and published in the Official Gazette no. 404 bis of 29.08.2000
- ❑ The main goal is assuring radiation safety to occupationally exposed workers, to the population and to the environment
- ❑ It apply for:
 - artificial sources
 - natural sources (processed radionuclides)
 - electrical equipment with more than 5 kV



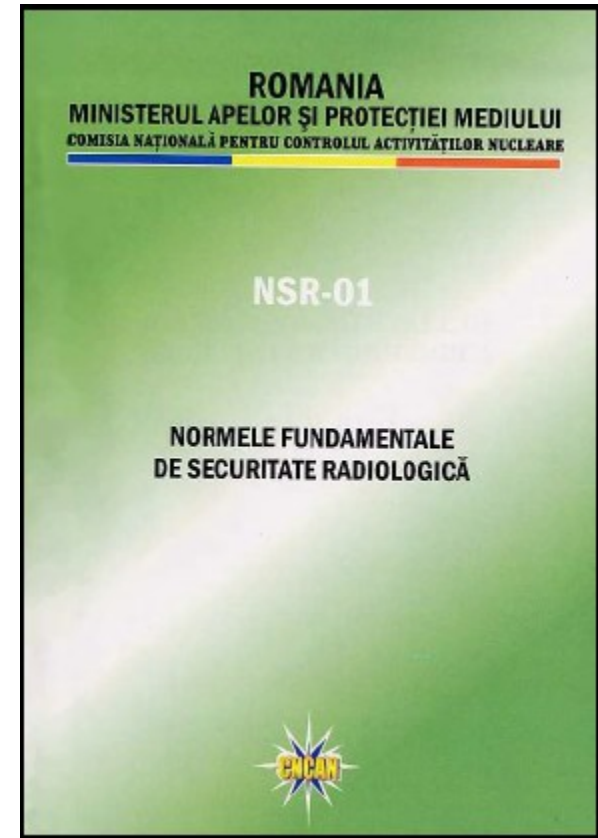
Fundamental Norms for Radiological Security (NSR-01)

It apply for:

- activities involving the presence of natural sources which lead to the significant increase in exposure
- interventions in case of radiological emergencies

Does not apply for:

- radon in homes
- natural background of the radiation
- materials which are qualified for exclusion and are mentioned in the Annex 2



Authorization of the Practices

☐ Exceptions to the authorization

- CNCAN reserves the right to except case by case situations that are not within the predetermined quantitative criteria
- by ASR (Security Radiological Authorization)

☐ Main principles in Radiation Protection:

- Justification of practices
- Optimizing protection
- Dose limitation

Dose limitations

	Effective dose	Lens (equivalent dose)	Skin (equivalent dose)	Extremities (equivalent dose)
Occupationally exposed workers	20 mSv/year	150 mSv/year	500 mSv/year	500 mSv/year
Persons in apprenticeship	6 mSv/year	50 mSv/year	150 mSv/year	150 mSv/year
Public	1 mSv/year (in special conditions) 1 mSv/year (averaged over 5 years)	15 mSv/year	50 mSv/year	-

Operational Radiation Protection

- Prior evaluation of work areas
- Job Classification
- Staff classification
- Radiological monitoring
- Medical surveillance
- Protective equipment

Work areas classifications

- ❑ According to NSR-01 in a nuclear facility should be only 2 main zones:
 - The supervised zone
 - The controlled zone
 - a responsible with the radiological security should be designated for each controlled zone in the facility

□ The supervised zone characteristics:

- display indications concerning the type of area
- appropriate work instructions
- radiological monitoring of the work environment

□ The controlled zone characteristics:

- clear delimitation
- warning marked with the symbol “Danger Radiations”
- controlled access
- appropriate work instructions

☐ Accidental exposures

- Immediate assessment of individual doses

☐ Emergency exposures

- Individual dosimetric monitoring and/or evaluation of received doses
- ❖ consulting a qualified radioprotection expert where applied

- ❑ Occupationally exposed persons:
 - In category A
 - significant probability to receive an annual dose higher than 3/10 of the dose limit
 - In category B
 - other persons

- ❑ Occupationally exposed personnel:
 - is well informed
 - is well trained
 - is authorized to perform activities in nuclear domain

- ❑ Consulting an accredited expert accredited to assess and implement radiation protection measures relating to occupational exposure, where applicable.

Personnel radioprotection

- ❑ Radiological monitoring of the working environment
 - is approved by CNCAN in the process of practice authorization
- ❑ Individual monitoring of radiation exposure
 - is mandatory for occupational exposure in category A
 - depending on CNCAN requirements for occupational exposure of category B
- ❑ Radiological monitoring is performed through a body accredited dosimetry lab

Personnel radioprotection

- ❑ The licence holder must keep records of individual monitoring results:
 - Measured or estimated individual doses
 - Reports of accidental and emergency exposures
 - The results of radiological surveillance of the workplace
- The records must be kept until the person reaches the age or would have reached 75 years but not more than 30 years after leaving workplace
- Specially authorized exposures separately, accidental or emergency exposures
- If the holder ceases to exist, the documents must be taken by the authorized dosimetry lab

Personnel radioprotection

❑ The results of individual monitoring:

- should be notify the concerned person
- should be made available to the competent doctor
- should be made available to CNCAN

❑ Authorized dosimetry lab:

- monitor the occupationally exposed workers and keep track of the allocated doses
- the results are available to CNCAN
- if it is dissolved, the documents are delivered to CNCAN
- In case of accidental and emergency exposures, or in the case of any violation of the dose limits, the authorized dosimetry lab will immediately transmit to the license holder who will immediately transmit this outcome to the competent doctor and CNCAN.

Radiation protection of population

- ❑ The licensee holder must organize the practical training in accordance with the principles of radiation protection of population including the following tasks:
 - achieving and maintaining an optimal level of radiation protection for the population and the environment
 - periodically checking the effectiveness of technical devices for radiation protection of the population
 - the use of appliances, equipment and procedures for measuring and assessing radiation exposure and radioactive contamination of the population

Radioactive waste

- ❑ Licensees have the obligation to hand over to the authorized bodies for collecting, treating and conditioning of radioactive waste all radioactive sources that are no longer used in practice and all radioactive waste resulted from that activity.



☐ Radioactive waste release into environment:

- It is forbidden to transfer solid radioactive waste into the environment;
- It is prohibited the release into the environment of liquid or gaseous radioactive wastes whose total activity or concentration are higher than the activity of the derived emission limits for radioactive effluents
- The release into the environment of liquid and gaseous radioactive effluents should be optimized.



Thank you for your attention!