Supplement of

Investigation of Surface Exploration Programs for Hydrological, Hydrogeological and Hydrogeochemical Issues in the Site Selection Procedure

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Project „übErStand“:
Investigation of surface exploration programmes for hydrological, hydrogeological and hydrogeochemical issues in the site selection procedure

Phase 1
Identification of potential site regions

Phase 2
Surface exploration

Phase 3
Subsurface exploration

Step 1
Derivation of relevant parameters for surface exploration methods from the StandAG

- Systematic presentation and explanation of the specific criteria and requirements related to hydrology, hydrogeology or hydrochemistry from the StandAG.
- Derivation of relevant parameters for determination by surface exploration methods.
- Comprehensive compilation of parameters related to hydrology, hydrogeology and hydrochemistry for surface exploration of the three host rocks.

Geohydraulic methods
Surface geophysical exploration methods
Borehole geophysical exploration methods
Laboratory tests, field tests

Step 2
Description of exploration methods used to determine identified parameters

- Elaboration of the relevant and suitable surface exploration methods according to the current state of the art in science and technology.
- Description of ranges, reproducibilities, detection limits, advantages and disadvantages and possible combinations with other methods.
- Consideration of the three different host rocks.
- Allocation of the "most suitable" exploration methods to all relevant parameters for surface exploration programs at siting regions (generic).

Fluid motion and transport relevant rock properties
- sorption
- \( E_h \)
- pH
- major and trace elements
- ionic strength
- density
- isotopic ratio
- conductivity/salinity
- colloids

Step 3
Classification and derivation of an orientation framework

- Requirements for complete documentation and quality assurance.
- Criteria for evaluating the quality and quantity of measured values and the results.
- Factors influencing the criteria for selecting suitable measurement methods for determining the measured quantities in accordance with the StandAG.
- Factors influencing the criteria for selection of suitable measurement densities and measurement intervals.

Orientation framework:
Evaluation of proposals for the surface exploration of site regions

Parameters to measure
- Measuring methods
- Measuring density
- Measuring intervals
- Sequence, necessity ...
- Host rock dependence ...
- Quality vs. quantity ...
- Gradual adaptation to site conditions and available data