Underground characterisation and research facility ONKALO

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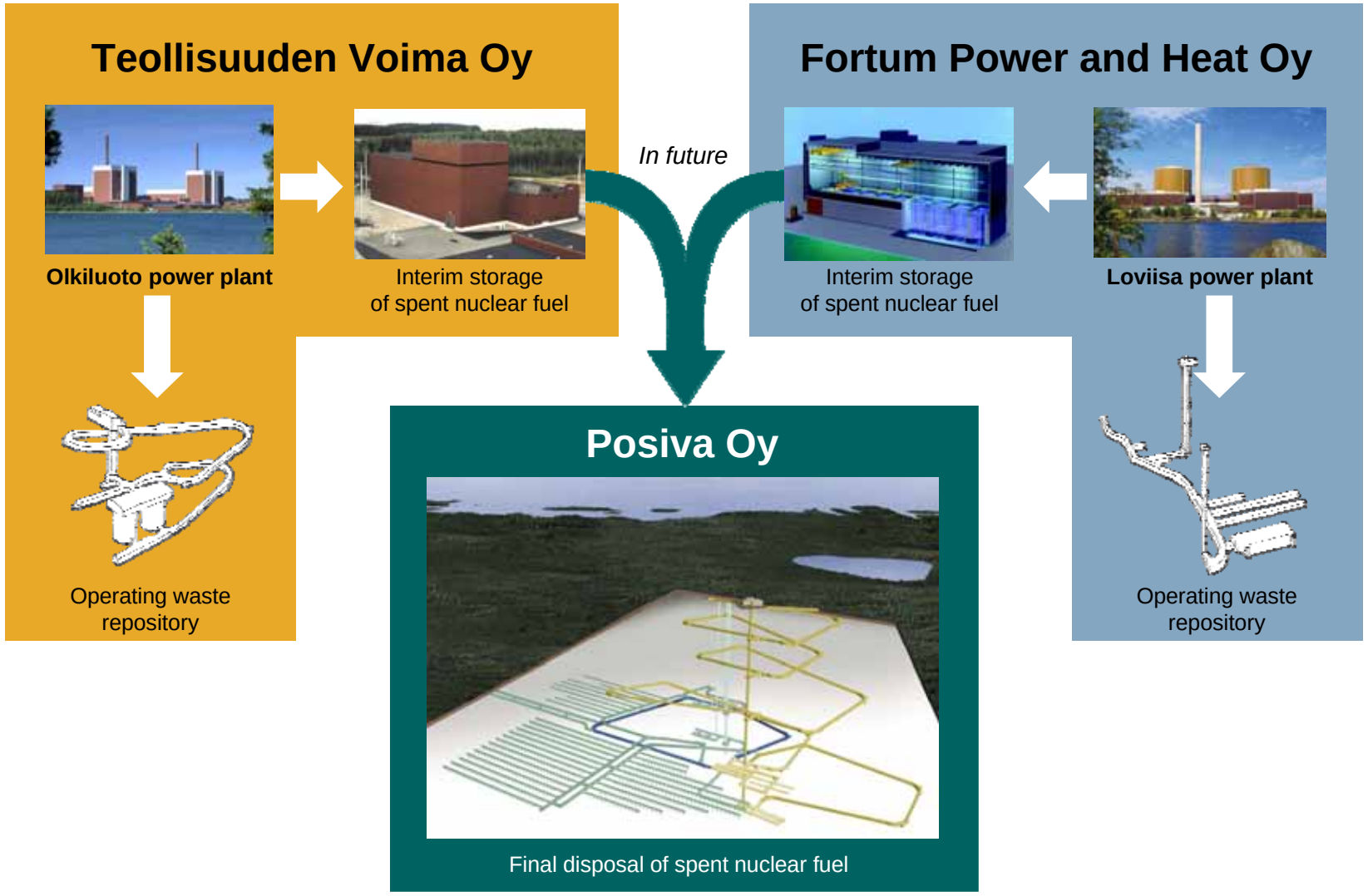
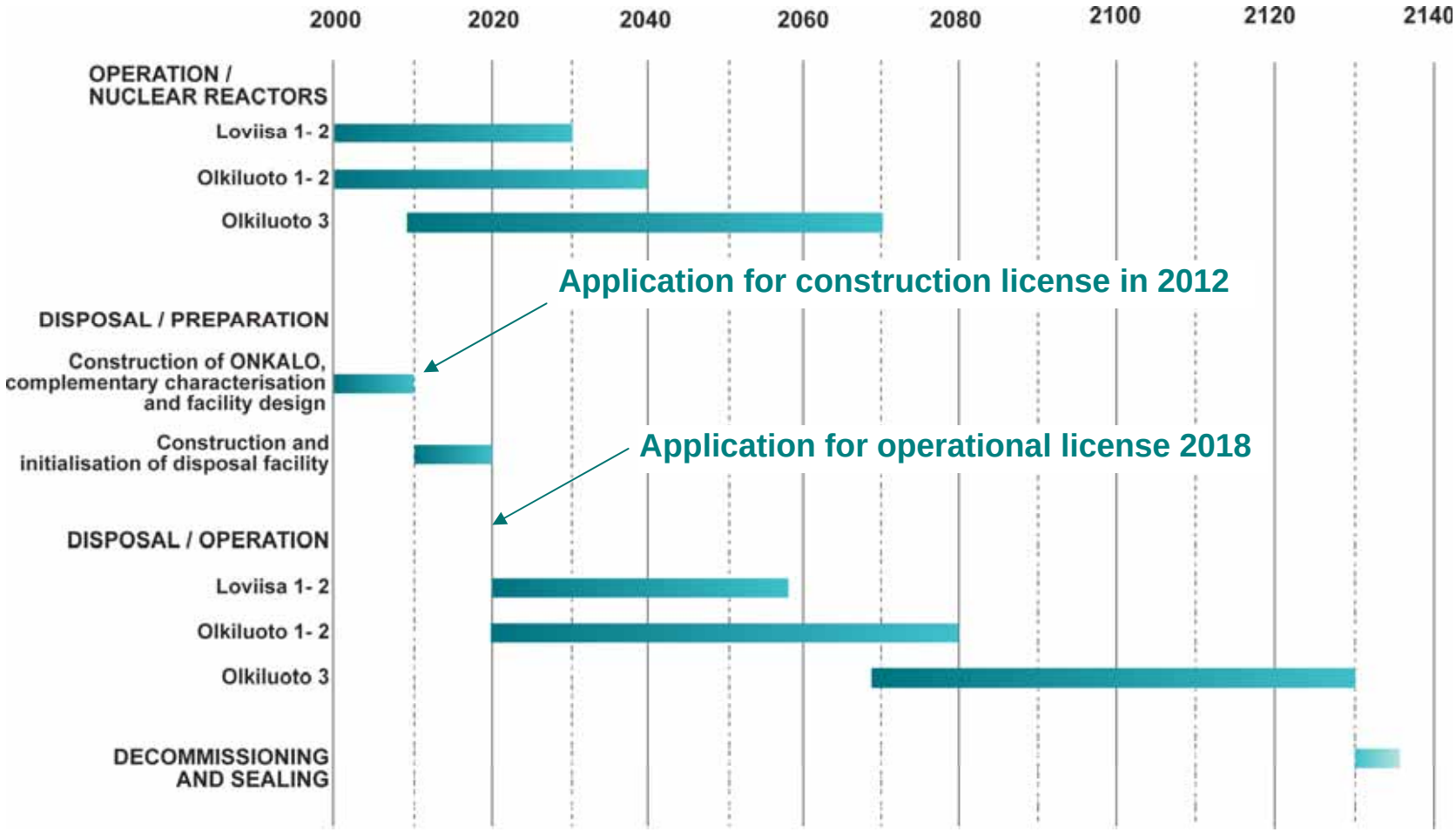
POSIVA

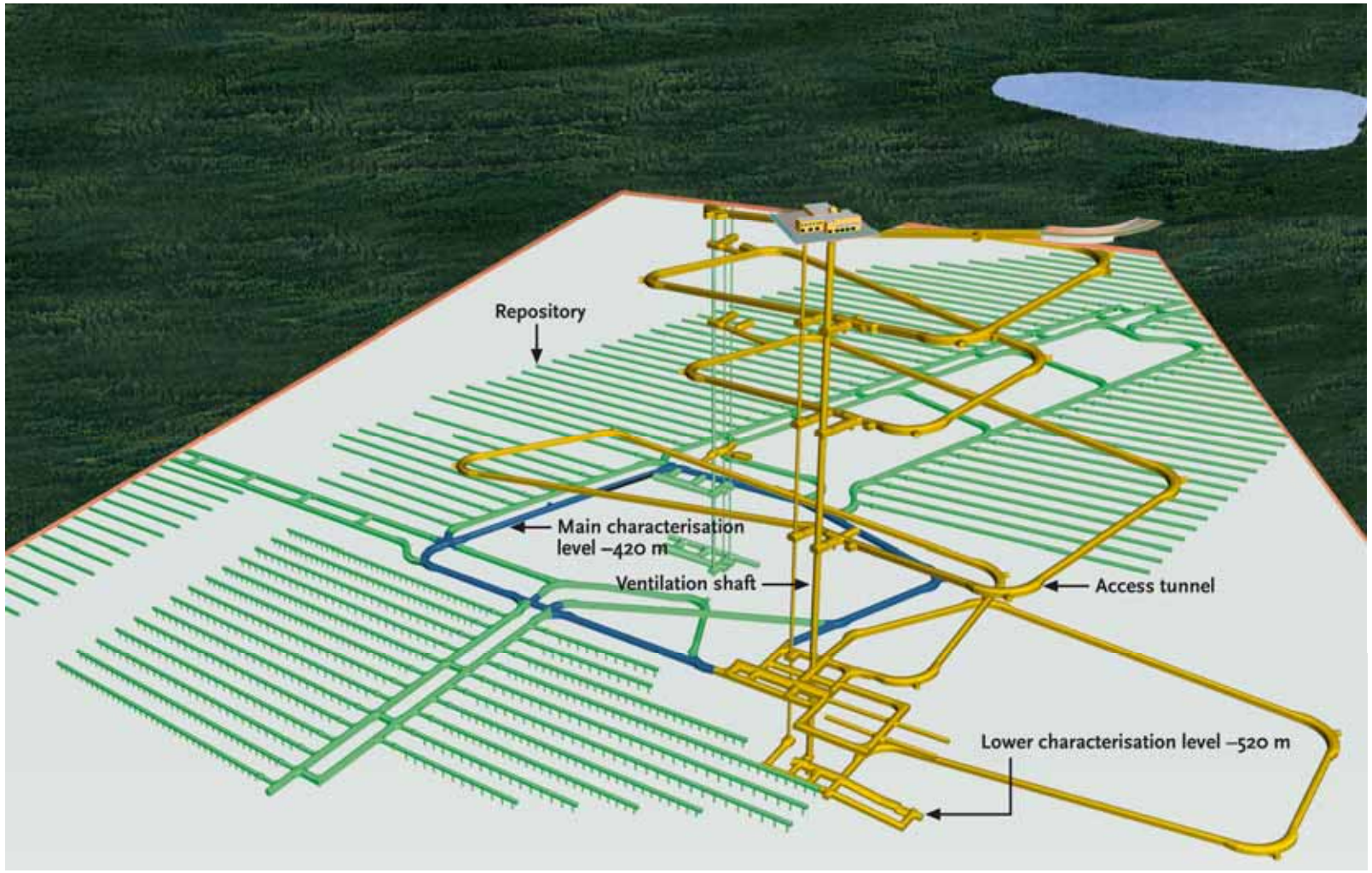
Nuclear waste management in Finland



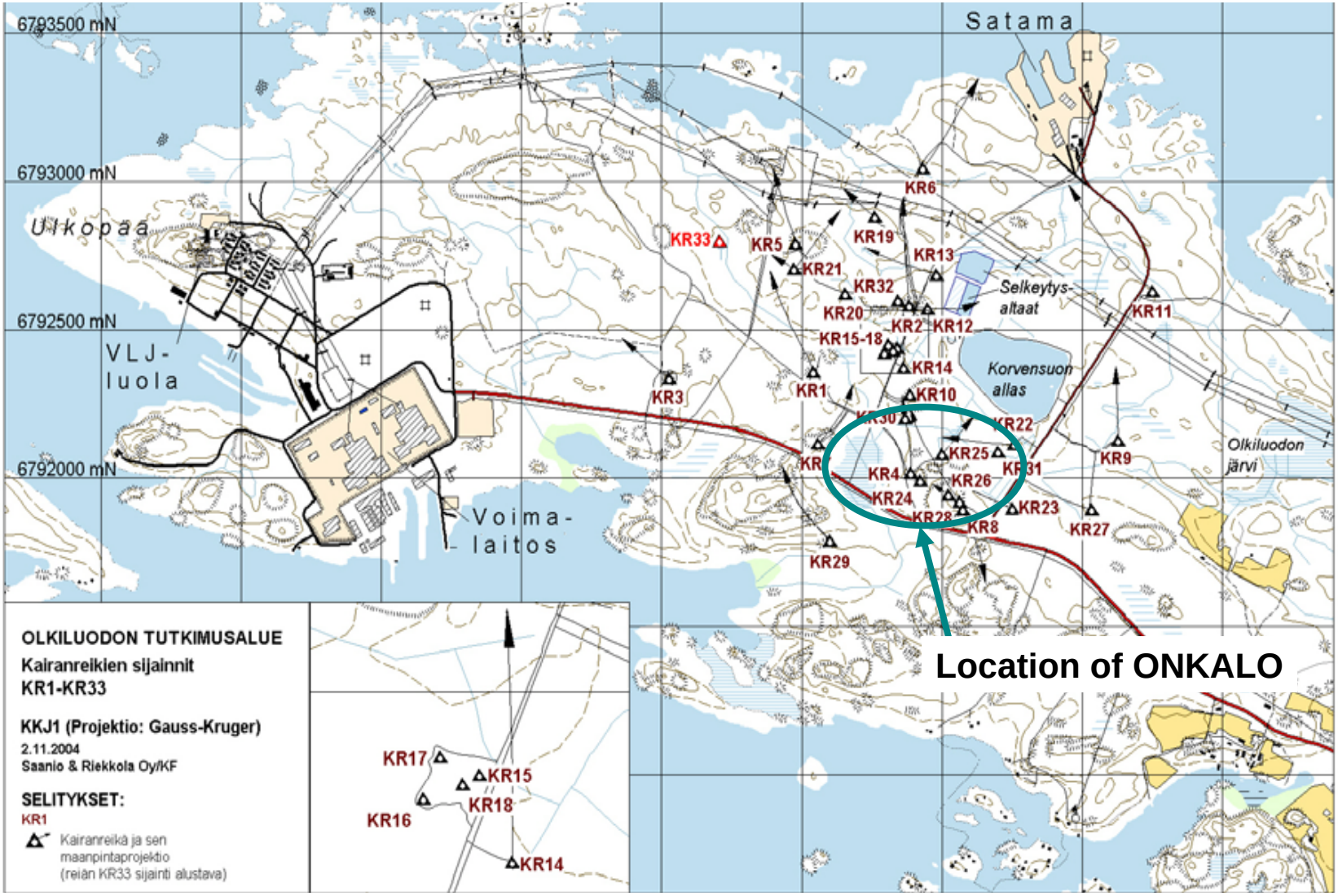
Design basis: timetable



ONKALO: a part of the repository



Site investigations focused in Olkiluoto



Drill and blast method

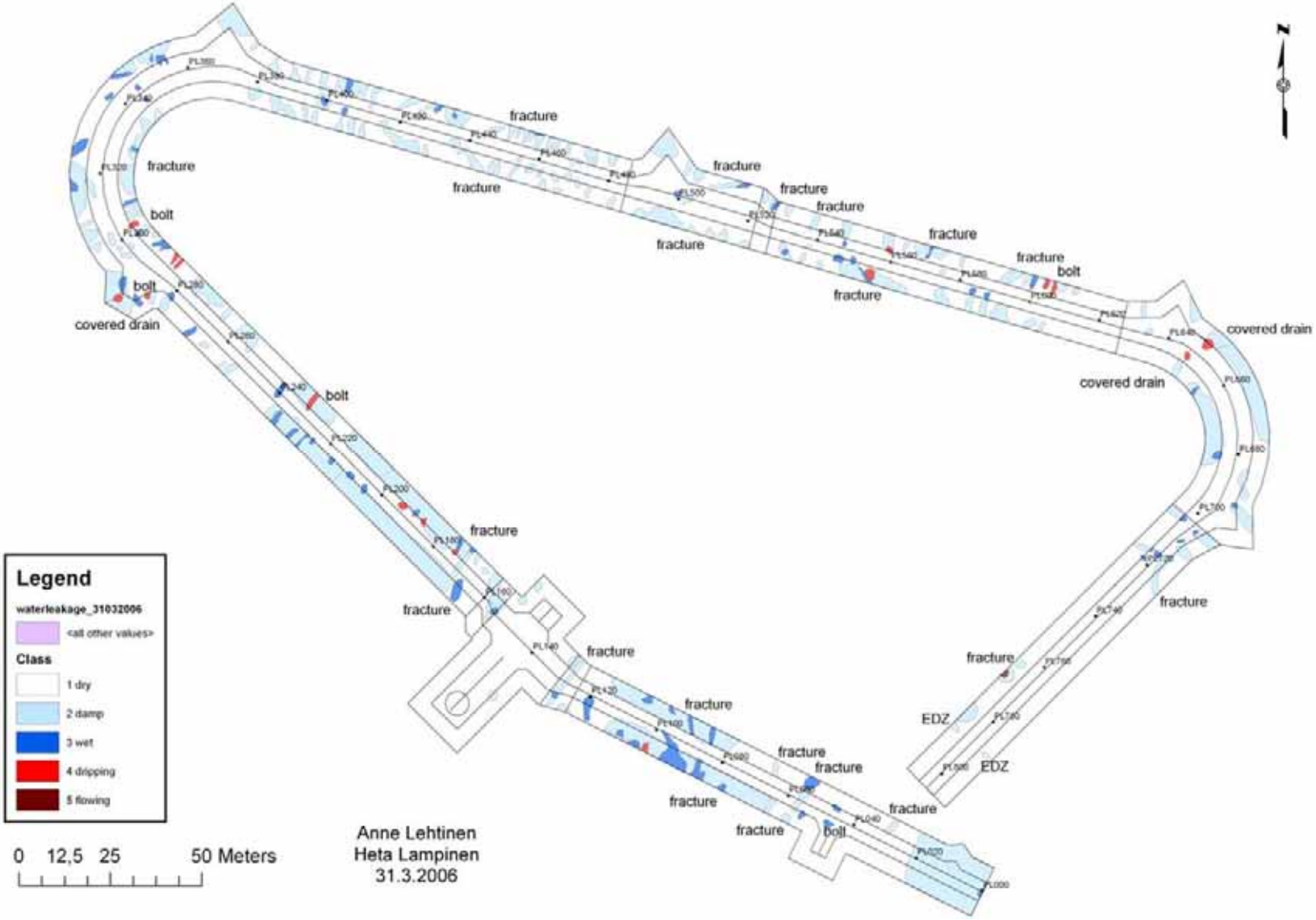
Raise boring

Tunnel entrance

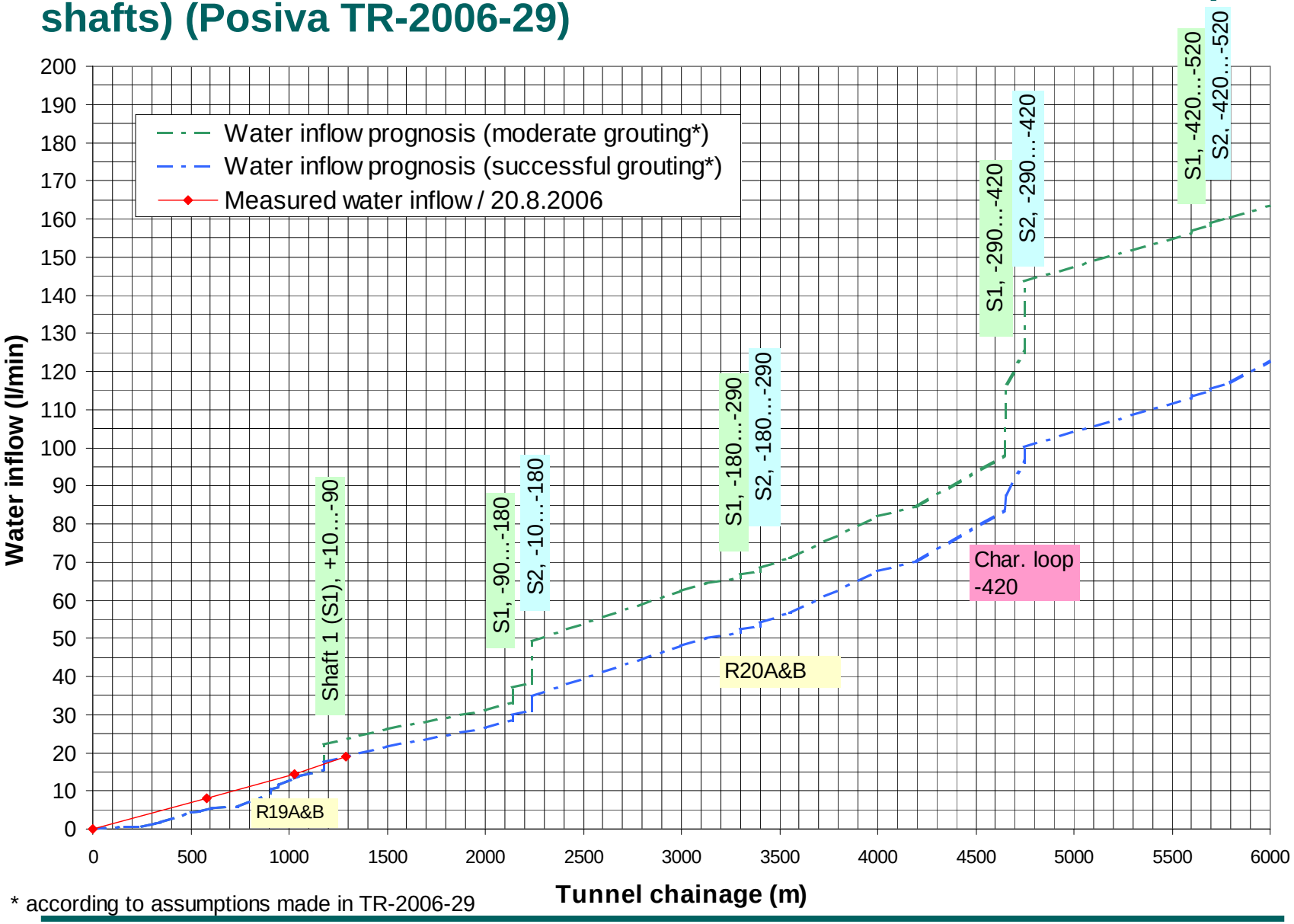
Geological mapping of the ONKALO

- Two separate mapping stages
- Latest round during tunnel excavation (2 hours)
  - Initial data for design of temporary rock support and grouting
- Systematic mapping 100-200 m behind the tunnel face during drilling, pre-grouting, charging (does not interrupt tunnel excavation)
  - Initial data for permanent rock support
  - Main phase of rock characterisation

Mapping of the water leakages in ONKALO



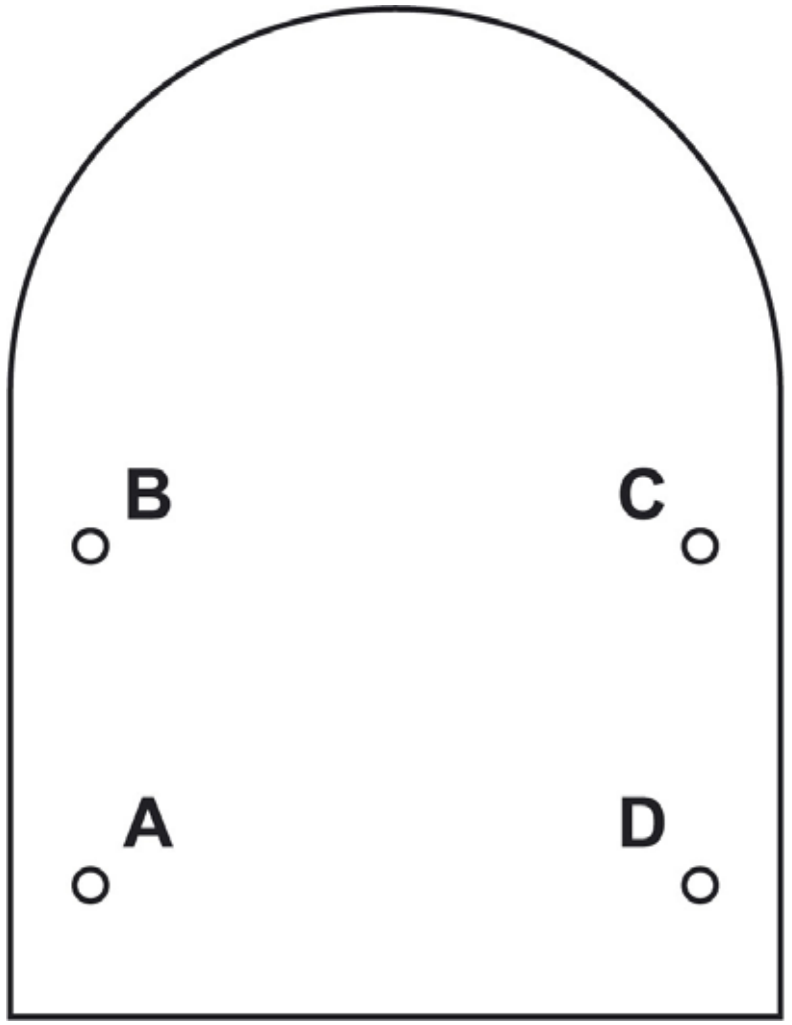
PROGNOSIS OF LEAKAGE WATER INFLOW INTO ONKALO (2 shafts) (Posiva TR-2006-29)



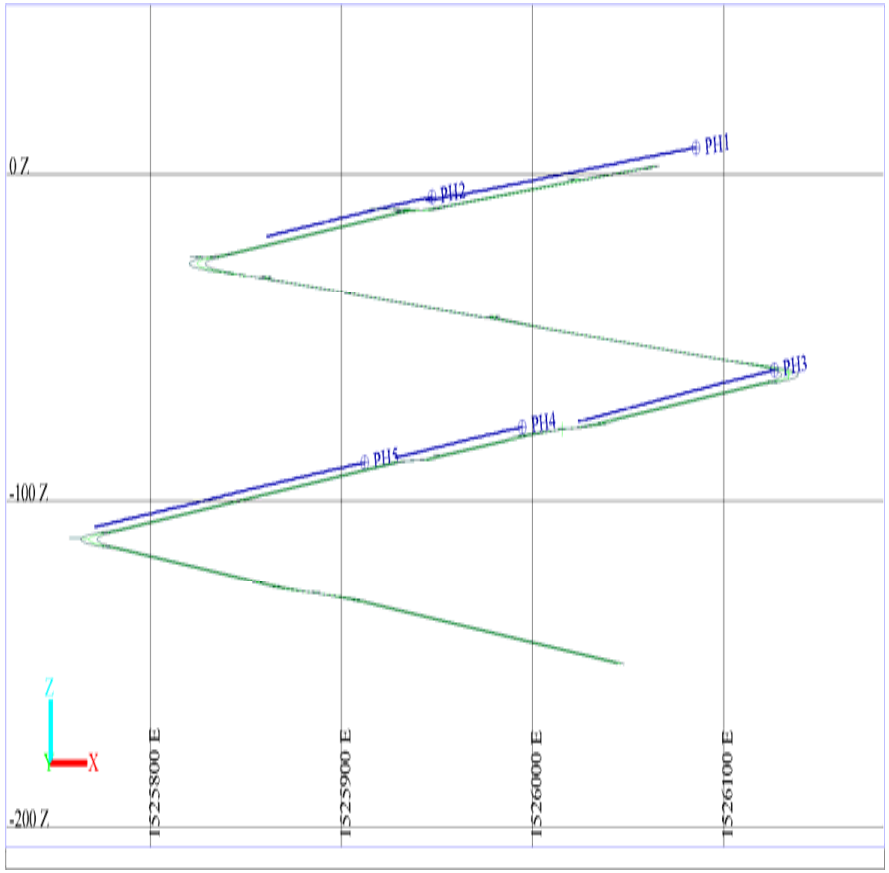
* according to assumptions made in TR-2006-29

Probe holes in ONKALO

- Four probe holes every 4 rounds
  - Drilled by jumbo
  - Remain inside tunnel
  - Length 26 m
  - Outflow measurem.
  - Flow logging
  - Lugeon testing
  - Groundwater sampling



Pilot hole drillings



- Inside the tunnel profile
- The length varies between 50 to 200 m
- Alltogether 13 holes will be drilled
- Pilot holes PH1-PH5 have been drilled
- PH6 will be drilled in autumn
- Geological, geophysical, hydrogeological and geochemical investigations

Pilot hole drilling

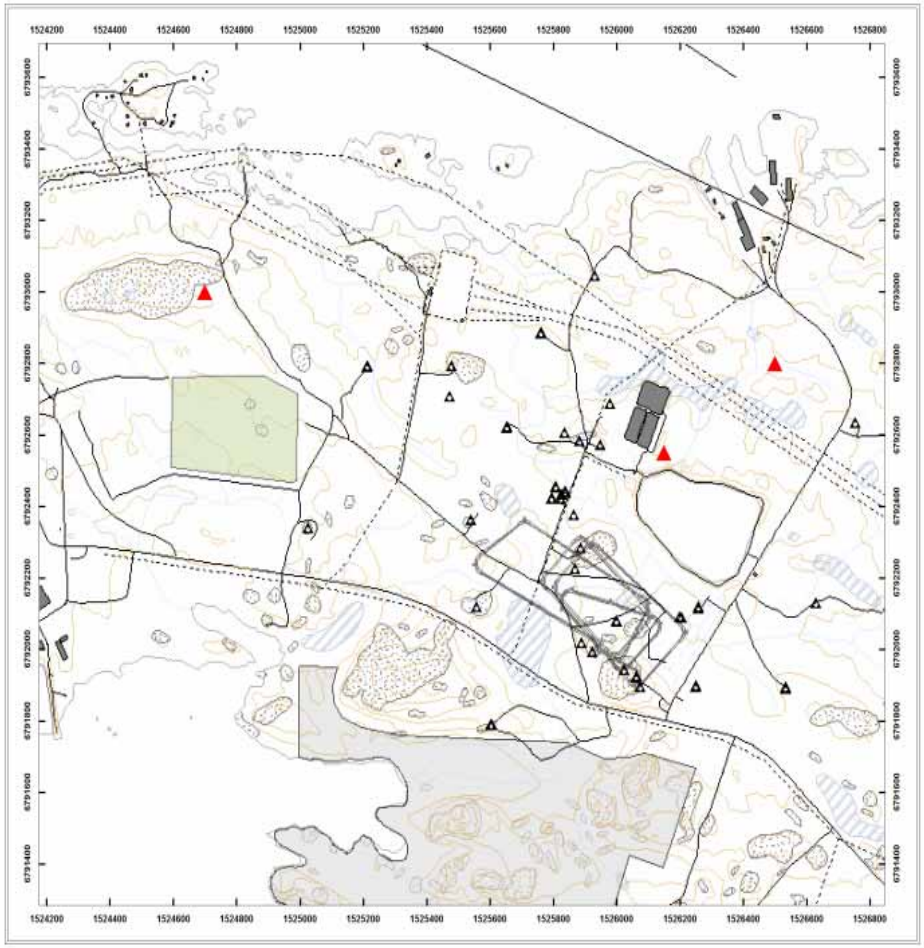
Monitoring of the groundwater in ONKALO

- Installation of the groundwater stations and measuring weirs
  - PVA1 and PVA2 has been installed at chainiges 200 ja 727
  - MP1 at chainage 680

Investigation niche planning

- Investigation niche will be constructed between the chainages 1460-1500

Investigations at surface – deep drilling of boreholes OL-KR41-OL-KR43



Drilling

Investigation trench

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