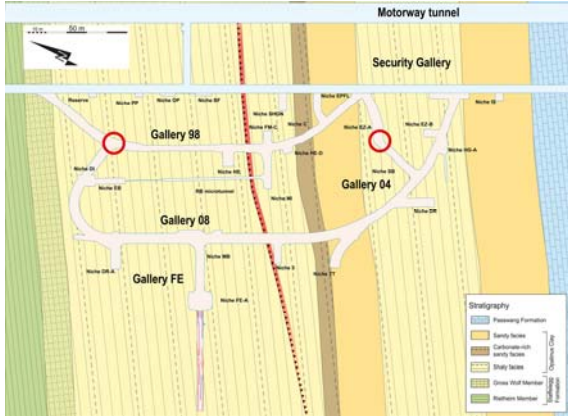




## Guided tour



### 11 CO<sub>2</sub> experiment



**Objectives:** To carry out an experiment in an underground laboratory within the scope of the European “ULTimate CO<sub>2</sub>” project with the aim of gaining a better understanding of the long-term effects of geological storage of CO<sub>2</sub>. In addition, to analyse the behaviour of shafts regarded as potential escape routes when they traverse cover rocks. Opalinus Clay was chosen as analogue.

**Procedure:** The concept was to reproduce a section of shaft 2.3 metres in length that is subjected to constraints similar to those existing in a deeper shaft for storing CO<sub>2</sub>. A number of parameters have been tested: an increase in temperature and pressure depending on the depth, and contact with a brine solution acidified by CO<sub>2</sub> for one year. By overcoring the section of shaft it was possible to collect samples for subsequent analysis.

**Results:** Outside the pressure parameter, the results indicate a decrease of the permeability of the shaft under the tested conditions. The anticipated carbonation of the cement adhering to the walls of the shaft was confirmed through mineralogical analyses.

**Start:** 2003  
**End:** 2015  
**Project partners:** ANDRA, BGR, NAGRA, NWMO  
**Budget:** Approx. 3 million Swiss francs