WENRA Workshop on Regulatory Aspects of Decommissioning

THE DEVELOPMENT OF TRANSITION PERIOD REQUIREMENTS IN THE SLOVAK REPUBLIC

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Overview

• Transition period examples
  • A1 NPP
  • V1 NPP

• Institutional framework
  • involved authorities
  • general decommissioning (operation termination) requirements

• Approach to transition period
  • existing status
  • upcoming changes
## Nuclear facilities in Slovakia

<table>
<thead>
<tr>
<th>Facility</th>
<th>Type</th>
<th>Status</th>
<th>Licence holder</th>
</tr>
</thead>
<tbody>
<tr>
<td>NPP A1</td>
<td>HWGCR</td>
<td>in decommissioning</td>
<td>JAVYS, Plc.</td>
</tr>
<tr>
<td>NPP V1 (EBO1,2)</td>
<td>VVER 440/230 (2 units)</td>
<td>in decommissioning</td>
<td>JAVYS, Plc.</td>
</tr>
<tr>
<td>NPP V2 (EBO3,4)</td>
<td>VVER 440/213 (2 units)</td>
<td>in operation</td>
<td>JAVYS, Plc.</td>
</tr>
<tr>
<td>ISFS</td>
<td>SNF storage (wet type)</td>
<td>in operation</td>
<td>JAVYS, Plc.</td>
</tr>
<tr>
<td>Treatment of RAW</td>
<td>various technologies</td>
<td>in operation</td>
<td>JAVYS, Plc.</td>
</tr>
<tr>
<td>Integral RAW</td>
<td>waste storage</td>
<td>in operation</td>
<td>JAVYS, Plc.</td>
</tr>
<tr>
<td>Exp. Bituminization F.</td>
<td>waste processing</td>
<td>released from regulatory control</td>
<td>VUJE, Plc.</td>
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<td>VUJE, Plc.</td>
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<td>NPP EMO1,2</td>
<td>VVER 440/213 (2 units)</td>
<td>in operation</td>
<td>SE, Plc.</td>
</tr>
<tr>
<td>NPP EMO3,4</td>
<td>VVER 440/213 (2 units)</td>
<td>under construction</td>
<td>SE, Plc.</td>
</tr>
<tr>
<td>Treatment of LQ RAW</td>
<td>waste processing</td>
<td>in operation</td>
<td>JAVYS, Plc.</td>
</tr>
<tr>
<td>RAW Repository</td>
<td>near surface</td>
<td>in operation</td>
<td>JAVYS, Plc.</td>
</tr>
<tr>
<td>RAW Repository</td>
<td>VLLW</td>
<td>in operation</td>
<td>JAVYS, Plc.</td>
</tr>
</tbody>
</table>

**Photo:** [https://pixabay.com](https://pixabay.com)
Decommissioning of A1 NPP

- HWGCR type of reactor KS-150
- Experimental, production reactor with many prototype systems
- Two serious accidents occurred during reactor’s operation
- An abnormal situation as a consequence of the accident
- Partial decontamination and dismantling of selected components
- Processing of liquid waste
- Spent fuel removal completed in 1999

Start of construction: 1958

Start of operation: 1972

End of operation: 1977

Gov. resolution of decommissioning: 1979

Putting the A1 NPP into radiation safe state: 1994

Decommissioning 1st phase: 1999

Decommissioning 2nd phase: 2009

Decommissioning 3rd phase: 2017

Decommissioning 4th phase: 2021

Decommissioning 5th phase: 2025

End of Decommissioning: 2033

Photo courtesy of the JAVYS, a.s.
## Decommissioning of V1 NPP

### Operation Licence
- **V1 NPP Operation termination**
  - **2006**: 1st Unit shut-down
  - **2008**: 2nd Unit shut-down
  - **2011**: 1st Unit operational licence termination
  - **2012**: 2nd Unit operational licence termination
  - **2015**: Decommissioning – 1st phase

### Decommissioning Licences
- **Decommissioning – 2nd phase**
  - **2025**: End of decommissioning

### Notes
- Reactor type: 2 x VVER 440-V230
- Premature shutdown as a condition of EU accession (Gov. Resolution from 1999)
- Standard termination activities performed on the basis of “Operation Termination Concept”
- Co financed by the BIDSF

*Photo courtesy of the JAVYS, a. s.*
Institutional framework
Institutional framework
State administration

President of the Slovak Republic

Government of the Slovak Republic

National Council of the Slovak Republic

Prime Minister
Deputy Prime Ministers

Ministry of Health of the SR

Ministry of Labour, Social Affairs and Family of the SR

Ministry of Interior of the SR

Ministry of Environment of the SR

Ministry of Economy of the SR

Ministry of Transport, Construction and Regional Development of the SR

Ministry of Foreign and European Affairs of the SR

Public Health Authority of the SR

National Labour Inspectorate (Labour Inspector. Nitra)

Nuclear Regulatory Authority of the SR

Slovak Environmental Inspectorate

National Nuclear Fund

National Labour Inspectorate (Labour Inspector. Nitra)
Nuclear Regulatory Authority – UJD SR

• Central state administration authority responsible for regulatory activities in the field of nuclear safety and nuclear security of nuclear facilities based on the Atomic Act (dates back to 2004 and has been revised 20 times in total)
  • lays down basic requirements and responsibilities for preparing, realization and termination of decommissioning

• Regulations proposed and approved by UJD SR, based on IAEA Safety Standards, harmonized with EU legislation and WENRA RL
  • laying down details on the scope, contents, and manner of maintaining documentation of nuclear facilities necessary for individual decisions

• UJD SR Safety Guides
  • BNS I.9.3/2017 Requirements on scope and content of different decommissioning plans elaborated during the lifecycle of nuclear facility
  • BNS I.9.4/2017 Requirements on operational data collection important for decommissioning of nuclear facility
National nuclear fund - NNF

• An independent legal entity established by Act No. 308/2018 Coll. on the National Nuclear Fund
• Managed by the Ministry of Economy
• Accumulates and manages financial means determined for the final stage of the nuclear power
• The Fund has its own bodies
  • board of governors
  • supervisors board
  • director
  • auditor
• Board of governors in cooperation with other stakeholders elaborates
  • draft National policy for management of spent nuclear fuel and with radioactive waste (National Policy)
  • draft National programme for the implementation of the national policy (National Programme)
    • requirement of the EC Directive 2011/70/EURATOM
Approach to transition period
Licencing scheme

- UJD SR shall issue authorization for the decommissioning phase based on written application supported by the documentation referred to in Annex 1 point D of the Atomic act
- Phased approach in decommissioning
- Continued license requirement
General Atomic Act decommissioning requirements

- After the termination of nuclear facility operation the authorization holder/operator is liable to ensure its decommissioning
- Operator is required to provide funds to cover the decommissioning costs
- Operator is obliged to hand over the radioactive waste to the responsible state organization within a set period (1 years)
- Operator shall transport the spent nuclear fuel to a nuclear installation designed for spent nuclear fuel management before decommissioning phase begins
- Authorization holder shall provide for conditioning of radioactive waste into solid form until completion of a NPP operation
- The state has ultimate responsibility for decommissioning of nuclear installations located in Slovakia through the legal person, state owned organization authorised by the Ministry of the Economy of the Slovak Republic
National Nuclear Fund Act

• Came into effect on 1 January 2019 (introduced in 1994, updated in 2006)

• Main sources
  • Compulsory contributions (NPPs)
  • Compulsory payments (non reactor facilities)
  • Payment to cover deficit of National Nuclear Fund

• Usage of the fund
  • decommissioning of nuclear installation
  • radioactive waste and spent fuel management after NI operation termination
  • other activities connected to the final stage of nuclear power engineering in SR

• Fund cannot be used
  • operational radioactive waste management
  • generally it is not possible to cover the costs associated with the termination operation of NPPs
Atomic Act update

• Introducing a separate section dealing with the operation termination
• Draft of definition
  • as a stage of operation of a nuclear installation in which the operator is obliged to carry out all activities and measures aiming at shutdown and continuous decommissioning
• Redistribution of responsibilities in the back end of nuclear field
  • state responsibility for all back end activities
• Cooperation of operator and state organization authorized by the Ministry of Economy
  • establishment of conditions for the handover and takeover of nuclear installation and associated land
  • preparation of the final decommissioning plan
  • transfer of operational information relevant for decommissioning
  • cooperation in submitting the decommissioning application
• Funding
  • financing of NPPs termination operation activities exclusively by the operator
Any questions?