



# **Regulatory Views on Radioactive Waste Repository Closure**

KYT2022: Closure of Radioactive Waste Repositories

Kai Hämäläinen (kai.hamalainen@stuk.fi)

# Expiry of the waste management obligation

- Defined in the Nuclear Energy Act and Decree
- Disposal has been carried out according in a manner approved by STUK and a lump sum has been paid to the state for the monitoring and control of nuclear waste
  - Responsibility of the waste will be transferred to the state
- Long term targets for closure: Support the disposal system to function as planned and prevent the unintended intrusion to the repository
  - Information of the disposal will be stored permanently and the land use restrictions will be set in the real estate register, land register or list of titles. Markers are not required at the repository site in Finland.

# **STUK Y/4/2018, Radiation and Nuclear Safety Authority Regulation on the Safety of Disposal of Nuclear Waste**

- Section 21, The disposal facility shall be designed, constructed and operated in a manner that allows it to be closed without jeopardising long-term safety after its operation has ended
- Section 31, The siting, excavation, construction and closure of underground rooms shall be implemented so that the characteristics of the rock deemed important in terms of long-term safety are retained, as far as possible.

# Technical plans

- Technical plans shall be made according to guide YVL D.5
  - YVL D.7 does not address the closure of the facility but it has to be taken into account in the construction and operation phase of the facility and in the design, manufacture and installation of the barriers. (D.7 is not applied for the LILW-repository)
- The first versions can be more of a conceptual nature. However, the conceptual plans shall be adequate for the safety case evaluation (YVL D.5) and the financial calculations (as defined in Nuclear Energy Act chapter 7).
- More detailed regulations and guidance are needed when the closure comes topical
- As the time goes by and the time of repository closure comes closer the plans must be developed and level of details increased.
  - Similar development as for the decommissioning plan of other nuclear facilities

# Closure plan has to be approved before permanent closure activities

- YVL D.5, 815
  - A precondition for the permanent closure of a disposal facility is that STUK has approved the plan concerning the closure, which shall include:
    - a. a description of the technical implementation of the closure of the repository;
    - b. an update of the safety case with due consideration given to the outcomes of the research and monitoring programmes referred to in para. [506](#) and the implementation of the closure; and
    - c. a plan for the potential post-closure monitoring measures and a proposal for the restriction zone with prohibition on measures referred to in [Section 85](#) of the Nuclear Energy Decree. [2018-02-13]
- Some years before the closure the construction plans for the individual barriers shall be developed (and sent to STUK for approval in safety class 3)

