

## Romanian Legislative Framework for Decommissioning

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- ⇒ The Romanian main nuclear facilities are:
- one NPP at Cernavoda made-up of one unit in operation and one under construction
  - two research reactors:
    - ↓ one 14 MW TRIGA - type Material Testing Reactor at Pitesti Institute for Nuclear Research
    - ↓ 2 MW VVR-S type research reactor at Bucharest-Magurele National Institute for Physics and Nuclear Engineering
- ⇒ For the last one, the Governmental Decision no. 418/25.04.2002 for the permanent shutdown of the VVR-S research and radioisotopes production within the National Institute for Research & Development “Horia Hulubei” in the view of decommissioning, was issued

⇒ The Law no.320/8.07.2003 for approving the Ordinance no. 11/2003 on the Management of Spent Nuclear Fuel and Radioactive Waste, including Final Disposal, was also issued

⇒ The ordinance aims:

- to regulate the management of spent fuel and radioactive waste in a manner to guarantee the safety of the public, environment and property and to respect the rights of future generations
- to set out provisions governing the financing of such activities over the life time of nuclear installations

⇒ The Ordinance applies to management including disposal both of spent nuclear fuel and of radioactive waste resulted from the nuclear fuel cycle, as well as of radioactive waste resulted from the application of nuclear techniques and technologies in industry, medicine, agriculture and other social-economic fields of interest, including those resulted from the decommissioning of nuclear and radiological facilities.



- ⇒ The management of spent nuclear fuel and radioactive waste, including their disposal are based on the following principles:
- the use only of processes and management methods for the spent nuclear fuel and the radioactive waste that assure the acceptable level for radiation protection for the population and the environment, taking into account the possible transboundary effects
  - the polluter pays
  - the responsibility for the nuclear spent fuel and radioactive waste stays with the licensee
  - the use of best available techniques (taking into account the costs)
  - the minimization of the activity and the volume of nuclear spent fuel and radioactive waste generated



- ⇒ The Ordinance provides that licensees are responsible for the management of spent nuclear fuel and radioactive waste for the entire life time of their nuclear installation, including decommissioning of the installation and disposal of the spent fuel and radioactive waste.
- ⇒ Nation-wide co-ordination of these activities shall be ensured by compliance with the national strategies on decommissioning and spent fuel and radioactive waste management
- ⇒ A National Agency for Radioactive Waste (hereinafter ANDRAD) is established to supervise the nation-wide co-ordination of these activities



⇒ ANDRAD is the “national competent authority for the coordination at national level of the process of safe management of the spent nuclear fuel and radioactive waste including final disposal”

⇒ ANDRAD acts as a legal person under the subordination of the Ministry of Economy and Commerce

⇒ ANDRAD is led by an Administration Council and a President appointed by order of the Minister of Economy and Commerce



⇒ ANDRAD’s attributions:

- preparation of the national strategy in the field and its submission for approval to the Nuclear Agency;
- preparation of the annual activities plan and its submission for approval of the coordination ministry;
- ensuring the establishment and updating of a national data base on the quantities, types of waste, including the ones resulted from the decommissioning of the nuclear and radiological installations;
- preparation of the procedures and technical norms for all the stages of administration of the nuclear and radioactive wastes;

⇒ ANDRAD's attributions (cont'd):

- co-ordination and preparation of the feasibility study for the siting, design, construction, commissioning and operation of the repositories;
- ensuring the physical protection of the final repositories, directly or by third parties;
- external co-operation with similar bodies from abroad in view of using the newest technologies;
- ensuring the establishment of the national repositories for the final disposal of the spent nuclear fuel and radioactive waste, as they are part of the ANDRAD patrimony.

⇒ The financing sources of ANDRAD activity are:

- yearly direct contributions of licence holders, established by Governmental Decision
- donations, financial support granted by natural/legal persons, public/private persons and international organisations
- other financing sources approved by the Government

⇒ The revenues managed by ANDRAD ensure the financing of the activities included in the Annual Activities Plan, related to the co-ordination at national level of the process of management the spent nuclear fuel and radioactive waste, including the final disposal and decommissioning of the nuclear and radiological installations

⇒ The Ordinance no. 11/2003 on the Management of Spent Nuclear Fuel and Radioactive Waste, including Final Disposal approved by the Law no.320/8.07.2003 is under revision. The modified ordinance shall stipulate the mechanism for financing the activities related to the management at national level of spent nuclear fuel and radioactive waste including final disposal and decommissioning of the nuclear and radiological installations.

⇒the amounts of yearly direct contributions of licence holders shall be established by Governmental Decision

⇒ The regulatory framework is governed by:

**1. the Law no. 111/1996 on safe deployment of nuclear activities with subsequent modifications and completions**

- it applies inter-alia to *research, designing, holding, siting, construction, installation, commissioning, operation, modification, preservation, decommissioning, import & export of nuclear facilities..*”

- the authorizations provided shall be required for and, respectively, issued simultaneously or successively separately for each type of activity or each facility functioning independently belonging to applicant’s property

- the authorization of any construction or operating phase can be issued only if all the previous phases had been covered with all authorization types required



- as stated in Chapter II, Authorization Conditions, art.8 alin (6), the authorization phases of the nuclear facilities and plants, shall be the following:

- Design;
- Siting;
- Production;
- Construction and Installation;
- Commissioning;
- Test operation;
- Operation and Maintenance;
- Repair or Modification;
- Conservation;
- Decommissioning.



- In the last years, CNCAN has issued new regulations, many of them applicable for decommissioning of nuclear installations

- These regulations (norms) are applicable for:

- Licensing of decommissioning activities of nuclear installations;
- Licensing of radioactive waste transportation, storage and disposal.

## 2. The Norms on Decommissioning of Nuclear Installations

- approved by Order no. 1815.09.2002 of the CNCAN President, published in the Official Bulletin no. 867/2.12.2002, in force from January 1<sup>st</sup>, 2003
- applicable for decommissioning of following nuclear installations: research reactor; subcritical assembly; radioactive waste treatment plant; intermediary storage of spent nuclear fuels; intermediary storage of radioactive waste
- establish the conditions and steps necessary for decommissioning of nuclear installations with the purpose of release from licensing regime

## • The decommissioning steps, depending on case, are:

- elaboration and approval of decommissioning plan
- issuing the official decision for permanent shutdown
- obtaining the license for nuclear fuel removal from nuclear installation building
- evacuation of nuclear fuel from nuclear installation building
- elaboration of licensing documentation and submission to CNCAN
- obtaining the decommissioning license
- implementation of decommissioning activities according to decommissioning license;
- issuing the Final Decommissioning Report at the end of decommissioning activities
- issuing the Final Radiological Survey Report Request from CNCAN and obtaining the Certificate of fulfilment of conditions for release from nuclear licensing regime





- The Norms stipulate that the owner of any nuclear installation shall issue a Decommissioning Plan for the installation.
  - The Decommissioning Plan shall provide all the steps that are necessary to reach the green field .
  - The licensee shall submit to CNCAN for evaluation and approval, as supporting documents for the decommissioning plan, the following:
    - **the Decommissioning Plan;**
    - **the Final Safety Analysis Report for spent nuclear fuel storage, including the solution for spent nuclear fuel long term storage;**
    - **the radiological surveillance program of personnel, public and environment during decommissioning process;**
    - **the Quality Assurance Manual for decommissioning;**
    - **the Emergency Plan**



- In order to receive the decommissioning license, the licensee have to fulfil the following requirements:
  - submission to CNCAN the documentation in accordance with requirements stipulated in the Norms;
  - removal of the nuclear fuel from nuclear installation building;
  - demonstrate the existence of financial capabilities to support the decommissioning activities.
    - The compliance with the regulatory requirements to ensure that safety, radiation protection, environmental protection, radioactive waste treatment and disposal, safeguards, physical protection are included in the decommissioning plan



CNCAN Requirements for the  
Content of the Decommissioning Plan (1)

- General Consideration:
  - General Presentation of Nuclear Installation;
  - Reactor Decommissioning Overview;
  - Cost estimations;
  - Availability of Funds;
- Decommissioning Activities:
  - Decommissioning Alternatives;
  - Facility Radiological Status;
    - Facility Operating History;
    - Radiological Characterization of Nuclear Installation
    - Release Criteria
  - Decommissioning Objectives:
    - Activities and Tasks;
    - Schedule;
  - Decommissioning Organization and Responsibilities for decommissioning
  - Training Program;
  - Contractor Assistance;



CNCAN Requirements for the  
Content of the Decommissioning Plan (2)

- Protection of the health and safety of radiation workers and the public
  - Radiation Protection
    - Ensuring As Low as Reasonably Achievable Radiation Exposures
    - Radiation protection of workers;
    - Dose Estimation
  - Radioactive Waste Management
    - Fuel Removal
    - Radioactive Waste Treatment;
    - Radioactive Waste Disposal;
  - Accident Analysis/Possible Incidents
  - Environmental Impact Assessment
  - Technical Specifications
- Safeguards System;
- Physical Protection Program;
- Modification of decommissioning Plan;
- Archiving of documentation;



**Authorization of  
Decommissioning Activities (1)**

As provided in Annex 2 of Decommissioning Regulation, the documents, necessary to be submitted to CNCAN in order to obtain decommissioning authorization, are:

- Application
- Official Decision of Person responsible for Nuclear Installation during decommissioning;
- Prove of material and funds capabilities;
- Decommissioning Plan prior approved by CNCAN;
- Official Decision for Permanent Shut-Down of nuclear installation for decommissioning purpose;
- List of dosimetry equipment;
- List of radioactive sources



**Authorization of  
Decommissioning Activities (2)**

- **Waste Management Program;**
- **Radiation Protection Program;**
- **Emergency Plan;**
- **Quality Assurance Manual;**
- **Safeguards Procedures;**
- **Physical Protection Program and Procedure;**
- **Procedure for final radiological characterization;**
- **Environmental License/Agreement;**
- **Sanitary License**

- The decommissioning of any nuclear installation shall be performed until stage 3 (using the stage definition within the norms)
- CNCAN could authorize intermediary stages of decommissioning
- For each decommissioning stage, in justified cases, CNCAN can issue partial decommissioning license for some parts of nuclear installation
- The validity of decommissioning license is maximum 5 years.

**3. Norms regarding the specific requirements for the quality management systems applied for the decommissioning of nuclear installations/2003**

- these norms issued in 2003 establish the specific requirements for the quality management system applied to the decommissioning activities

**4. The Fundamental Norms on safe management of radioactive waste**

- these norms, issued in 2004 complete the regulatory framework
- the norms represent the adaptation of the IAEA SS No. 111-F: The principles of radioactive waste management

**5. The Norms on clearance of materials originated from practices**

- the norms are establishing the clearance levels and the requirements for the verification of the observance of these levels

- IFIN-HH must demonstrate the capability of managing the waste arising from clean-up activity :
  - Doze evaluation and associated risk assessment;
  - Waste generation estimation (quantities, types, activity, etc.);
  - Demonstration of treatment capability for quantities of waste estimated to be generated;
  - Demonstration of storage capability for amount of waste estimated to be generated;
  - Demonstration of waste transportation capabilities;
  - Demonstration of waste disposal capabilities.
  - Scheduled activities;
  - Release Criteria