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Swiss Federal Nuclear Safety Inspectorate ENSI

Regulatory Perspective about Monitoring dedicated to DGR in Switzerland

Paris, April 9 – 11, 2019

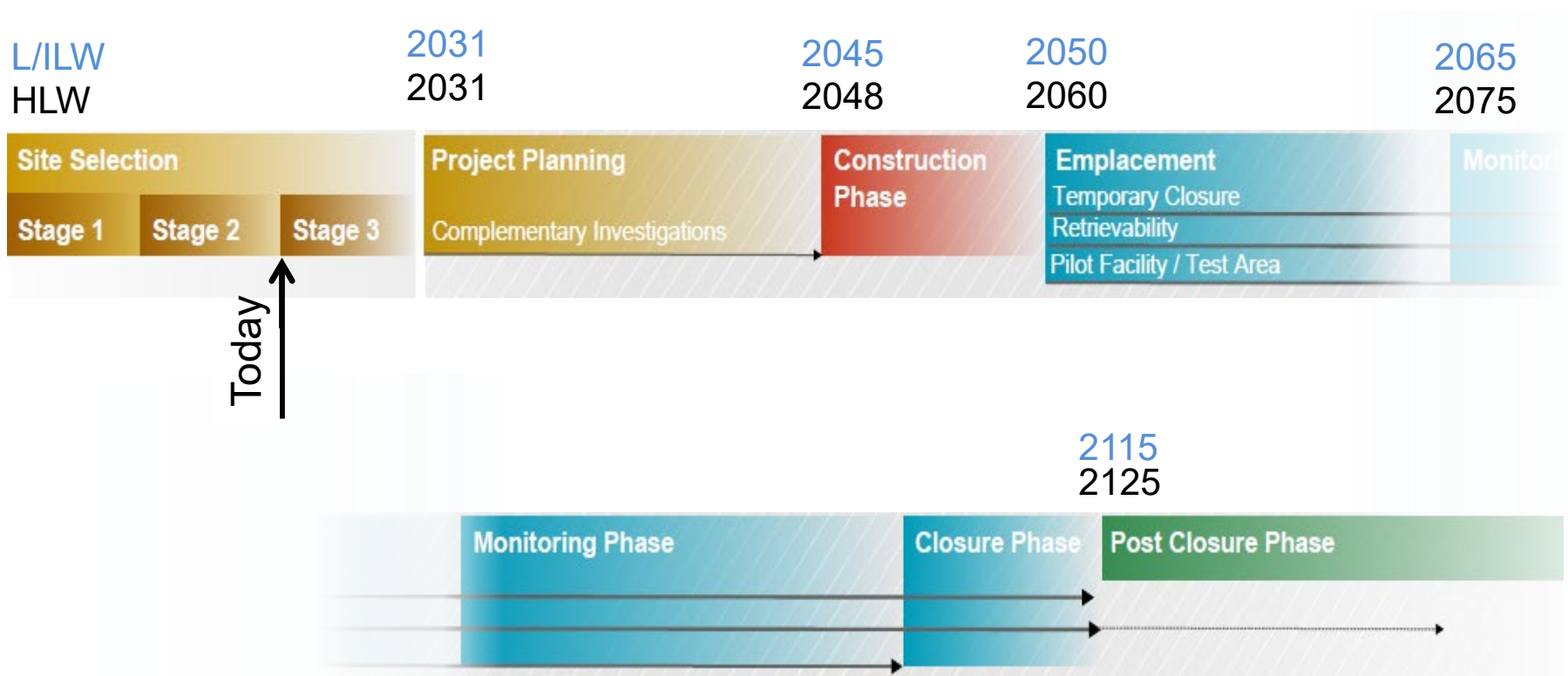
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ENSI



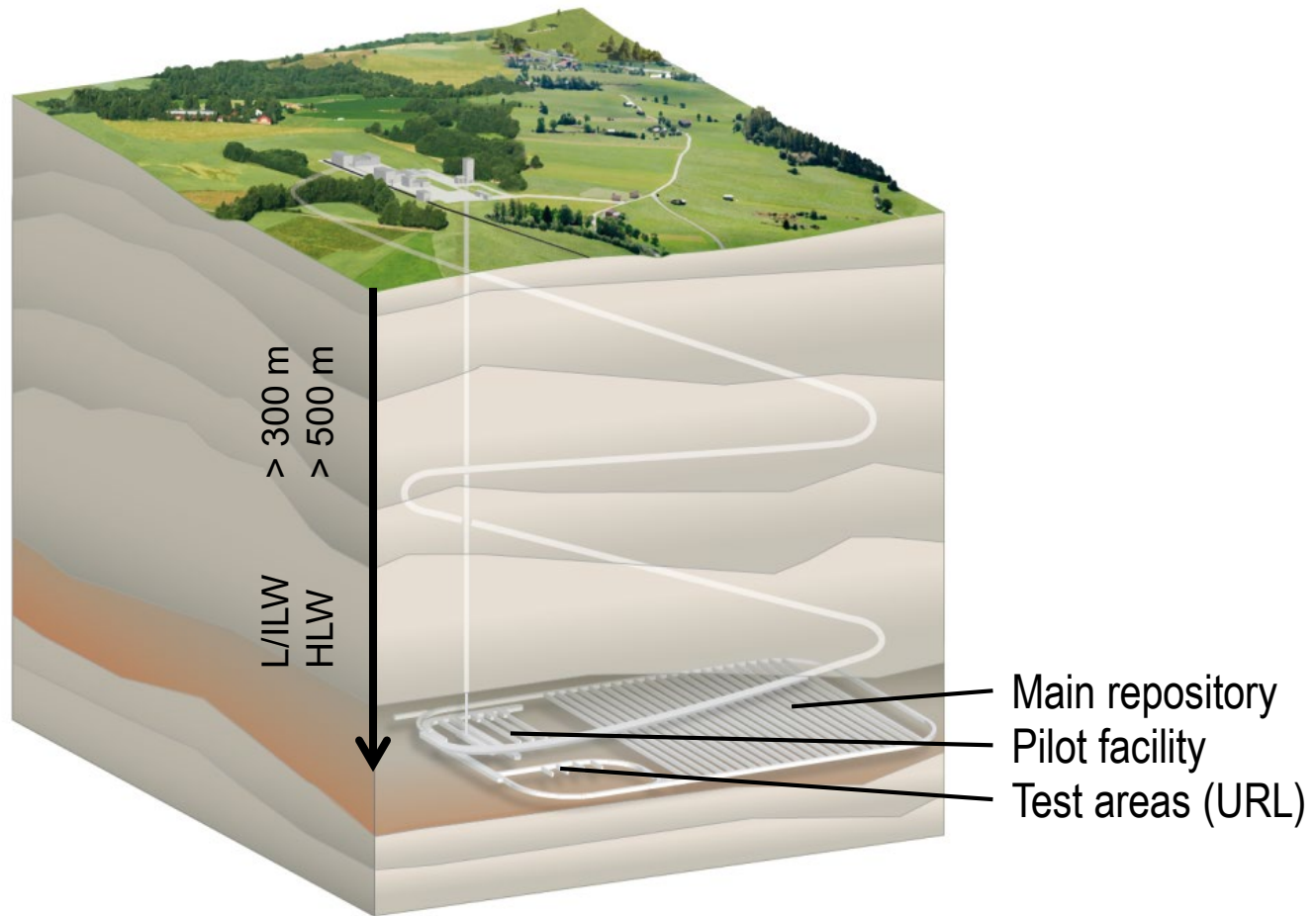
Current Status of DGR Project in Switzerland

Project timeline with major decision points and monitoring aspects





Swiss Repository Concept



Pilot facility and test areas play a major role for the post-closure safety case



Monitoring in Pilot facility and test areas

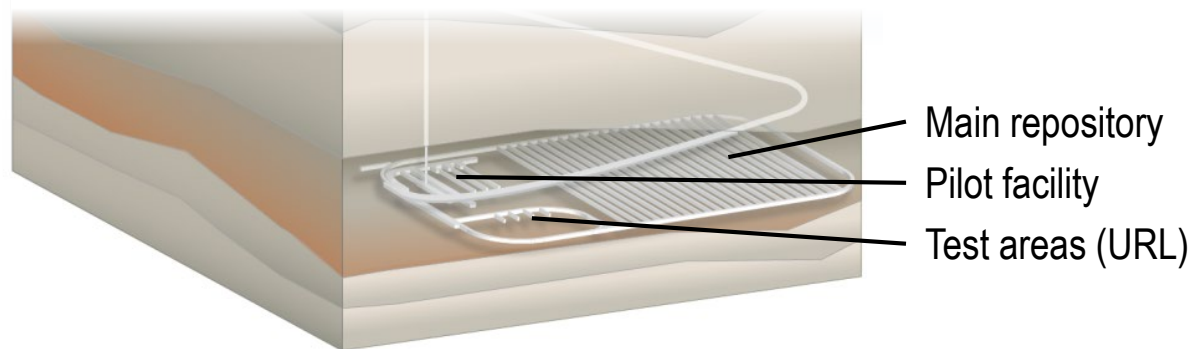
Pilot facility

Monitoring provides information

- on safety-relevant conditions and processes
- for early recognition of unexpected developments
- to support the confirmation of the safety case

Test areas

- To test safety-relevant properties of host rock and technical barrier,
- to demonstrate safety relevant technologies,
- to proof feasibility, and
- to support safety case.





Regulatory Activities Related to Monitoring

Mont Terri URL

- continuous observation of monitoring techniques and their long-term performance
- Own experiments, e.g. technology for long-term monitoring (fiber optical sensors and cables)

Regulatory research project «Monitoring concepts and installations 2» (2018-2020)

Regulatory requirements ...

- on monitoring concept/program
- on baseline-monitoring program
- for monitoring and interface between different aspects of monitoring



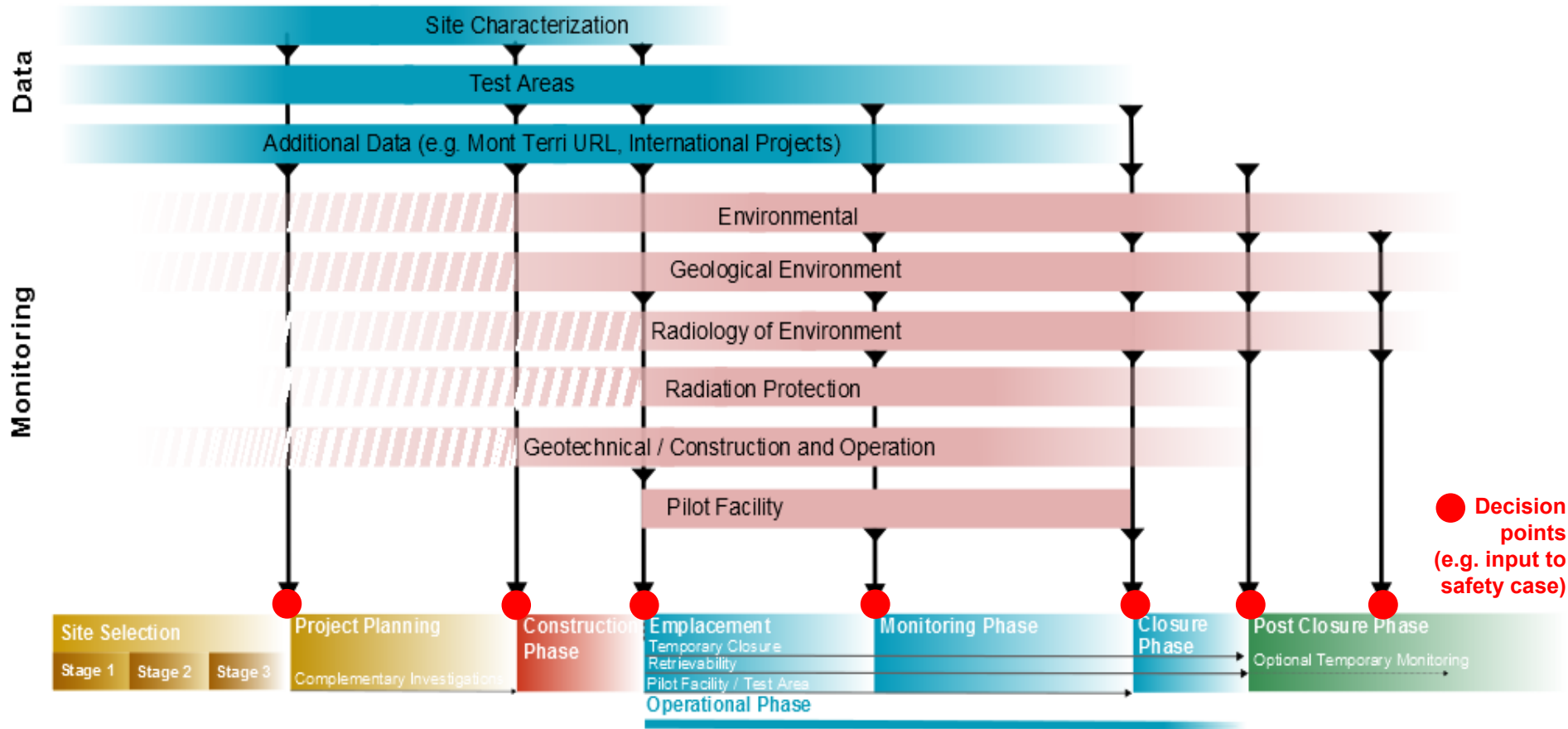
Requirements for Monitoring Aspects

- An **integral monitoring concept / program** for all phases and aspects of a DGR
- Monitoring program **shall include** at least
 - monitoring of the geological environments (e.g. test areas)
 - radiological environmental monitoring
 - radiological monitoring during operation
 - monitoring of the pilot facility and
 - geotechnical monitoring during construction and operation of the repository
- Start of **baseline-monitoring** as soon as necessary
- Monitoring **may not compromise** the passive safety barriers

Guideline ENSI-G03 (draft) /specifications for general license ENSI 33/649



Use of monitoring data to support decision making process





Monitoring as a tool for dialogue with the public around nuclear facilities.

- No regulatory monitoring at the current stage of the project (primary task of implementer)
- «Independent monitoring» (experience from NPP)
 - Different organisations (e.g. ENSI, National Emergency Operations Centre, Federal Office of Public Health, Cantonal Laboratories, etc.)
 - Dose-rate monitoring network, air, water, soil, food, etc. (more Info: <http://radenviro.ch/>)
 - Information for public (e.g. Annual reports, measurements online)
- Similar approach for DGR-facilities





Summary / Next Steps

- Update of regulatory requirements and guidelines in process (Stage 3 of sectoral plan and ENSI-G03)
- Defining regulatory expectations regarding monitoring concept/programme
 - Outreach to other projects (regulators/implementers)
 - Industries
 - Etc.
- Regulatory review of waste management program (~2021) – focus on baseline monitoring
- Implementer will submit the first integral monitoring concept in ~2025 with general license application



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