

Safety of disposal

Magnus Vesterlind

Swedish Nuclear Fuel and Waste
Management Company, SKB



International Atomic Energy Agency Scientific Forum
**RADIOACTIVE WASTE:
MEETING THE CHALLENGE**

Science and Technology for
Safe and Sustainable Solutions

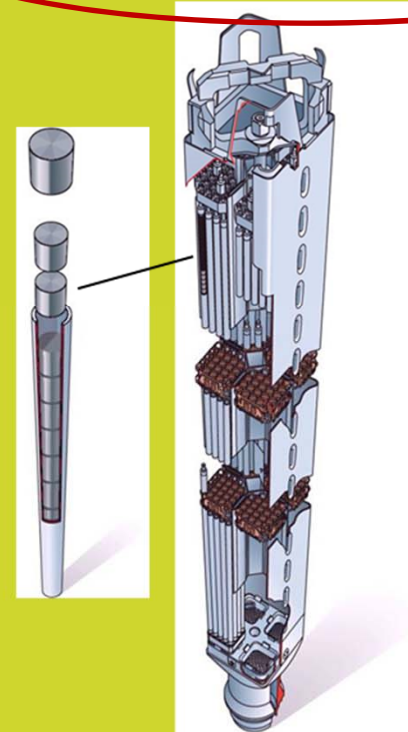
23–24 September 2014, Vienna, Austria

Different wastes – Different solutions

Low and Intermediate Level Waste



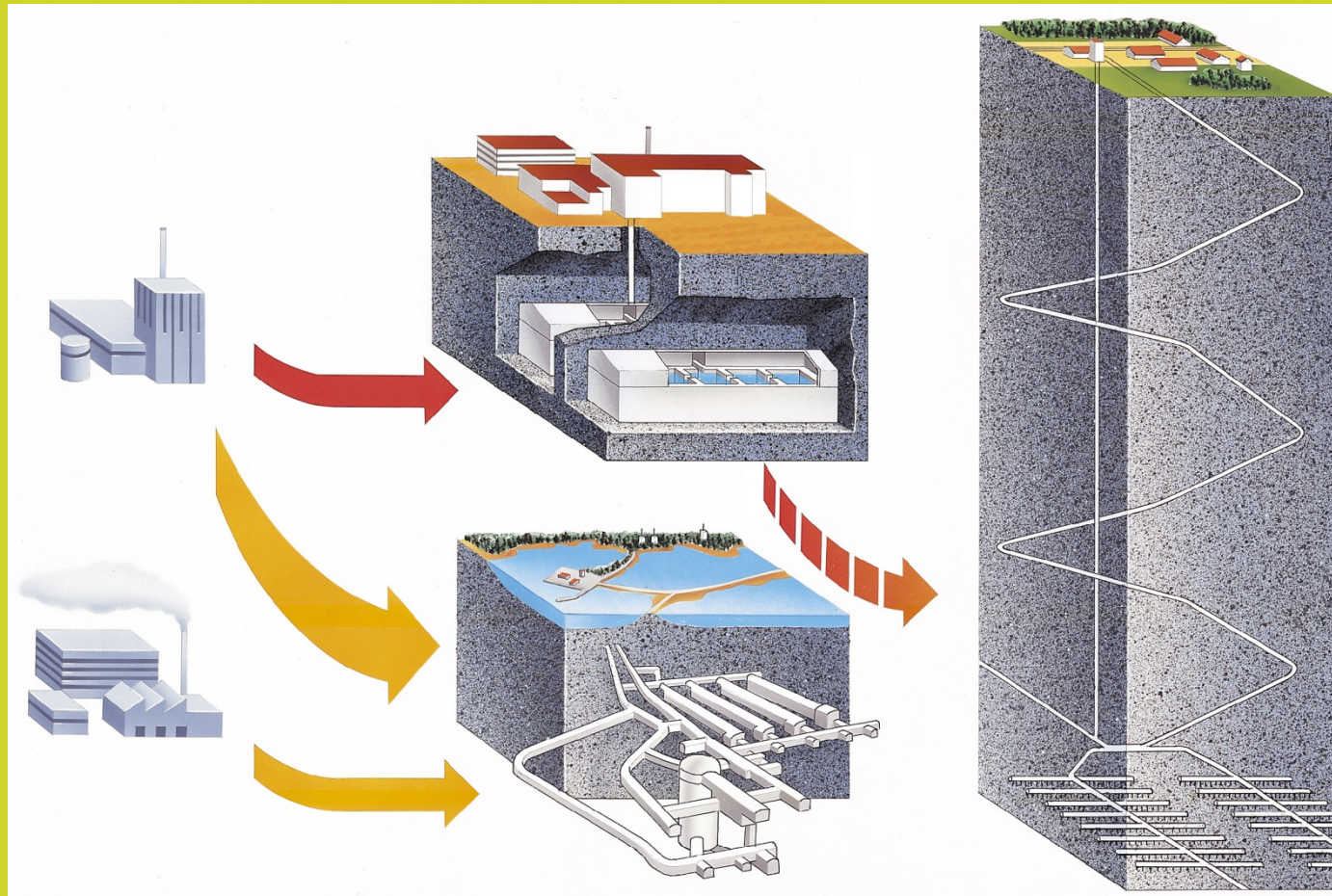
Spent Fuel and High Level Waste



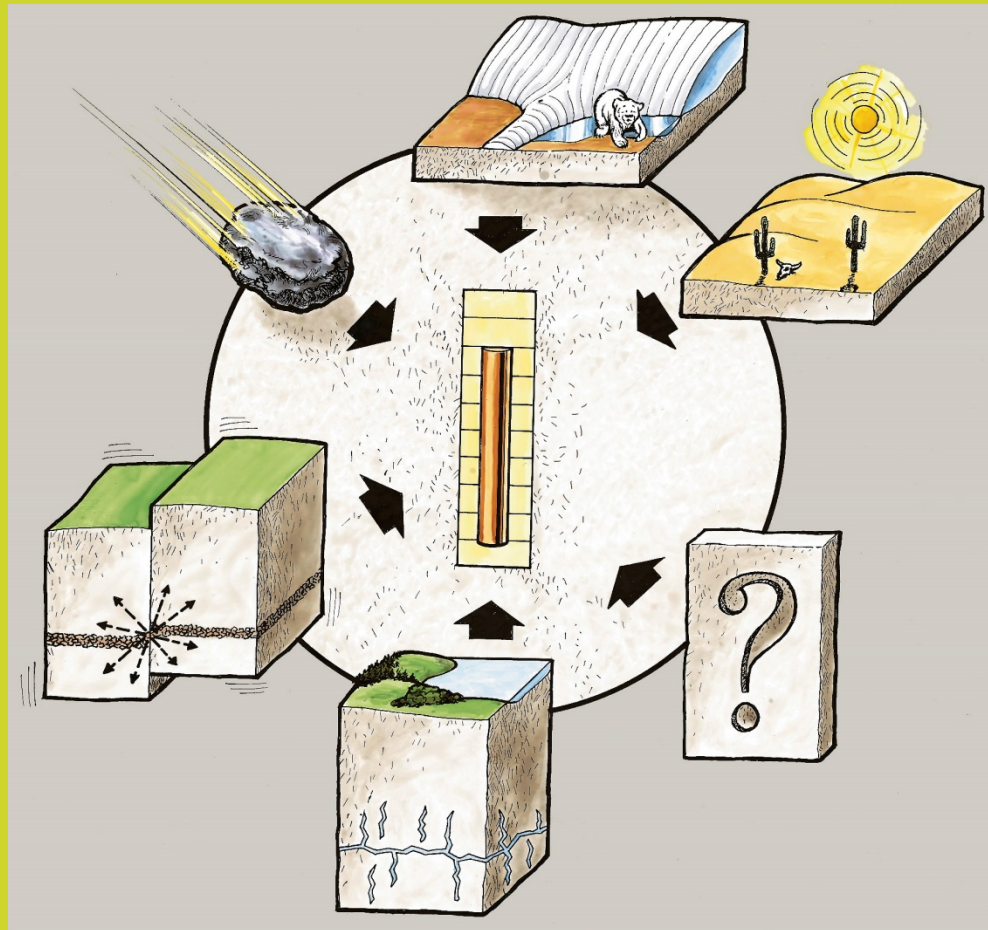
Disposal concepts



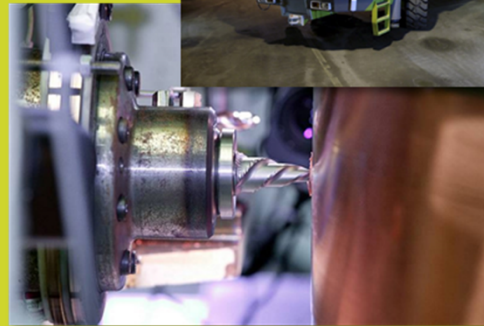
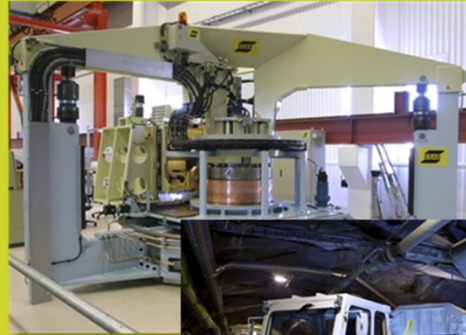
Post-closure safety must be considered in all steps



Understanding the system



Research, technology and safety



Technical Report
TR-11-01


Long-term safety for the final repository for spent nuclear fuel at Forsmark

Main report of the SR-Site project
Volume I

Svensk Kärnbränslehantering AB

March 2011

Svensk Kärnbränslehantering AB
Swedish Nuclear Fuel and Waste Management Co
Box 250, SE-101 24 Stockholm
Phone +46 8 459 84 00



Analysis of post-closure safety

Results and conclusions

Are safety functions maintained?
What is the risk? Can improvements be made?

Scenarios

Can the impact on the barriers be greater than in the reference development?
What can go wrong?
Human intrusion?
What could the consequences be?

Analysis

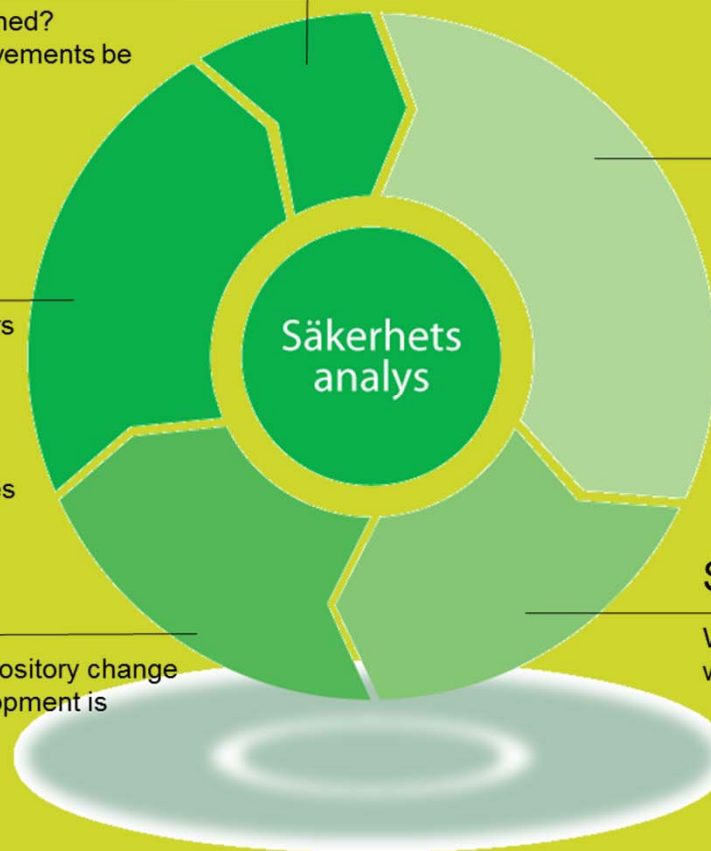
How do conditions in the repository change over time? Reference development is obtained

Knowledge

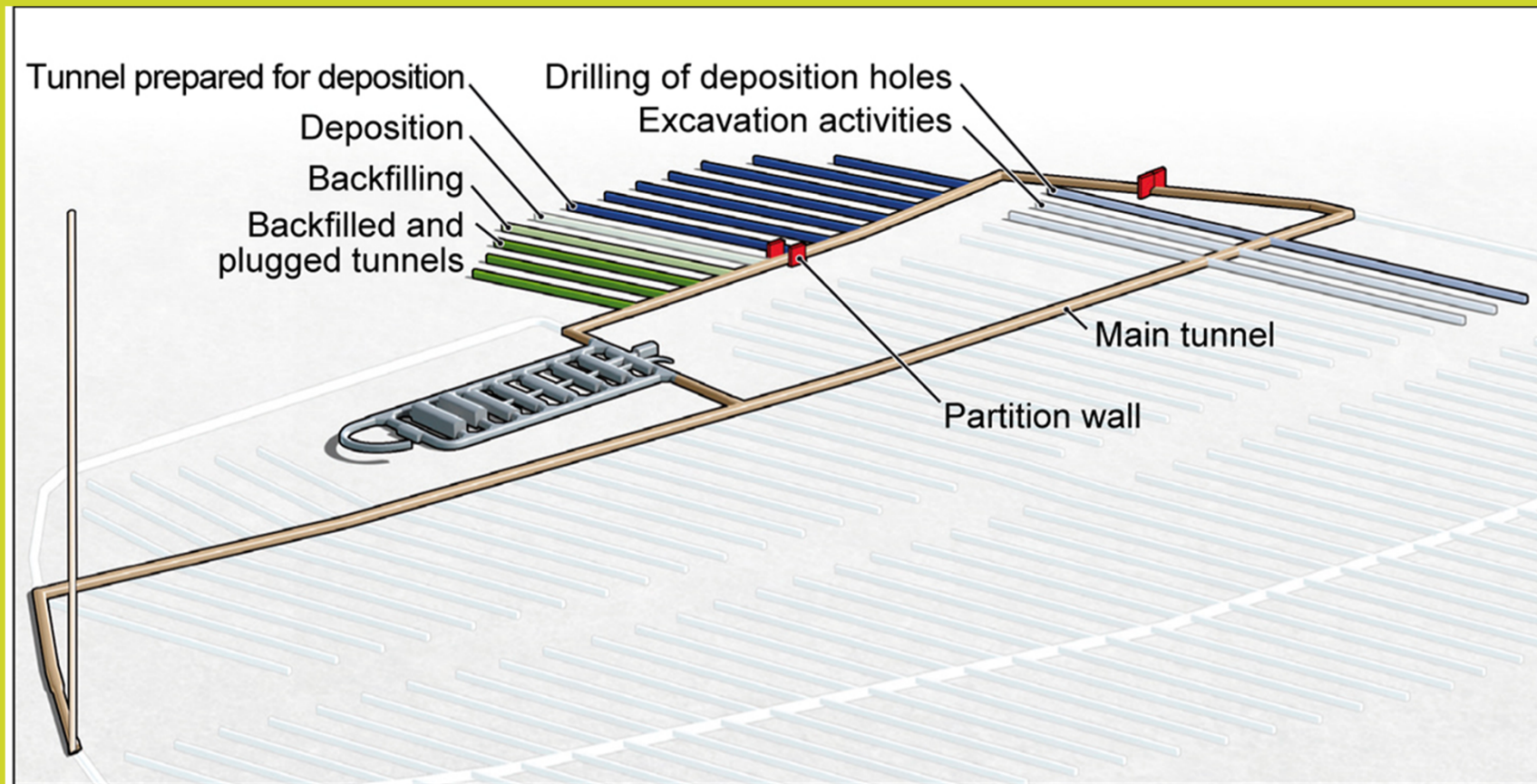
The design of the repository
About the site (rock)
About the artificial barriers
About processes that affect the repository

Safety functions

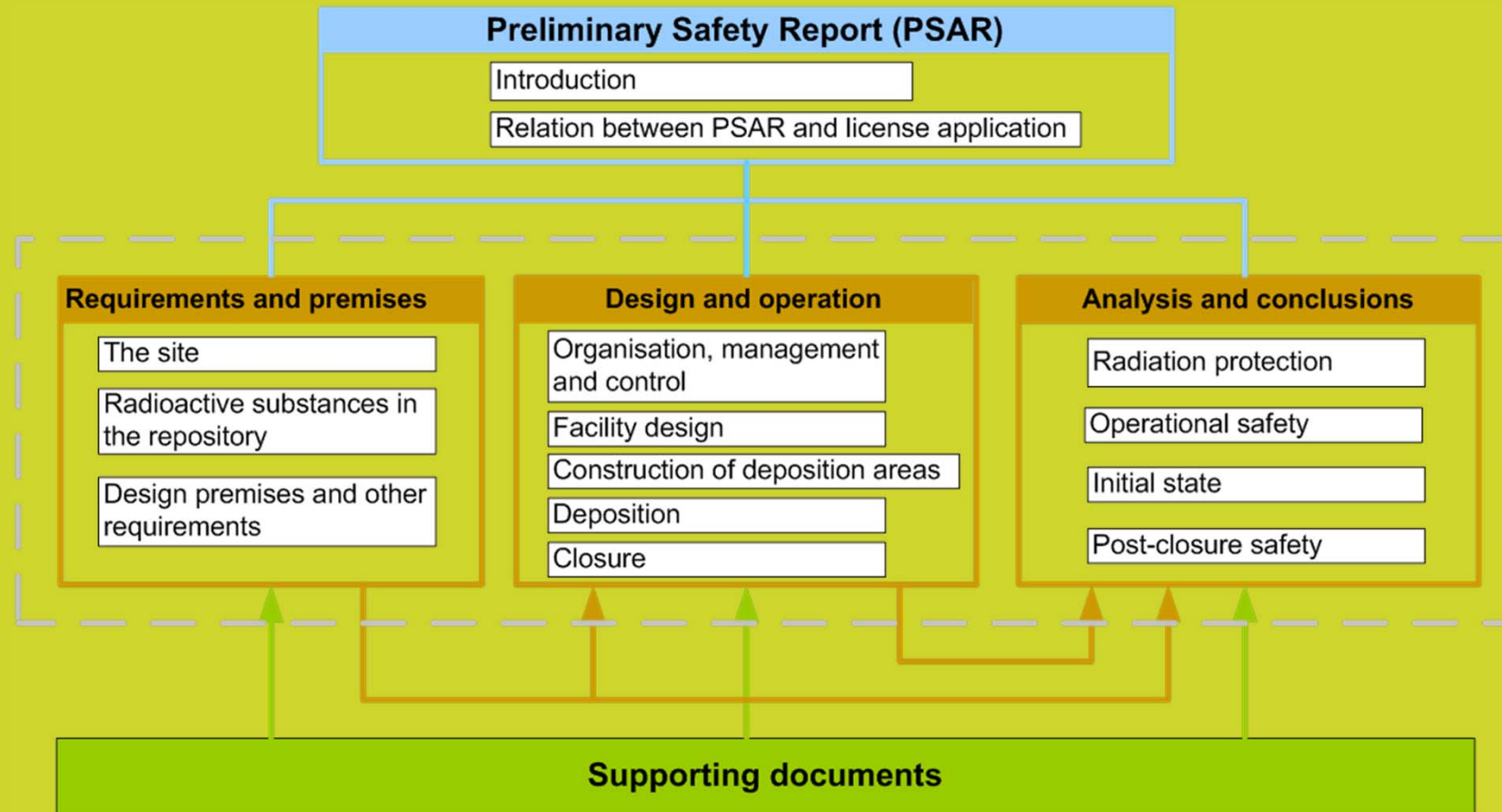
What do the barriers need to withstand?



Parallel activities during operation



Integrating operational and post-closure safety for disposal



Safe geological disposal is feasible

- Scientific understanding
 - Geosphere, biosphere, climate evolution...
 - Engineered barriers and waste characteristics
- Technologies demonstrated
 - Pilot and full scale tests
 - Production and construction
- Safety requirements are met
 - Generic and site specific assessments