Supplement of

Site selection in Switzerland: parallelization of implementer data collection and technical–political decision-making

Tim Vietor

Correspondence to: Tim Vietor (tim.vietor@nagra.ch)

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SITE SELECTION IN SWITZERLAND:
PARALLELIZATION OF IMPLEMENTER’S DATA COLLECTION AND TECHNICAL-POLITICAL DECISION-MAKING
Berlin, SafeND
SWISS SITE SELECTION PROCESS OUTLINE

- Best suited **geology**

- Optimization of **geological barrier**: properties, stability, reliability, constructability

- **White map** approach (no preconditions / no exceptions)

- **→ Technical / safety criteria** only

- **Stepwise screening** process (3 phases)

- **Aim**: **General Licence Application** - GLA
GENERAL LICENCE APPLICATION = POLITICAL DECISION ON SITE

Max Capacity

Function and position of main buildings

Protected area at depth
GLA: **CONCEPTS FOR LATER DETAILING**

- Safety and technical barrier concept
- Operation
- Ventilation
- Monitoring
- Optional retrieval

Only very few key aspects demonstrated in some detail: Constructability of key elements, THM impact, gas transport
STEPWISE SITE SELECTION

National screening (existing data) | Review & Decision Stage 1

Stage 2 Site investigations | Review & Decision Stage 2

Stage 3 Site investigations

In sequence review process
STEPWISE SITE SELECTION

Stage 1
National screening (existing data)

Stage 2
Site investigations

Stage 3
Site investigations

Review & Decision
Stage 1

Review & Decision
Stage 2

Review & Decision
Stage 3

Parallel review process

White map
6 siting regions

2 siting regions
3 siting regions

1 siting region

Rev. St. 3
Rev. St. 3 Parallel review process

Rev. St. 3 Parallel review process

Rev. St. 3 Parallel review process
STEPWISE SITE SELECTION

Stage 1
National screening (existing data)

Stage 2
Site investigations

Review & Decision
Stage 1

Stage 3
Site investigations

Review & Decision
Stage 2

Regional conferences established
dissolved
STEPWISE SITE SELECTION

- National screening (existing data)
- Stage 1: Review & Decision
- Stage 2: Site investigations
- Stage 3: Site investigations
- Continued dialogue
- Regional conferences established
- Dissolved

Timeline:
- 04
- 06
- 08
- 10
- 12
- 14
- 16
- 18
- 20
- 22
STEPWISE SITE SELECTION

04 06 08 10 12 14 16 18 20 22

Stage 2
Site investigations

Stage 2
Review & Decision
Continued dialogue

Stage 2
Review & Decision
Continued dialogue

Stage 3
Site investigations

National screening (existing data)

HLW host rock

Review St. 3
EARLY DECISION ON HOST ROCK: CLAY

allowed to prepare key demonstrations and site investigation methods

Soft rock challenges
• Excavation stability
• Borehole stability during downhole testing
• Sample conditioning

Low permeability to water and gas
• THM overpressures?
• Gas overpressures?
STEPWISE SITE SELECTION IN PARALLEL WITH RD&D

04 06 08 10 12 14 16 18 20 22

- Review & Decision Stage 1
- Continued dialogue
- Review & Decision Stage 2
- Continued dialogue

- National screening (existing data)
- Stage 2: Site investigations
- Stage 3: Site investigations

- 2010 to 2022
- FE @ MTP
- GAST @ GTS

- Gas & THM
STEPWISE SITE SELECTION: PREPARATION OF DRILLING

04 06 08 10 12 14 16 18 20 22

Review & Decision Stage 1
Continued dialogue
Review & Decision Stage 2
Continued dialogue

National screening (existing data)

Geological Barrier

Schlattingen
Lausen

Third party drilling / data exchange

Gas & THM

‘11 SLA  ‘13 MTP  ‘15 Lausen  ‘15 Geomech

0rtingen
STEPWISE SITE SELECTION IN PARALLEL WITH RD&D

04 06 08 10 12 14 16 18 20 22

Review & Decision
Stage 1
Continued
dialogue

Review & Decision
Stage 2
Continued
dialogue

National screening
(existing data)

Geological Barrier

Oftringen
Schlattingen
Lausen

Third party drilling / data exchange

Deep drilling campaign

Landscape evolution

Method testing
Shallow 2D
Core Drilling

Gas & THM

FE
GAST

Proc. / Interpret.

Continued dialogue

Stage 2

Stage 1
WHAT WORKED IN SWITZERLAND

**Strategy**: Early decisions helped focus resources on promising regions
- Screen out significant parts of the country in early steps (tectonic regions)
- Host rock defined for HLW in first step
- Only concept / pre-project level at GLA

**Schedule**: Speedy investigation of sites (7 yrs saved)
- Development of methods
- Participation in 3rd party drillholes
- 2D seismics and 3D Seismics (critical path works)
- In parallel with decision making
UNLIMITED TIME?