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## **STUK's assessment of licensees' management system**

Radiation and Nuclear Safety Authority STUK  
Nuclear Reactor Regulation  
Organisations and Management Systems

# STUK's assessment of licensees' management system

- Role of STUK as the national radiation and nuclear safety authority – background info
- STUK oversight of Management Systems
  - Emphasising the responsibility and capability of the licensee
  - Situational awareness and understanding based on cross technical knowledge
- Effects and Benefits from Capability focused oversight
- Areas for improvement and challenges

# Radiation is everywhere





## **Mission: A radiation-safe Finland**

STUK is the radiation and nuclear safety authority.

The purpose of STUK's operations is to protect people, society, the environment and future generations from the harmful effects of radiation.



# Nuclear facilities in Finland under Reactor Regulation Department oversight

**Olkiluoto Nuclear  
Power Plant:  
Olkiluoto 1,  
Olkiluoto 2 and  
Olkiluoto 3**



**Posiva final  
disposal under  
construction in  
Olkiluoto**



**Helsinki**



**Loviisa Nuclear Power Plant:  
Loviisa 1 and Loviisa 2**

# Role of STUK as the national nuclear regulatory body

- **Preparation** of national nuclear **safety** regulations
  - national regulations implement **international requirements** according to treaties (Euratom, IAEA)
- **Safety assessments** at operators' licensing phases
- **Oversight and inspections** to verify the safety of the facility and the compliance with license conditions during the plant lifetime
  - including nuclear waste management and safeguards



# International requirements: Council directive EURATOM and Management Systems

Member States shall ensure that the national framework requires that:

e.g., 2014/87/ EURATOM (Nuclear safety of nuclear installations)

Article 6

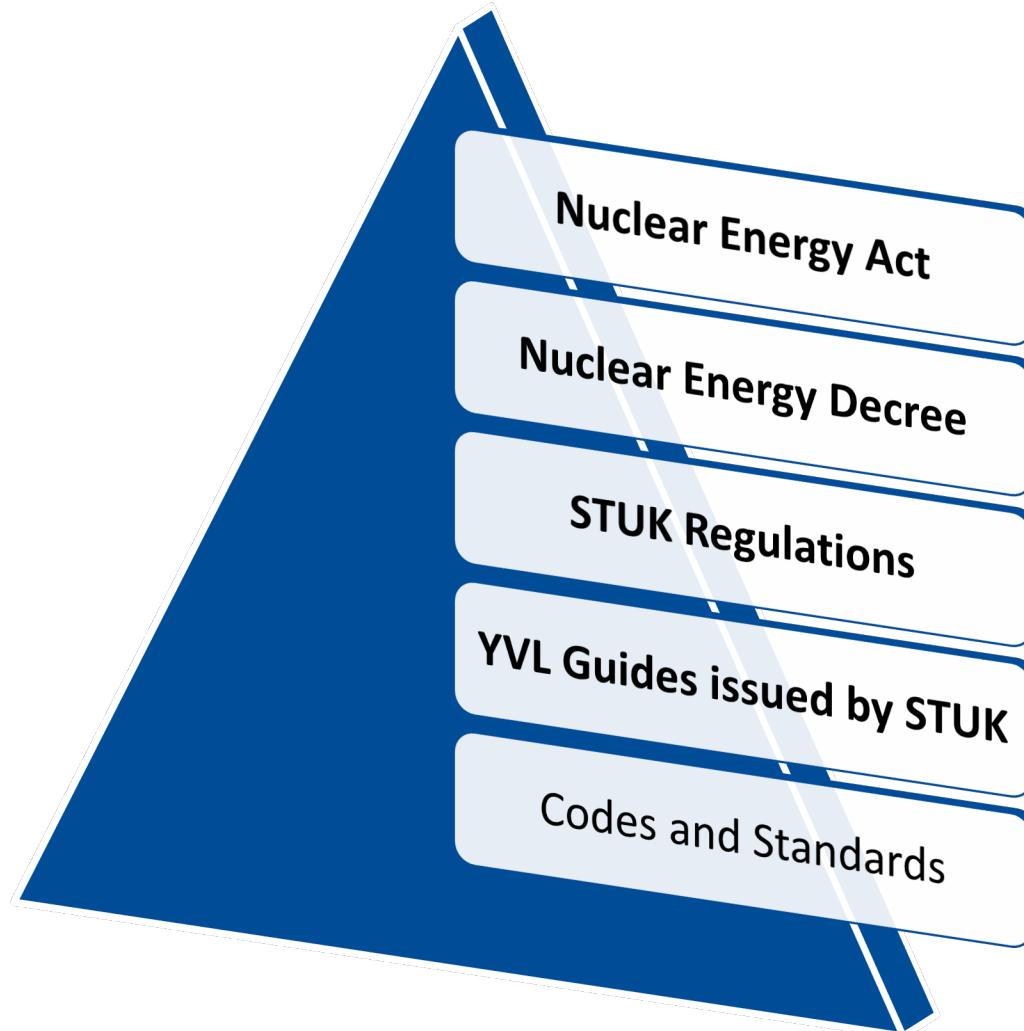
d) license holders establish and implement **management systems which give due priority to nuclear safety**;...

e.g., 2011/70/EURATOM (Spent fuel and radioactive waste)

Article 7

4. Member States shall ensure that the national framework require license holders to establish and implement **integrated management systems, including quality assurance**, which **give due priority** for overall management of spent fuel and radioactive waste to **safety** and are regularly verified by the competent regulatory authority.

# Nuclear legislation and safety requirements in Finland



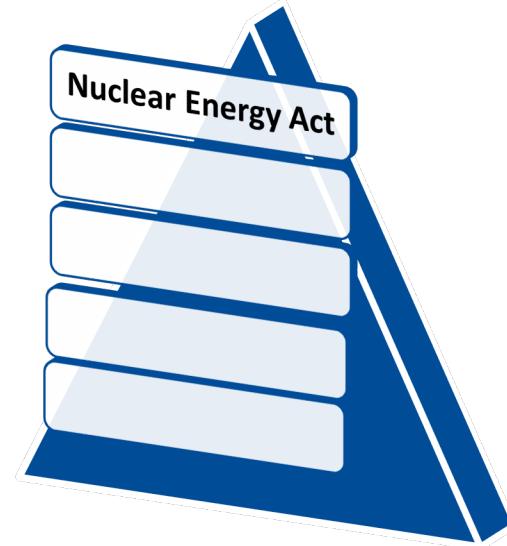
- <https://www.stuklex.fi/en/ohje/YVLA-3>  
Leadership and management for safety

# Management System in the Nuclear Energy Act

## Section 7j (905/2017) Management system

**A nuclear facility shall have a management system.**

The management system of the nuclear facility shall **take into account in particular the impact of the safety perceptions and attitudes** of management and personnel on **maintaining and development of safety, as well as systematic practices and their regular assessment and development.**



# Management Systems in STUK Regulation Y/1/2018



Some examples:

- **Organizations participating** in the design, construction, operation and decommissioning of a nuclear facility shall **employ a management system for ensuring safety and the management of quality**.
- Quality management **requirements correspond to the safety significance** of the activity and function.
- The management system shall **cover** all organizational **activities impacting** the nuclear facility's **safety**.
- The **operating methods** of the organization shall be **systematic and instructed**.
- The licensee shall **commit and oblige** its **employees** and the **suppliers and subcontractors** whose involvement affects the safety of the nuclear facility to **adhere to the systematic management of safety and quality**.
- The **operation** of the organisation shall be **evaluated and continuously developed**, and the **risks** associated with the organisation's operation are to be **evaluated regularly**.





## **STUK oversight of management systems**

Responsible and Capable Licensee

# STUK oversight strategy and methodology

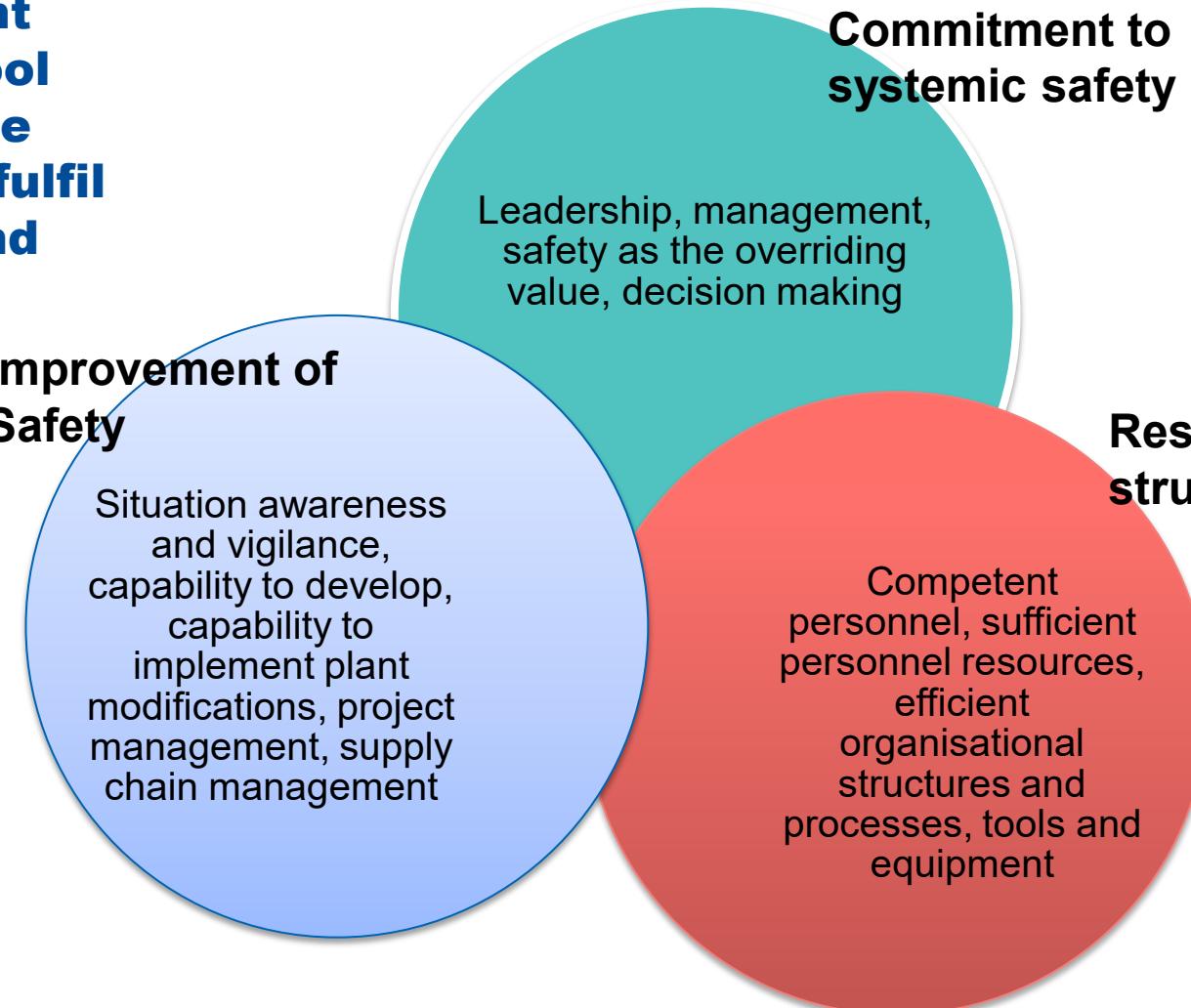
- STUK strategy is aiming at:
  - Providing proactive and coaching support to encourage operators to be responsible.
  - Well-functioning and well-targeted services that improve the conditions for safe operations.
  - Building trust through open interaction.
- STUK oversight focus on the **capability of the organisation**.
  - collect and analyse information of licensee activities and build up accurate situation awareness
  - identify licensee activities that are most safety critical to focus on (risk informed oversight)
  - analyse challenges in operations and safety criticality of them – safety as a **systemic phenomenon!**



STUK internal cross technical dialog and knowledge sharing is critical for success!

# Capability evaluation model – safety critical organisation

**The Management System is the tool that supports the organisation to fulfil requirements and expectations**



**Does the operation & results tell that the SMS is efficient and working?**

# Information sources for assessment and oversight activities of capability

## Focus on

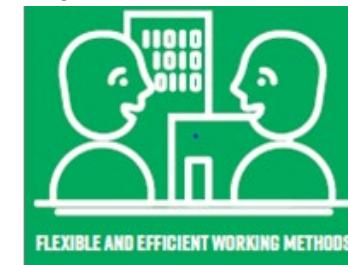
- Outages, refurbishment and modification projects
- Deviations, events and operational experience reports
- Self assessments and independent assessments
- Decision making procedures and practises, especially in challenging situations and changes



Photo TVO

## Oversight in practice

- Cross-technical cooperation in inspections, meetings, reviews, assessments and information analysis to create an as complete situation awareness as possible.
- Active and regular interaction and dialogue with licensees to support building of trust and have correct understanding to hinder the regulator to lead operator's activities in unfavourable direction.
- STUK's "coaching" approach aim at fostering the responsibility of the licensee.



# Effects and Benefits from the capability focused oversight

- How have the oversight affected licensees?
  - STUK interest in risk informed decisions is a motivating factor for the licensee to actively interact with the regulator to ensure that the regulator has the accurate information for decision making.
  - By active and open communication, it is possible to manage the risk of making decisions that do not add value to safety or are unfavorable to safety.
- Have there been noticeable benefits/examples that have stemmed from the management system requirements and oversight?
  - The nuclear business has a tradition of very strong technical “silos” and focus on details in the different technical areas. This brings the risk of sub-optimization and “no man’s land” on the table.
  - Discussions and focus on processes and activities helps to manage the overall safety and cross technical issues due to that the interfaces are made concrete and visible for all parties.
  - The licensees have invested time and effort in their process development and documentation.

# Areas for improvement and challenges in oversight of SMS

- Are there any areas for improvement in the assessments and oversight?
  - Always!
  - STUK still on the learning path of real cross technical cooperation and systemic view of safety.
  - Challenge to keep up accurate situation awareness if the number of licensees increase significantly by new technology (e.g. SMRs).
  - Challenge to ensure the competence and understanding of nuclear safety requirements in the supply chain → The licensee procedures for purchasing, contracting, supplier surveillance and control of contractors crucial.



Thank you for your attention!