

SCENARIOS

Subtitle



Co-funded by the European Union under Grant Agreement n° 101166718

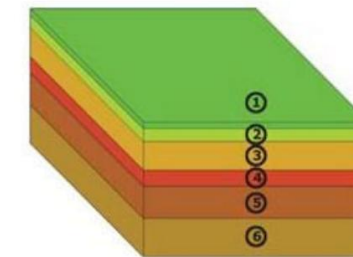
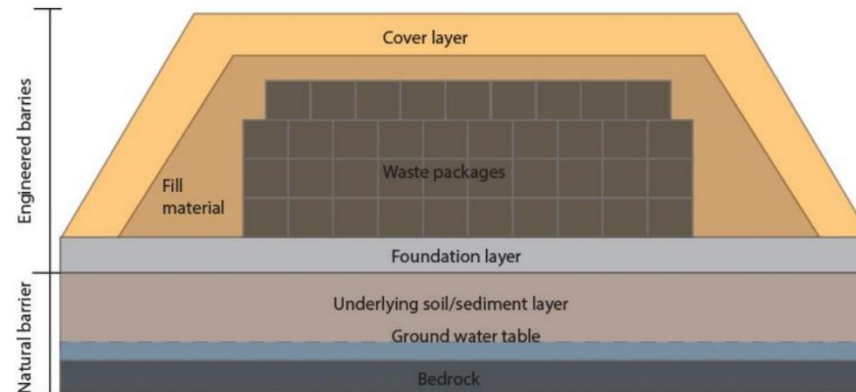
PARCELLE GAUCHE

- Couche superficielle (1.00m)
- Sable (0.10 m) et concassé (0.40m)
- Argile (0.60m)
- Sable (0.30m)
- Membranes bitumineuses
- Sable (0.30m)
- Couche de forme

4.70 4.90

4.40 25.00

Zone de confinement Zone de mesure



LONG TERM COVER

- 1 TOP SOIL:
Fine organic soil - 0.20m
- 2 VEGETATION IMPLANTATION:
Compacted loess - 0.40m
- 3 ANTI INTRUSION & ANTI EROSION:
Gravels and boulders - 0.90m
- 4 DRAINAGE FILTER LAYER:
Coarse sand / fine gravel $K > 10^{-4}$ m/s - 0.50m
- 5 IMPERMEABLE LAYER:
Clay ($K < 10^{-9}$ m/s) - 1.00m
- 6 SUPPORT BASE:
Compacted granular soil mixed with loess,
mainly silt.
Low plasticity and non-organic.
 $K = 10^{-3}$ m/s - > 1.00 m

eurad 2



SCENARIO 1

Longer dry periods and more heavy rain events are predicted by the recent climate model

*How do you take this into consideration in the next **Safety Case update** for near-surface repositories in the following three stages:*

- *before construction*
- *in construction and/or in operation*
- *after closure*



SCENARIO 2

Heatwaves are expected to intensify, with +6°C summer peaks by the end of the century.

Assess the implication for the repository safety. Which parts of the repository are more likely to be affected?

How should the monitoring/inspection strategy be designed to track and assess potential impacts?



SCENARIO 3

More frequent droughts, heavy rains & storms, and freeze/thaw cycles starting from the middle of the century (2050) are predicted by the most recent climate models.

*Discuss if the **cover design** has to be adapted and, if yes, how.*



SCENARIO 4

Climate projections diverge significantly after **2100** (high uncertainties).

You have to develop an optimisation strategy that remains robust under high climate uncertainties, balancing safety, cost, reversibility, and stakeholder trust.