

Construction of the ONKALO Underground Rock Characterisation Facility and the Disposal Facility

The 10th IGD-TP Exchange Forum; RD&D Challenges from Siting to Industrialisation

Kimmo Kemppainen, Posiva Oy



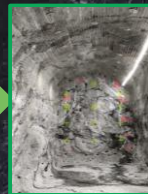
Full-scale
component
tests



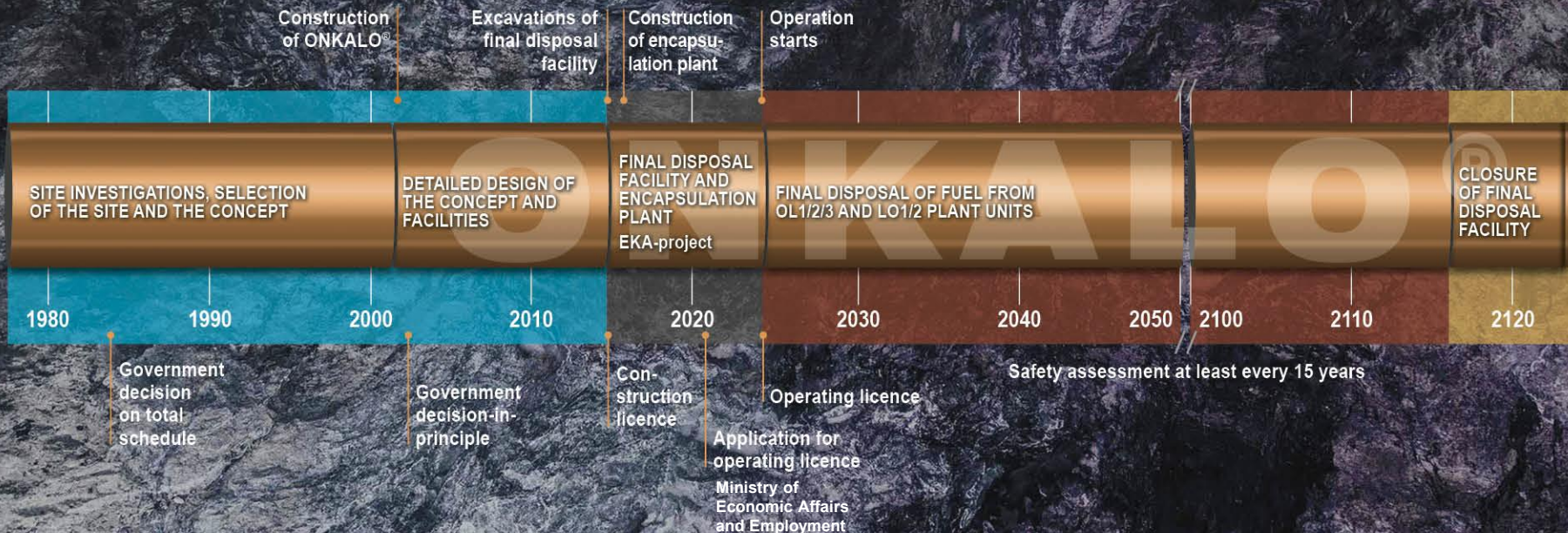
Full-scale
In-Situ
System
Test



Trial Run of
Final Disposal



Final
disposal
operations



Main tests and demonstrations done in ONKALO®

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Access tunnel, vehicle connections and shafts

Rock characterisation and development of investigation methods

Pilot holes (ONK-PH1-29)

Drill holes for monitoring and research (ONK-KR1-17)

Groundwater stations (ONK-PVA1-13)

Inflow measurements and measurement weirs

Grouting development and testing

Microseismic network

Convergence measurements and extensometers

Geophysical investigations

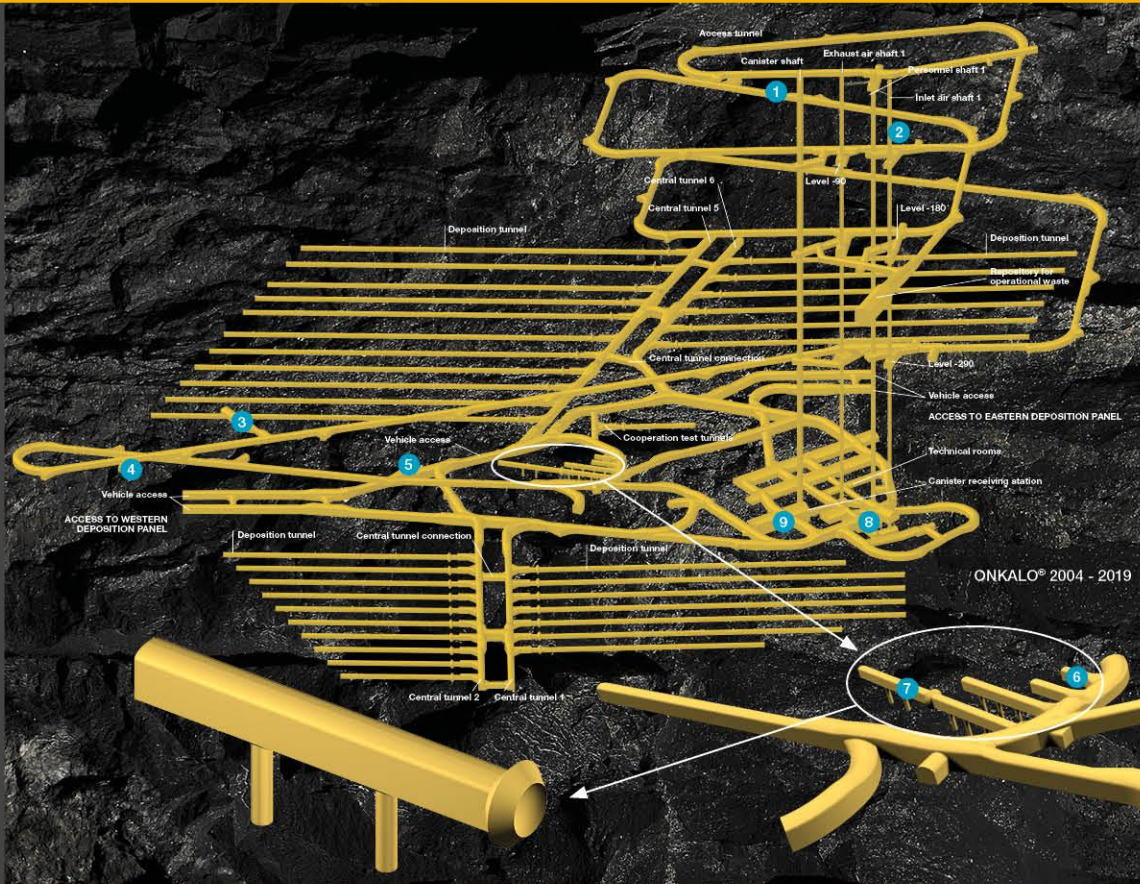
- Ground penetrating radar
- Tunnels seismics

KBS-3H Steering hole drilling test for disposal tunnel (ONK-PH28)

SURE Sulphate reduction experiment (ONK-KR15)

Research niches

- 1 Research niche 1:
 - Buffer test in 40% scale
- 2 Research niche 2:
 - EDZ studies
 - Tunnel floor grinding
 - Stress measurements
 - Groundwater station (PVA)
- 3 Research niche 3:
 - POSE Posiva's Olkiluoto Spalling Experiment
 - Excavation damage zone (EDZ) studies
- 4 Research niche 4:
 - HYDCO Hydrogeological characterization and interference test
- 5 Research niche 5:
 - REPRO The in situ retention properties of rock matrix



Demonstration area

Development and testing of Rock Suitability Classification (RSC) method

Excavation of demonstration tunnels (DT1-4)

Demonstration tunnel sealing and reinforcement

Tunnel floor grinding test

Test deposition hole boring

Measurements of test deposition holes

- 6 POPLU Construction and pressurisation of wedge plug

- 7 Buffer and canister emplacement tests

- 7 FISST Full scale in situ system test

In situ stress measurement

Mise-à-la-masse measurements

ONKALO® monitoring programme

Hydrogeological sampling and measurements

Hydrogeochemical sampling and measurements

Rock mechanical measurements

Other tests

- 8 Borehole plugging test (OL-KR24)

- 9 Pellet wetting test

We have a solution
for the final disposal
of spent nuclear fuel



We have a significant
role in climate protection
as a part of the lifecycle of
sustainable
nuclear energy

#wehaveasolution



Posiva

2025-11-26

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ONKALO®, Olkiluoto, Eurajoki





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Global leader
in final disposal