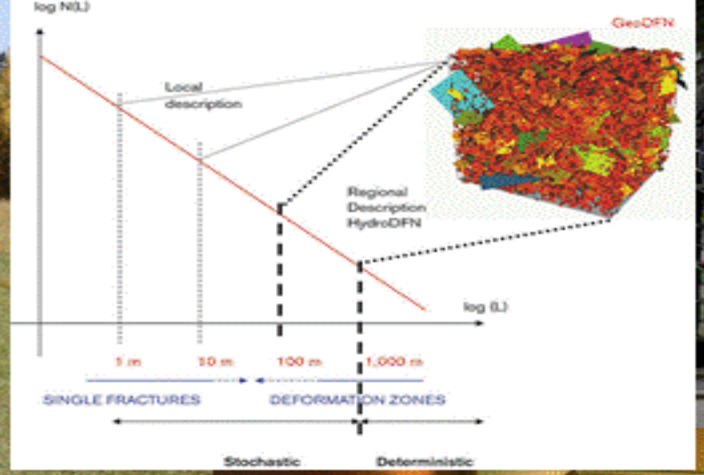
SKB RD&D perspective

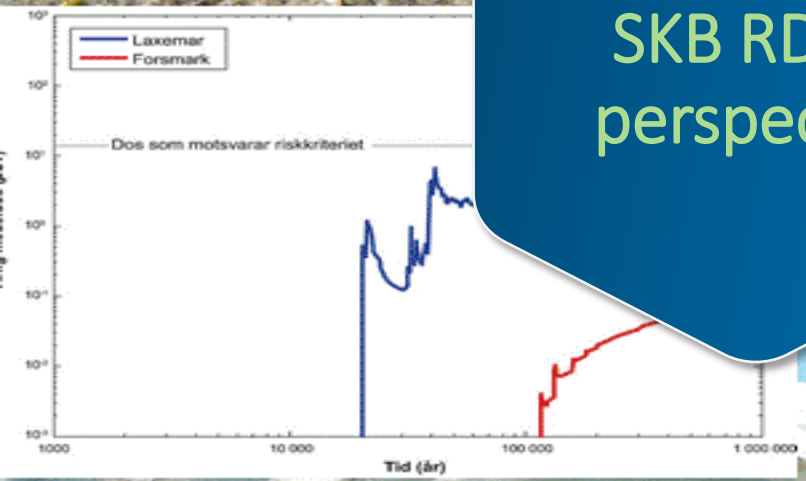
Explanatory note on the panel session:

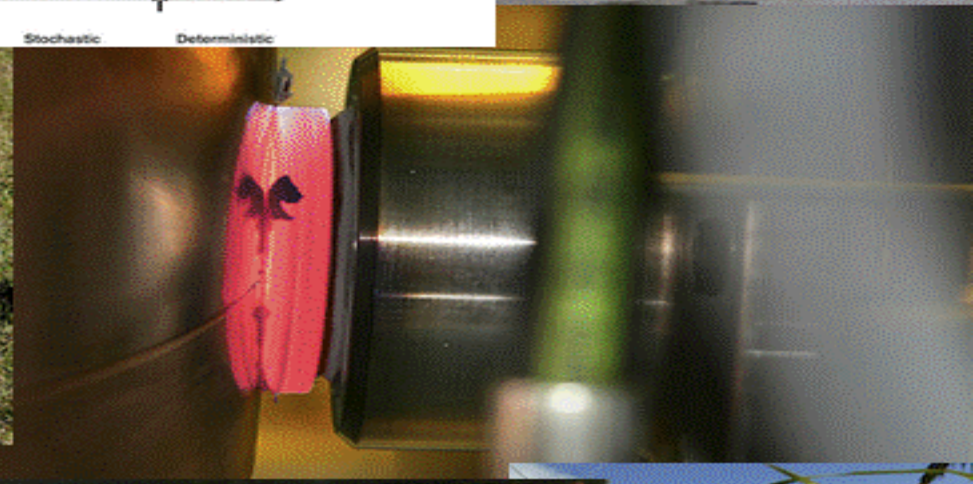
3 to 4 implementer/panellists in different stages of repository development list in short their major RD&D topics. These initial statements will in total make up 20', then questions/comments by the audience can be formulated to the panellists on:

- How to tackle these challenges in general
- Which role the IGD-TP can/should play in this



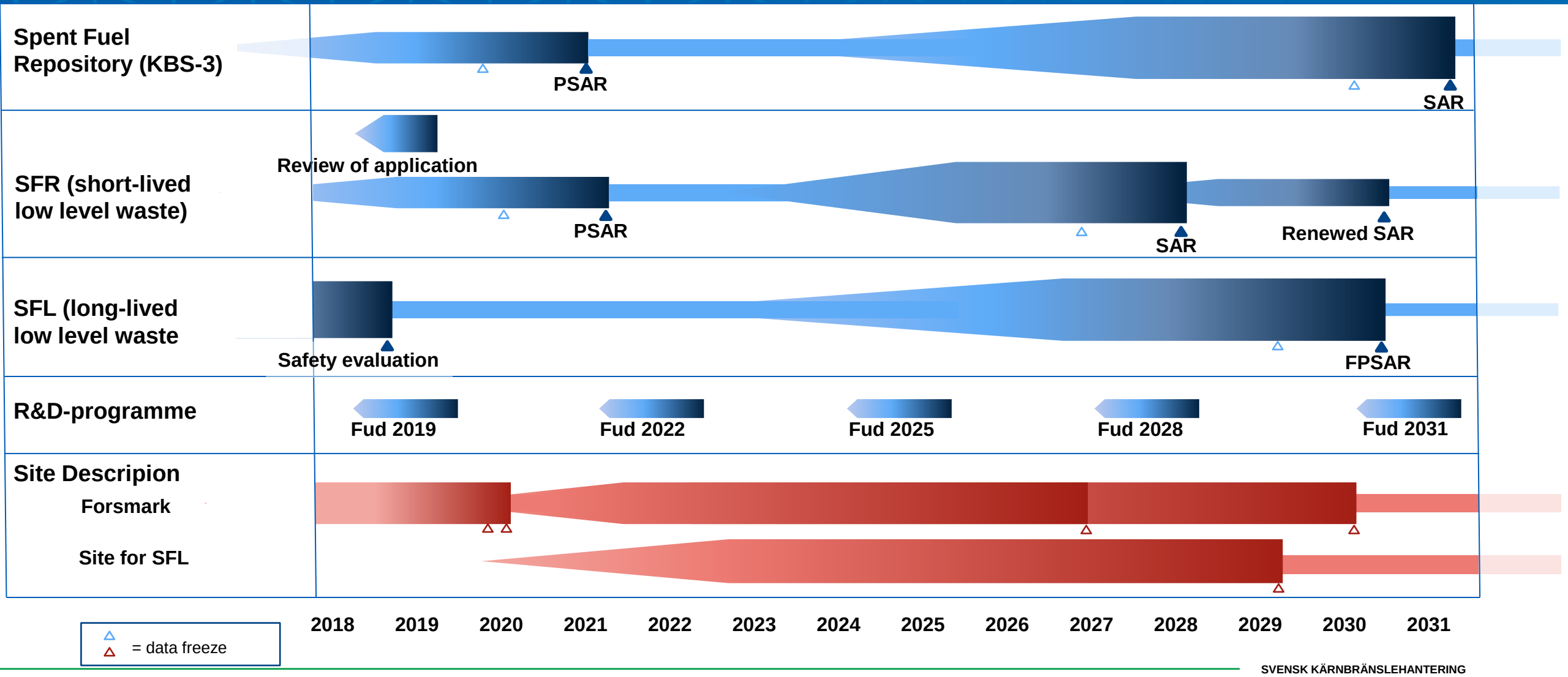
SKB RD&D perspective





SKB - Future Tasks

Planned activities related to Research, Safety Assessments and Site Description up till 2031



The most important research issues at SKB presently:

- Is there a risk of **erosion of the bentonite** clay around canisters in a KBS-3 repository?
- How is the copper canister affected by **corrosion by sulfides** present in the groundwater, and by sulfides which may be present in gas phase during the time up till saturation of the the bentonite clay?
- How will **doped fuel react** when contacting water if a canister is damaged?
- How does the **fracture network** in the Forsmark lense affect **groundwater flow and transport of solutes,** and how will the fracture network affect the **mechanical load** on the canister during future glacial conditions?
- How will degradation affect the **concrete strength** in the SFR repository (1 BMA) during the life span of the repository (up to 20.000 years)?
- How can **transport of radionuclides** from SFL be retarded or diluted such that discharge and doses do not exceed acceptable limits?
- How can we separate natural hydrological changes from antropogenic hydrological changes during construction of the repository

License application related issues

- Supplementary information to the Government
  - Cu-canister issues (see next slide)
  - Other supplementary information – suggestions on conditions
  - Will be submitted by end March 2019
- Resolving SSM issues
  - Key issues
    - Canister (Cu corrosion, insert stability, manufacturing NDT, QC)
    - BBC production, installation and QC
    - Underground characterization programme
    - Monitoring programme

Corrosion

- Issues
  - Corrosion due to reaction in oxygen-free water
  - Pitting due to reaction with sulfide, including the influence of the sauna effect* on pitting
  - Stress corrosion cracking due to reaction with sulfide, including the influence of the sauna effect* on stress corrosion cracking
  - Hydrogen embrittlement
  - The effect of radioactive irradiation on pitting, stress corrosion cracking and hydrogen embrittlement
- Time schedule
  - Most supporting work is now being completed
  - Documentation ready for international review in mid January
  - Update presented to SKB board early March
  - To be submitted end March 2019