



Periodic safety review of OL1/OL2

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Background

- **According to the operating license given 20.8.1998, "owner of the license shall be done extensive periodic safety review by the end of year 2008. Review shall be submitted to STUK for approval.**

PSR is mainly based on the documents specified in the Nuclear Energy Decree Section 36

- **Final safety analysis report**
- **Probabilistic risk assessment**
- **Quality Assurance Programme**
- **Technical Specifications**
- **Summary Programme for periodic safety inspections**
- **Physical Protection and Emergency Preparedness Plans**
- **Safeguard Manuals**

PSR content con't

- **Operating Administrative rules for the nuclear facilities**
- **Programme for radiation monitoring in the environment**

PSR documents

- **They shall be continuously updated, and the updated versions shall be regularly submitted to STUK.**
- **When applying for renewal of the operating license, the documents may be submitted to STUK only in so far as they have been amended since the previous updates.**
- **Furthermore, a summary of the most significant changes to the documents after granting of the valid operating license and a description of the documents' updating status shall be included.**

Scope of the PSR

- **All activities covered by the operating licence.**
- **Spent fuel storage and waste stores in addition to OL1/OL2. An internal PSR of the spent fuel storage was done in 2002.**
- **Final disposal facility for operating waste (VLJ-cave) has a separate operating licence. This licence required a report on safety and operating experiences of the facility by end 2006.**

Contents of the PSR

- **Report on how the requirements in Government decrees (VNA 733-735/2008) and in Regulatory Guides are fulfilled.**
- **A summary of renewed safety analyses and conclusions drawn from their results.**
 - **Several analyses in the FSAR were updated, mainly by WSE.**
 - **Previous updating was caused by modernization and power upgrading 1996.**
 - **Increased burnup.**
 - **Updated input- and methodology reports**

Updated analyses

- **Dimensioning cases from each of the following**
 - **Pressure increase transients**
 - **Pressure decrease transients**
 - **Feed water flow increase / feed water temperature decrease transients**
 - **Loss of feed water flow transients**
 - **Recirculation flow decrease transients**
 - **Recirculation flow increase transients**
 - **Control rod withdrawal error at low power**
 - **Control rod withdrawal error at high power**
 - **Inadvertant loading**

Updated analyses

- **All severe accident analyses were recalculated.**
 - MAAP => MELCOR
- **Dose calculation were recalculated.**
 - increased burnup
 - Updated inventories.

Contents of the PSR

- **Experience of the facility ageing and ageing management**
- **A Description of the licensee's safety culture and safety management.**

Contents of the PSR

- **A report on the actions required in Section 27 of the Government Decree 733/2008 and on the consequent plant improvements.**
 - **Plant improvements after modernization**
 - **Operating experience**
 - **Nordic Owners Group**
 - **Comparison with modernization projects in Sweden**
 - **Safety research**

Contents of the PSR

- **A report on compliance with any terms of the operating license.**
 - Limits of radioactive material
 - PSR shall be done
- **A summary of fulfillment of the requirements laid down in section 20 of the Nuclear Energy Act**
 - nuclear waste management
 - organization, labor resources
 - economic situation of the company
 - nuclear insurances, etc

IAEA PSR Guide

- **The licensee shall verify that the safety factors proposed in the IAEA's guide have been taken into account to a sufficient degree in the safety review.**
 - **IAEA Safety Guide NS-G-2.10, Periodic Safety Review of Nuclear Power Plants, 2003.**

Conclusions

- **All clearances show that operation of the plants is safe.**
- **Further development issues were indentified.**

Kiitos

