

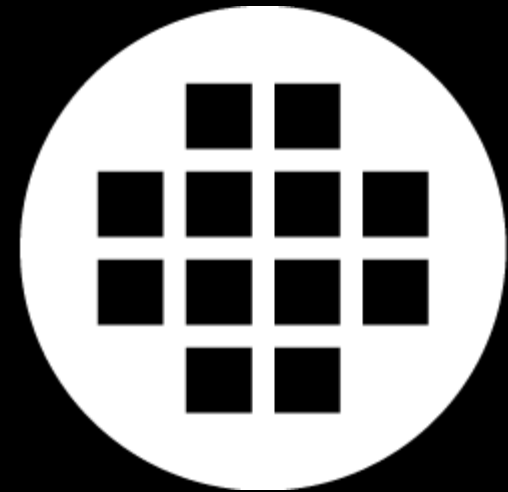
Decommissioning and waste recycling questions of DEMO – The Finnish perspective

FinnFusion annual seminar 2024

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Contents

- Platom in short
- Platom's project for EUROfusion
- Decommissioning planning
 - Why?
 - Scope
 - Initial results
- Waste recycling optimization
 - Why?
 - Scope
 - Initial results



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25+ years
30+ experts
700+ projects
in the Nuclear Industry

- Founded in 1998
- 100 % privately owned family business
- Office locations: Mikkeli (HQ), Espoo, Rauma

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Platom's project for EUROfusion

- The project consists of two separate tasks:

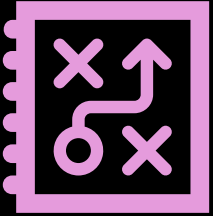
DEMO
decommissioning
planning

DEMO
waste recycling
optimization

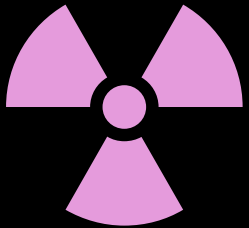
- Finnish perspective and experiences in focus.
 - ❖ Host country not selected yet, national differences exist.

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Decommissioning planning – why?



Design choices can have a great impact on the safety and cost-efficiency of D&D.



Experiences gained from D&D projects support this approach.



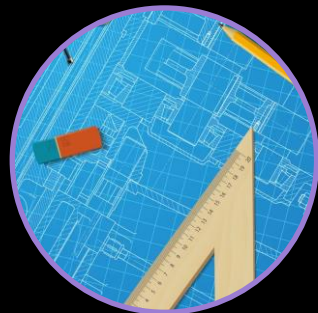
Required by the authority.

Decommissioning planning - scope



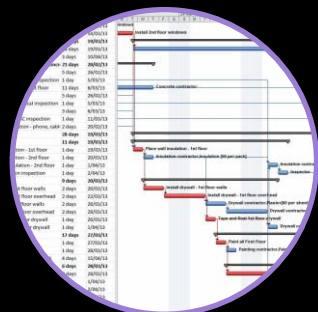
Regulatory compliance

- D&D related requirements of Finnish regulations.
→ A coherent summary of what is required for compliance.



Design considerations

- Design features for facilitating easier D&D.
- Lessons learned from the industry.
→ Input to concept design process.



Decommissioning plan outline

- First draft of a decommissioning plan for DEMO.

Decommissioning planning – initial results

- No regulatory oddities.
 - ❖ Priority on safety in all matters.
 - ❖ Preparation for D&D during the whole lifecycle.
- Plenty of recent D&D experiences available.
 - ❖ Applicability to fusion reactors?
- New considerations in the D&D planning.
 - ❖ For example, the effect of tritium contamination.

Waste recycling optimization – why?

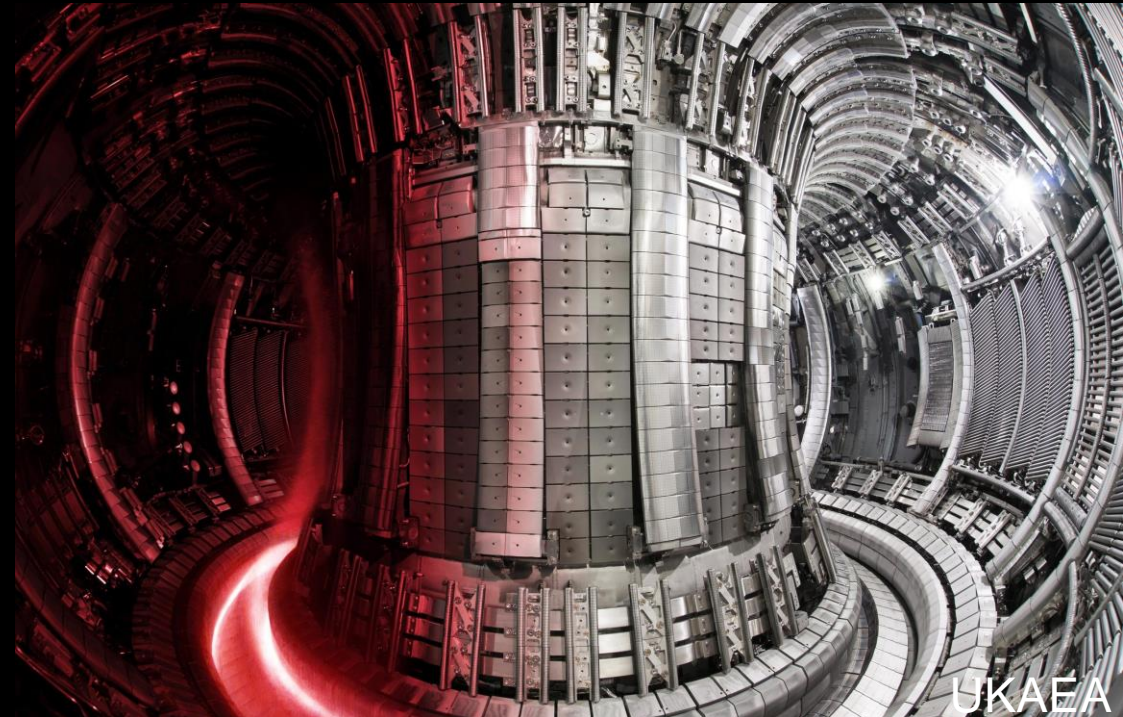
Challenging operational parameters.

- High temperature, intense neutron irradiation.

→ Many special and expensive materials involved.

Components changed regularly.

→ Cost-efficiency improved by recycling.



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Waste recycling optimization - scope



Regulatory framework in Finland

- Requirements related to recycling waste of nuclear origin.
- Identification of possibilities and challenges of the Finnish operational environment.



Experiences from the industry

- Research how Finnish license holders have implemented recycling into their business.



R&D plan

- Identify R&D needs for improving DEMO waste recycling process.

Waste recycling optimization – initial results

Legislative restriction on radwaste import/export.

- Slightly radioactive material may be delivered abroad for treatment.
 - No exact limits for radioactivity, but the arrangement takes notable effort and resources.
- No service providers/infrastructure in Finland.
 - Final disposal is often the most feasible or the only practical solution.

Waste recycling optimization – initial results

Recycling of cleared wastes

- Regulatory limits in line with international guidelines.
- Outside nuclear industry, wastes of nuclear origin carry a “nuclear stigma”.
- Recycling companies apply “zero tolerance” policy.
 - Even for cleared wastes, final disposal may be the only possible solution.

Thank you!

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