Strål
säkerhets
myndigheten
Swedish Radiation Safety Authority

Information and knowledge preservation over generations in a regulatory context

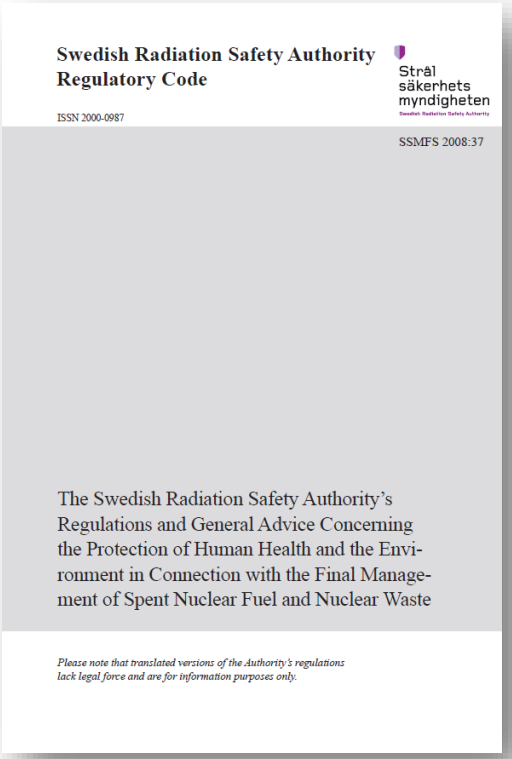
Carl-Henrik Pettersson
Analyst
Section for Disposal of Radioactive Waste

Owerview

- Present regulatory framework (RK&M)
- Transfer of responsibilities after repository closure
- The broader Swedish regulatory context
- Concluding reflections

Present regulatory framework (RK&M)

- Reduce the probability and consequences of inadvertent future human impact on the repository
  - repository depth
  - avoidance of sites with extractable mineral assets
- Preservation of knowledge about the repository could reduce the risk of future human impact

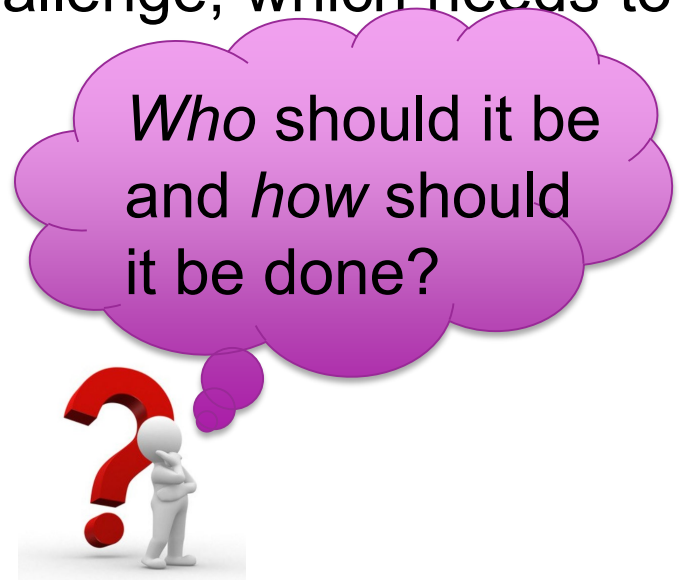


Present regulatory framework (RK&M)

- A strategy for preservation of information should be produced so that measures can be undertaken before closure of the repository
- Examples of information that should be taken into consideration include
  - information about the location of the repository,
  - its content of radioactive substances and
  - its design
- When the activity at a nuclear facilities are terminated, the archive, organized and listed, shall be hand over to the National Archive

Transfer of responsibilities after repository closure

- After closure of a repository, even if there is no licensed operator for the facility, the institutional control will continue, but there might be a transfer of responsibilities
- This handover of responsibilities imposes a risk of losing information and knowledge. Considering the amount of information and knowledge, this handover of responsibilities is a challenge, which needs to be addressed



Transfer of responsibilities after repository closure

- An illustrative example is SKB's work with Archiving
- SKB took over operation of SFR in 2009. This was previously contracted out to Forsmarks Kraftgrupp.
  - What are the key lessons learned from this change?

Transfer of responsibilities after repository closure

- One way to handle the long-term archiving responsibility is to create a dedicated archive for preserving the nuclear industries records

https://www.highlifehighland.com/nucleus-nuclear-caithness-archives/

- Nucleus, in operation since 2017
- Nucleus will also store local historical archives of the county of Caithness, which goes back to 1589

Transfer of responsibilities after repository closure

- When the post-closure responsibility is determined, another question is *who* should be responsible. It's not *per se* necessary that the regulating authority to the previous licensing body should shoulder the long-term responsibility.

Transfer of **responsibilities after repository closure**

- One example how it's assured that post-closure responsibilities are met for sites containing long-lived hazardous wastes is the establishment of the Office of Legacy Management (LM) in U.S. Department of Energy.
- To achieve this mission, the LM have several guiding functions including:
  - *Protects human health and the environment through effective and efficient long-term surveillance and maintenance.*
  - *Preserves, protects, and makes accessible legacy records and information.*
- Thus, there are experience with the post-closure responsibilities at sites contaminated with long-lived hazardous wastes.
  - What are the good practices to keep in mind?

The broader Swedish regulatory context

- RK&M preservation over generations is equally important at other disposal sites containing non-radioactive, long-lived hazardous wastes
  - Boliden have recently constructed a underground repository for mercury and mercury tainted metallic waste

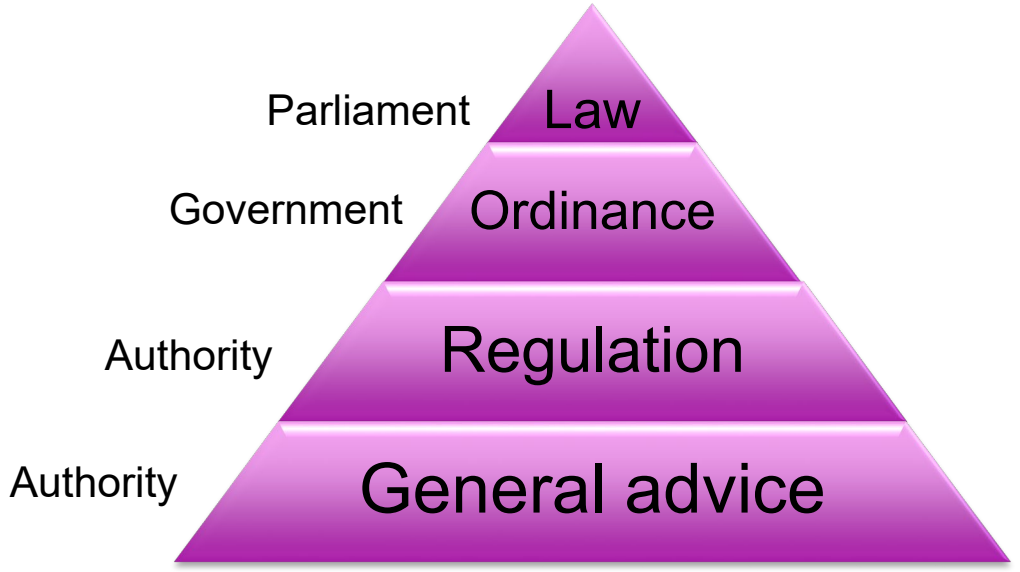

Tunneln ner till det framtida slutförvaret under Rönnskärsverken. Foto: Nils Eklund

The broader Swedish regulatory context

- Preparation of regulations that support RK&M preservation therefore needs to be coordinated between many actors working in different fields of safety and environmental protection.

The broader Swedish regulatory context

- The first step towards a holistic and systematic approach would be to identify the key actors in developing regulatory guidance on RK&M preservation regarding disposal sites containing long-lived hazardous wastes.
- Consideration also needs to be given to on which level specific regulations relating to RK&M preservation could be developed with regard to law, ordinances and regulations.



Concluding reflections

- Regulatory guidance regarding obligations in relation to the preservation of records, knowledge and memory relating to a geological disposal facility should encompass *what* measures needs to be taken, *when* then should be taken and *who* should implement them.
- An important step in this process, addressed in the recent government official report on potential updating of the Law on Nuclear Activities (SOU 2019:16), is to clarify post-closure responsibility and its relationship to licensee responsibilities.
- Archiving is a vital component for RK&M preservation, and it needs to be clarified how this should be handled practically

Concluding reflections

- Identify the key actors in developing regulatory guidance on RK&M preservation regarding disposal sites containing long-lived hazardous wastes.
- Another practical question concerns how to identify and involve different actors in the implementation process of assuring that post-closure responsibilities are met for sites containing long-lived hazardous wastes.

Thank you

Owerview

- Present reg
- Concluding