



VTT

***The dECOmm Co-Innovation Project Joins
Finnish Nuclear Decommissioning
Competences for International Market Needs***

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Why Nuclear Decommissioning?

- Up to **400 reactors** to be decommissioned by 2040
- Individual project costs vary between **100s €M to several €B**
- Total market **€200B - €400B** of which over half in Europe
- Young industry with plenty of **room for process improvements**
- Topical development due to FiR1, **near-term markets abroad**

dEC mm Ecosystem

www.decomm.fi

BUSINESS
FINLAND

VTT

3 years

€1,3M

 fortum

SWECO 

 LOTUS
DEMOLITION

tvo

 PLATOM

ekonia

 FINNUCLEAR RY
FinNuclear Association



BMH TECHNOLOGY

International Network

Focus Areas

- 1 Develop understanding of decommissioning market opportunities and consortium strengths in the business area.
- 2 Technological focus on project management tools and radioactive inventory management.
- 3 Develop technology to increase the cost efficiency and safety of nuclear decommissioning activities



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Special needs in the Nuclear Decommissioning Markets

- Political decisions for early shutdowns of reactors in Europe leading to a large fleet of sites to appear in the pipeline faster than operators can respond; e.g., Germany
- Lack of labor force in the industry requires increased work-efficiency and better management of the transition period between operation and decommissioning
- Lessons learned about lifecycle can be applied to newbuild projects. Decommissioning plans for operating plants can be improved

Developing methods, robots and digital models for Nuclear Decommissioning Projects

- Human factors, operating and licensing framework for project management, characterisation, and radioactive inventory management systems
- Embedding information layers to the models (AI/ML analysis of LIDAR, dosimeter & hyperspectroscopy measurements) into Building Information Models (BIM)
- Autonomous Site Status Updates (mobile platforms)
- Virtual and Augmented Reality for Radiation Transport and Dose Modeling & Radioactive Inventory
- Innovative ecosystems for business solution provision

Learning by doing: FiR1 in Otaniemi



FiR 1
30.6.2015

**Decommissioning
licence**
17.6.2021

FiR 1 in the Finnish nuclear energy program



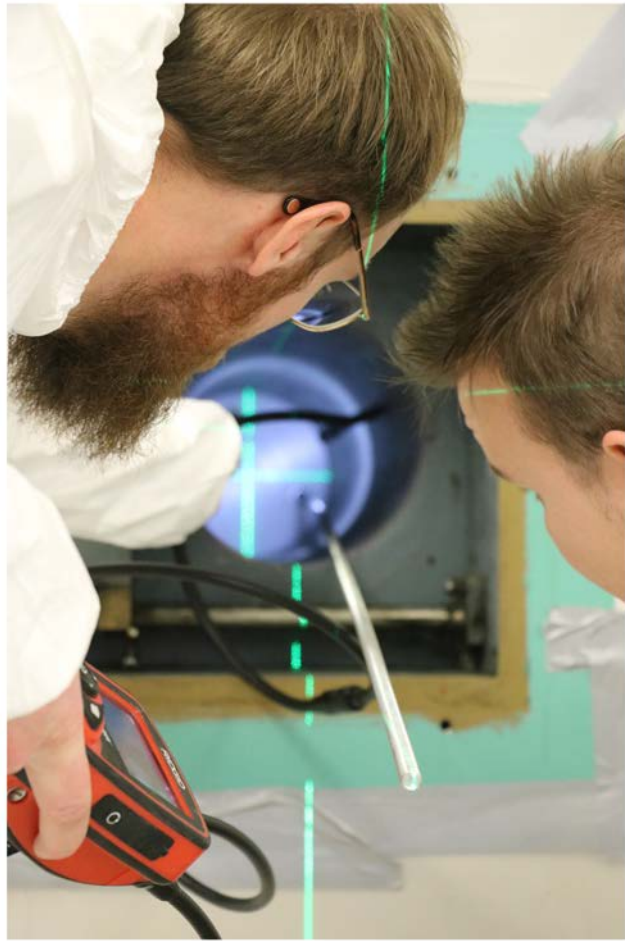
30 May 1960: TRIGA order was signed by Frederic de Hoffman (General Atomics) and Minister Pauli Lehtosalo

31 August 1962: FiR 1 inauguration
President of the Republic Urho Kekkonen and Director of General Atomics Dr. Frederic de Hoffman with high level state and industry representatives



Sampling of active concrete

December 2018



8.11.2022
08/11/2022

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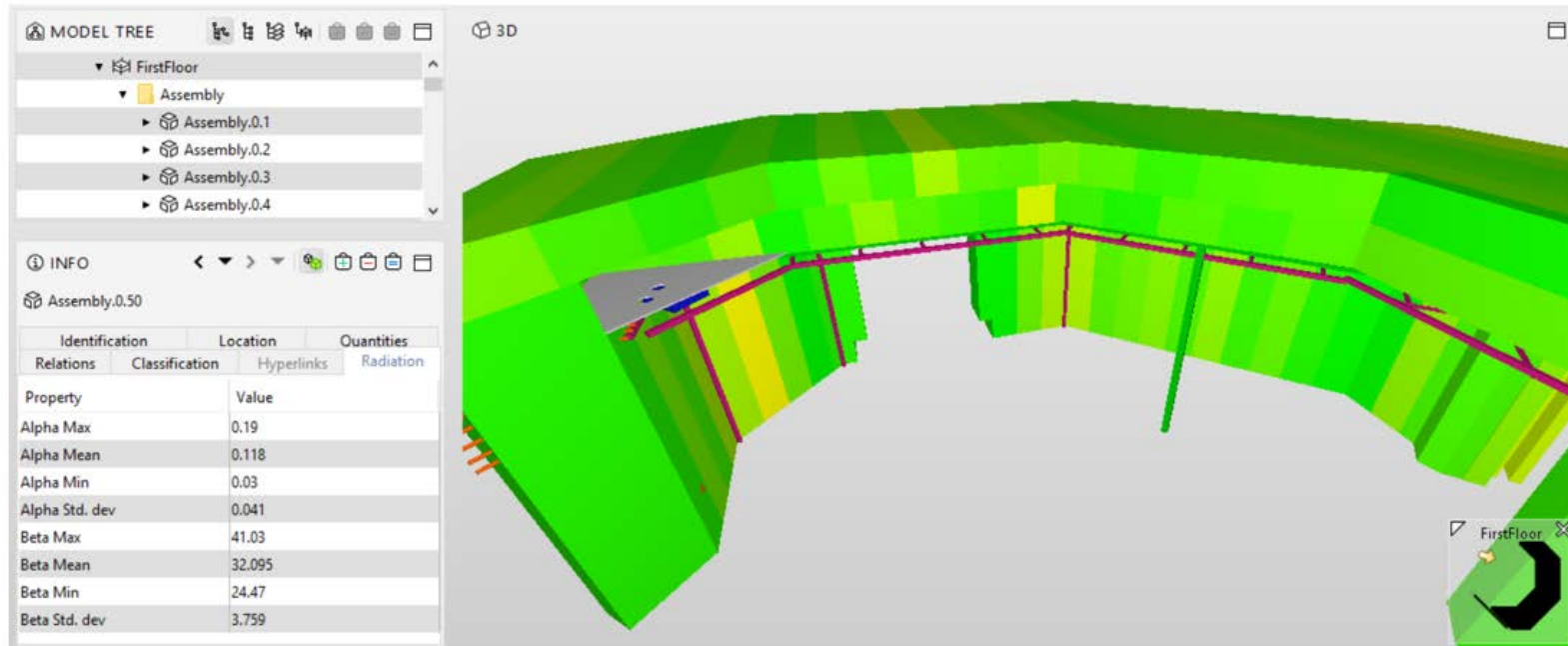
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Sampling of active concrete

December 2018



BNCT dismantling project at FIR 1



Summary

Joining Finnish nuclear decommissioning competences for international markets

- *Co-innovation*: Joint development between companies and VTT and/or universities as research partners
- Focus areas:
 - Digital decommissioning
 - Risk-based conformity
- Case studies; small-scale demonstrations at FiR 1
- Potential follow-up projects:
 - Deliveries to international customers
 - Development projects (bilateral, EU projects, domestic programs)

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Eco  SMR

finnfusion 

FINUELS

Open Business Day 2022

– Building nuclear energy future together –

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the obvious

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