

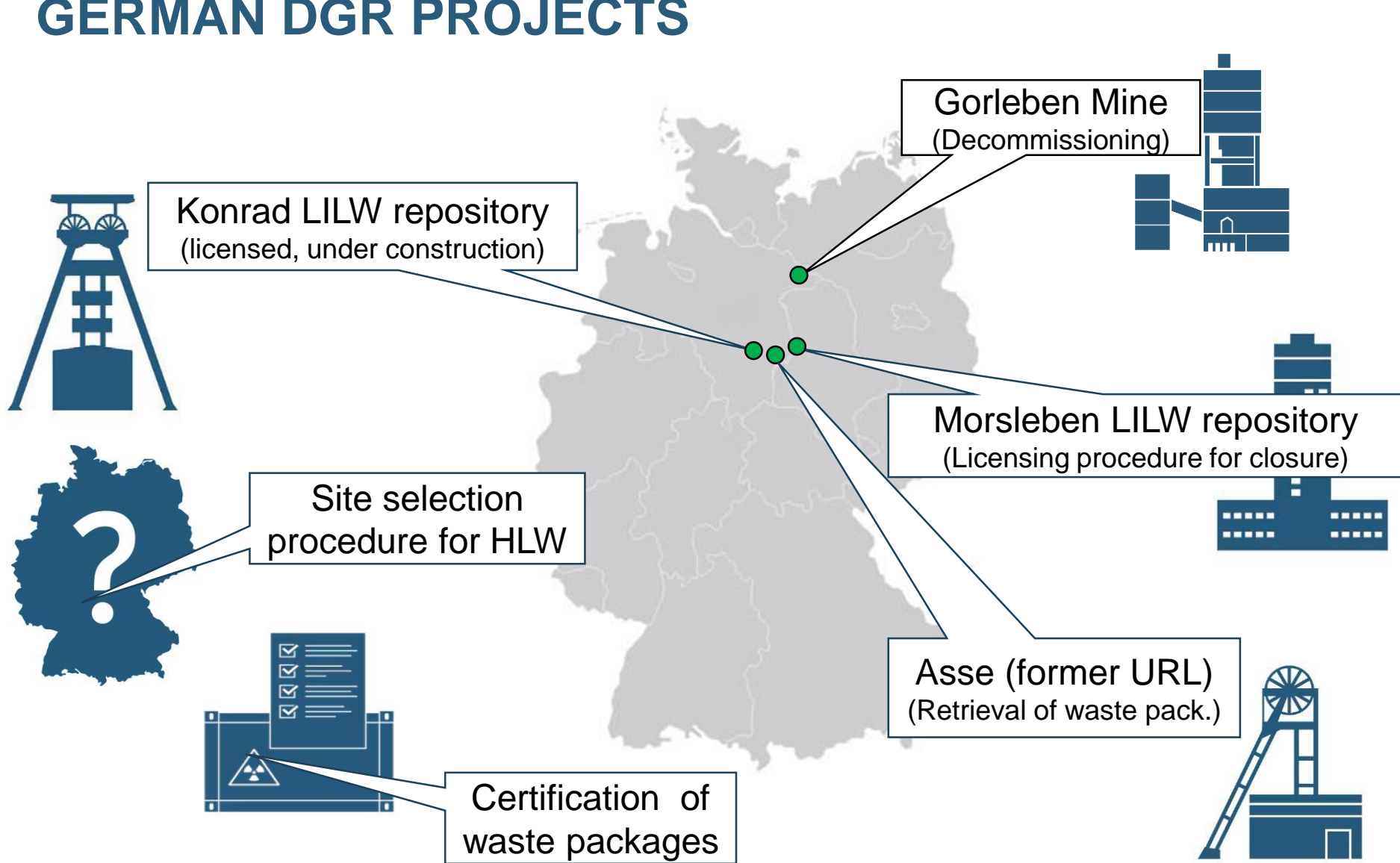


# STATUS OF GERMAN GEOLOGICAL REPOSITORY PROJECTS

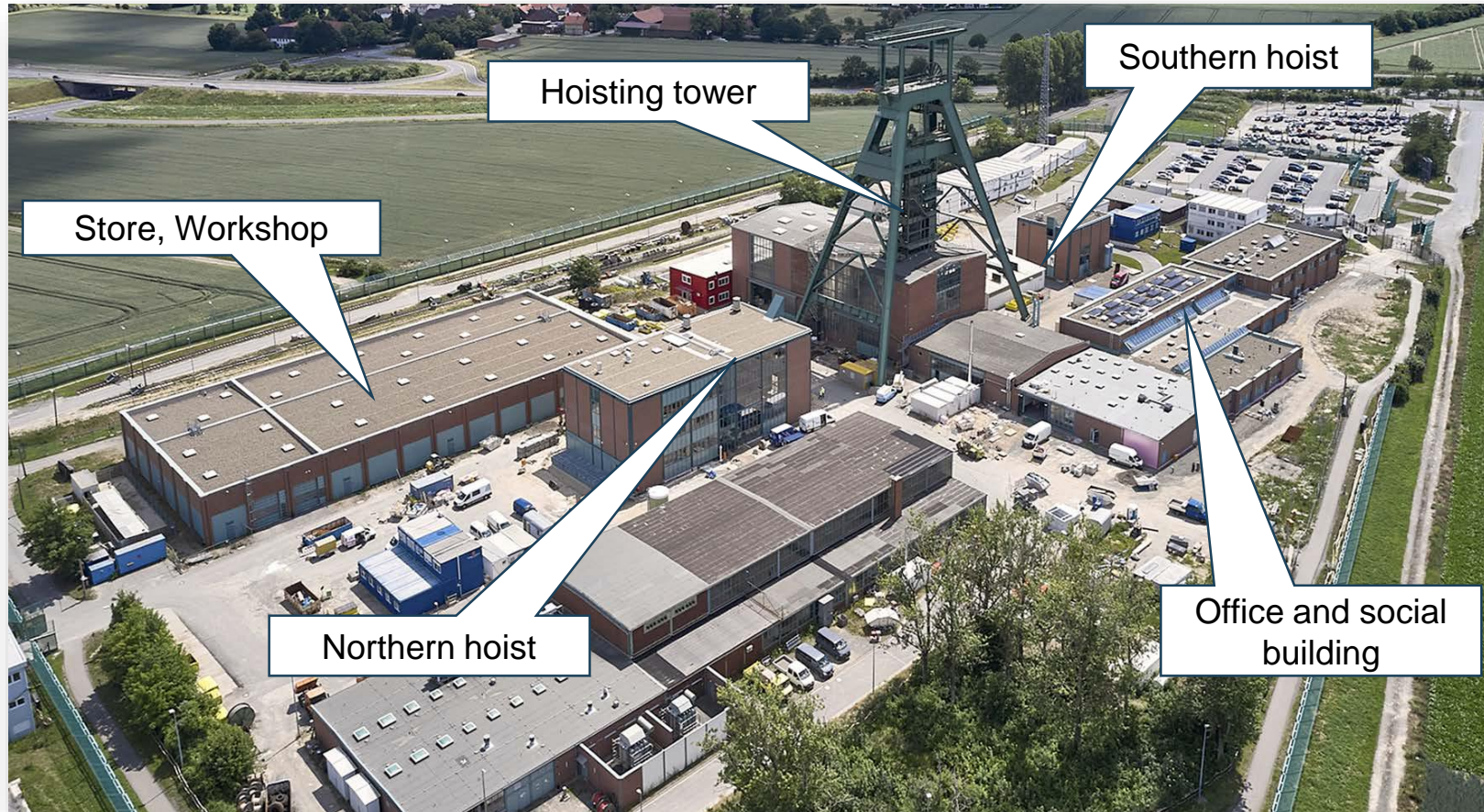
Technical Meeting of the Underground Research Facilities Network for Geological Disposal on Member State Updates and Global Progress in Developing Geological Disposal Solutions (Part I of II), February 18-20, 2025 (virtuell)

DR. ANDREE LOMMERZHEIM, BGETEC  
Peine, 18th February 2025

# GERMAN DGR PROJECTS



# KONRAD REPOSITORY: SHAFT 1 (CONVENTIONAL SITE)

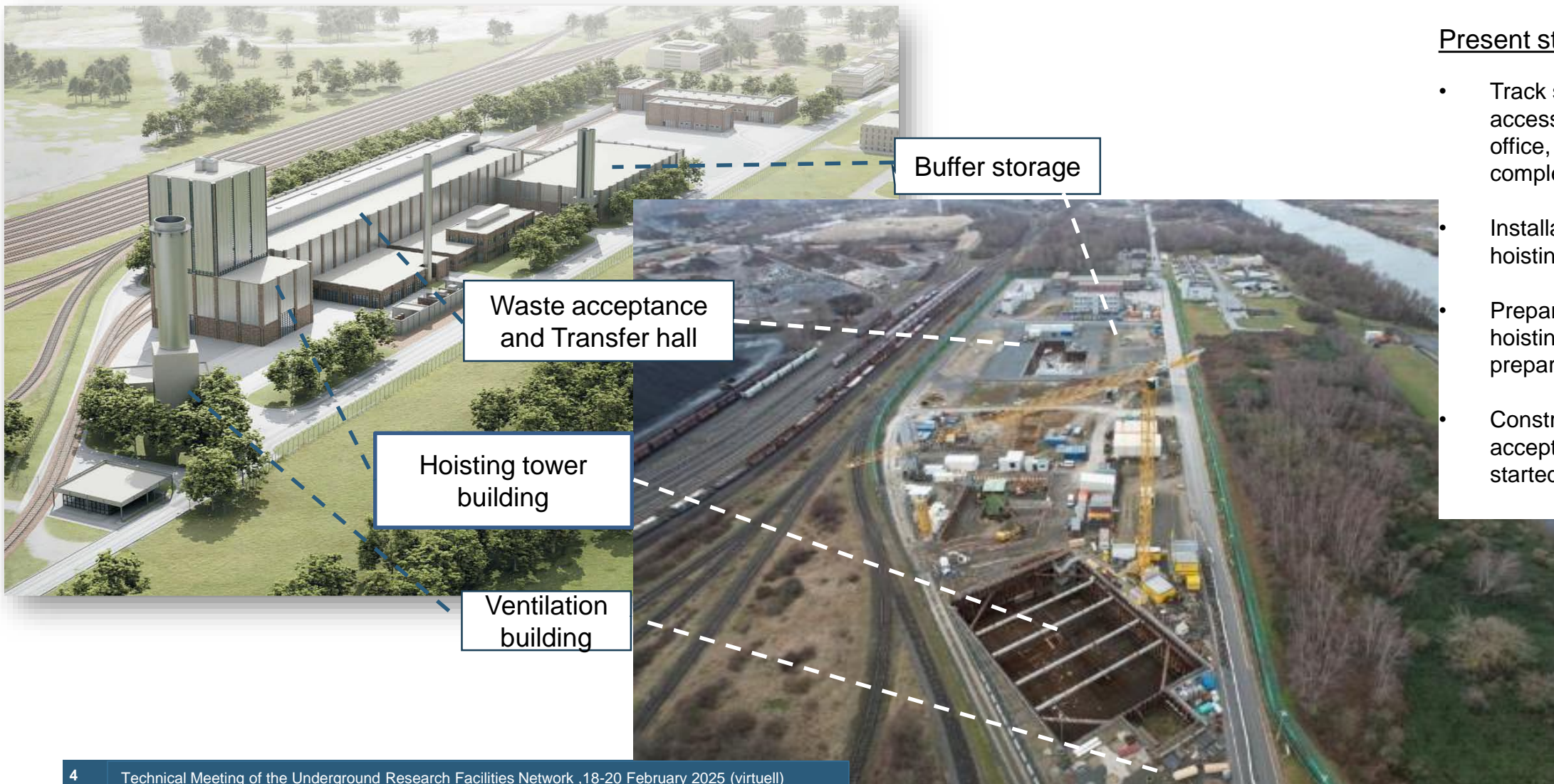


- All infrastructure buildings are completed
- Work at the hoisting tower, the hoisting machines, the shaft column and most shaft installations are finished
- Last shaft components to be replaced in 2025:
  - guide scaffolding
  - conveyor and loading system

# KONRAD REPOSITORY: SHAFT 2 (NUCLEAR SITE)

## Present status

- Track system and road access, workshop, social, office, security buildings are completed
- Installation of temporary hoisting tower
- Preparatory work for final hoisting tower running, e.g. preparation of base plate
- Construction work for waste acceptance and transfer hall started

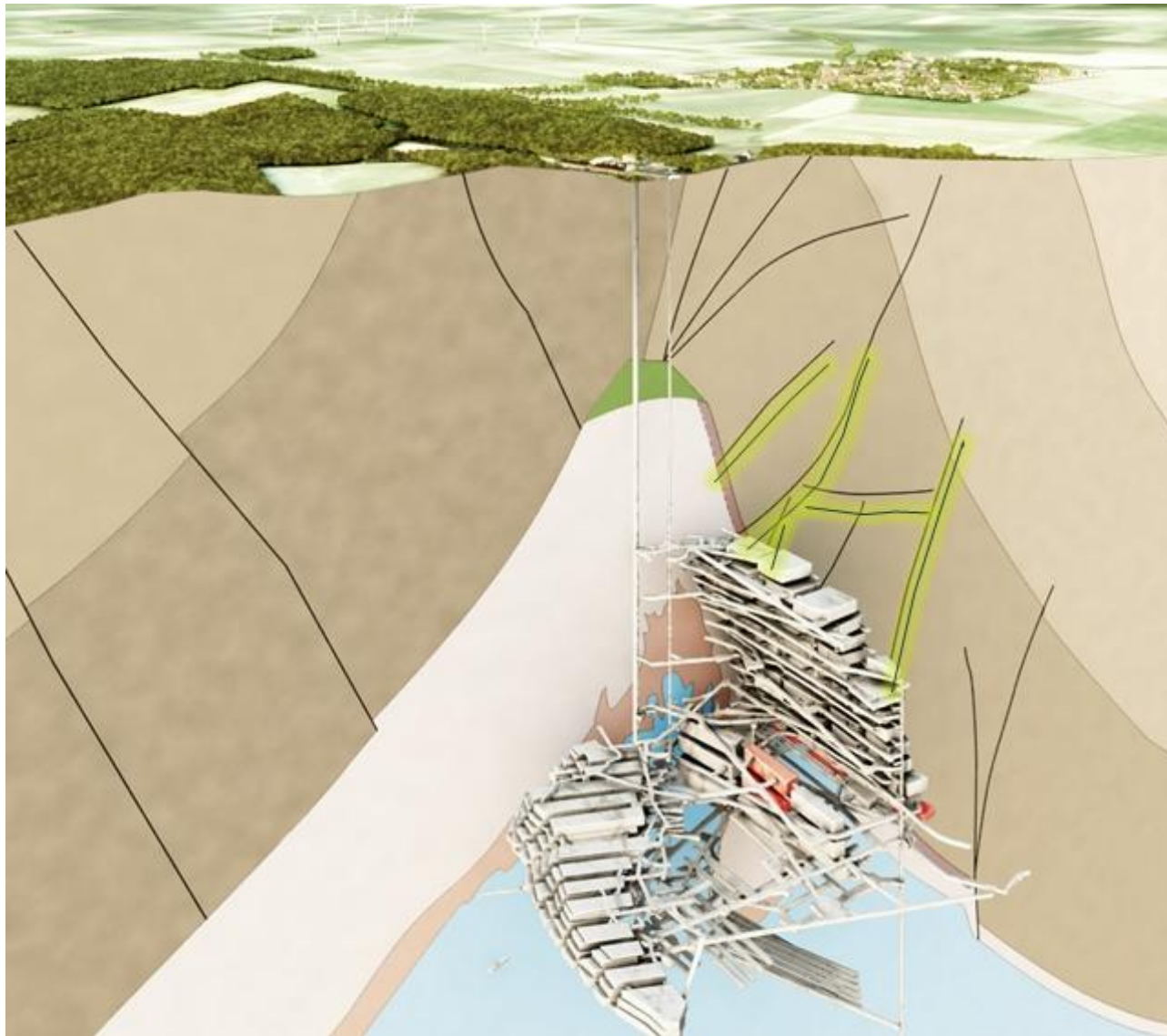


# KONRAD REPOSITORY: MINE WORKINGS

- Disposal chambers for the first emplacement campaigns have been excavated (6 of 25 emplacement chambers)
- Shaft landings, infrastructure rooms and connecting drifts for the repository are excavated and stabilized by lining (e.g. workshop in the controlled area and construction materials plant)
- The first technical equipment is installed (e.g. crane runway in the workshop in the controlled area and components for the construction materials plant)



# ASSE MINE: WASTE RETRIEVAL AND CLOSURE



## History

1900-1965: salt / potash mine

1967-1995: URL

1996-ongoing: closure / retrieval

## Boundary Conditions

- Excavation rate of potash salt and rock salt > 60%
- Long periods of open mining chambers (75 years)
- Thin salt barrier (<10 m)

## Consequences

- Inflow of groundwater (12 m<sup>3</sup>/day)
- Geomechanical Instability :
  - deformation of the southern flank
  - subsidence at surface ( 7 m)

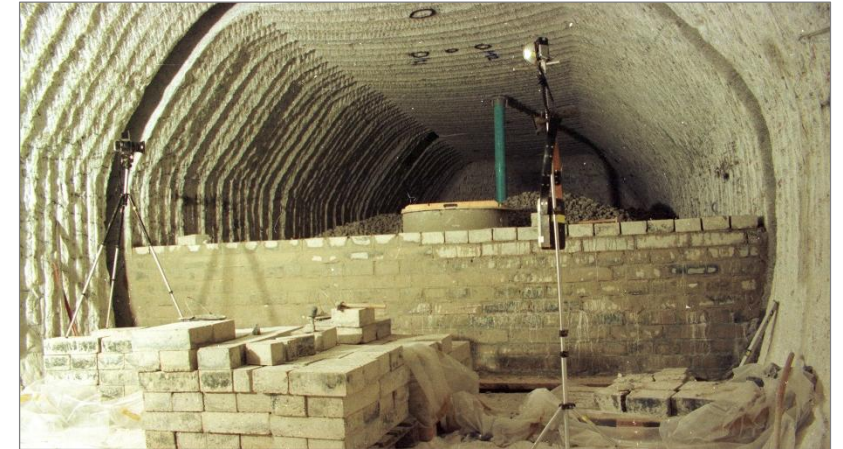
# ASSE MINE: EMERGENCY PREPAREDNESS

## ■ Preventive Measures:

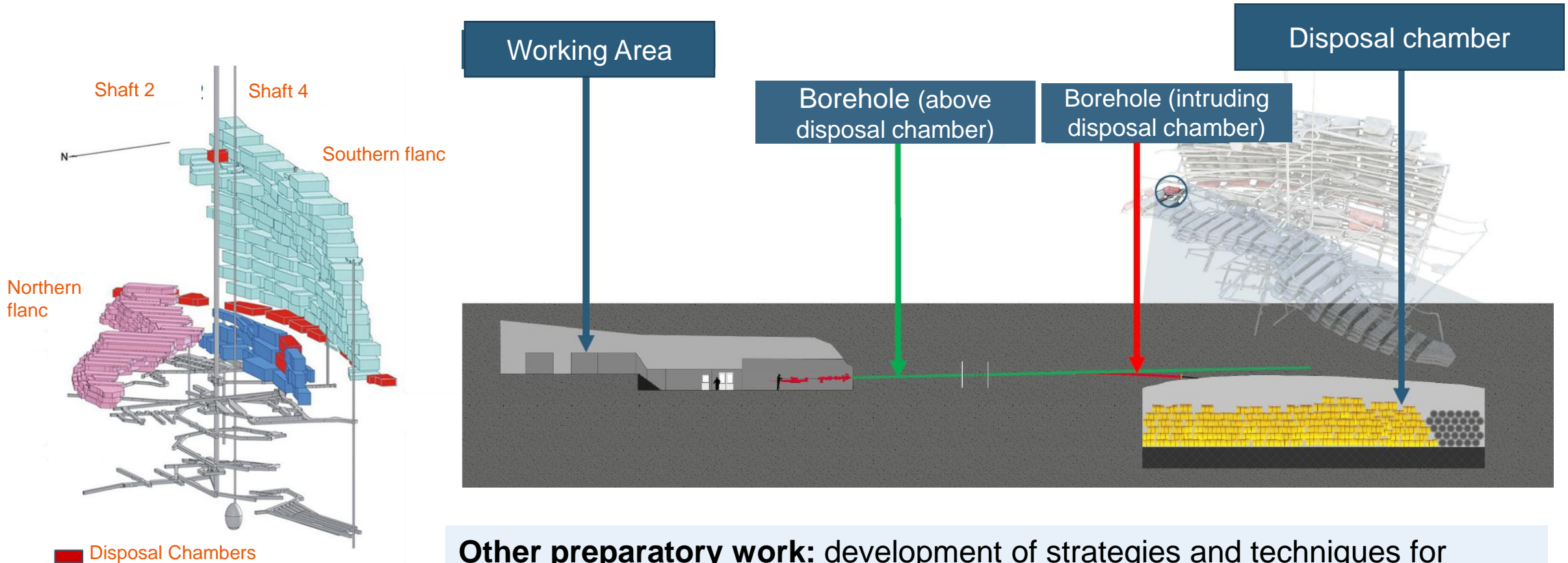
- Cavities that are no longer required are backfilled with crushed salt or concrete,
- Lowermost part of mine was flooded with saturated brine
- 25 drift seals have been successfully constructed
- Permanent system for brine collection and management has been implemented
- Emergency procedures: e.g. counter-flooding (avoid leaching)  
> required volume of saturated brine stored in a reservoir

## ■ Objectives:

- In the **event of uncontrollable inflow**: retardation of contact between the brine and the radioactive waste and
- delay of radionuclide mobilization, transport and release.

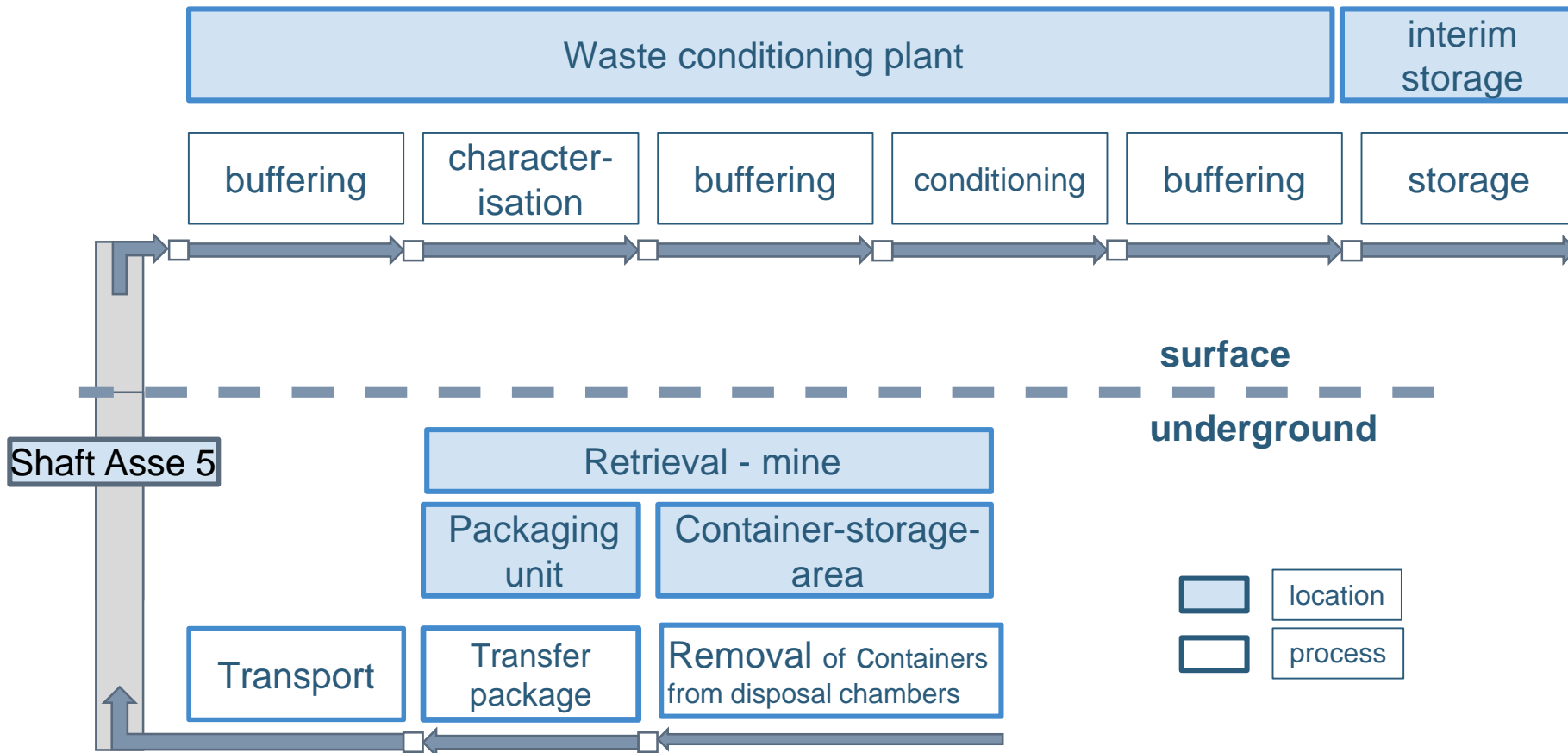


# ASSE MINE: PREPARATORY WORK FOR RETRIEVAL



**Other preparatory work:** development of strategies and techniques for waste retrieval; sinking new shaft and construction of retrieval mine; surface installations, incl. waste conditioning plant and interim storage facility.

# ASSE MINE, PROCESSES OF WASTE RETRIEVAL



# Morsleben repository : main issues of current work

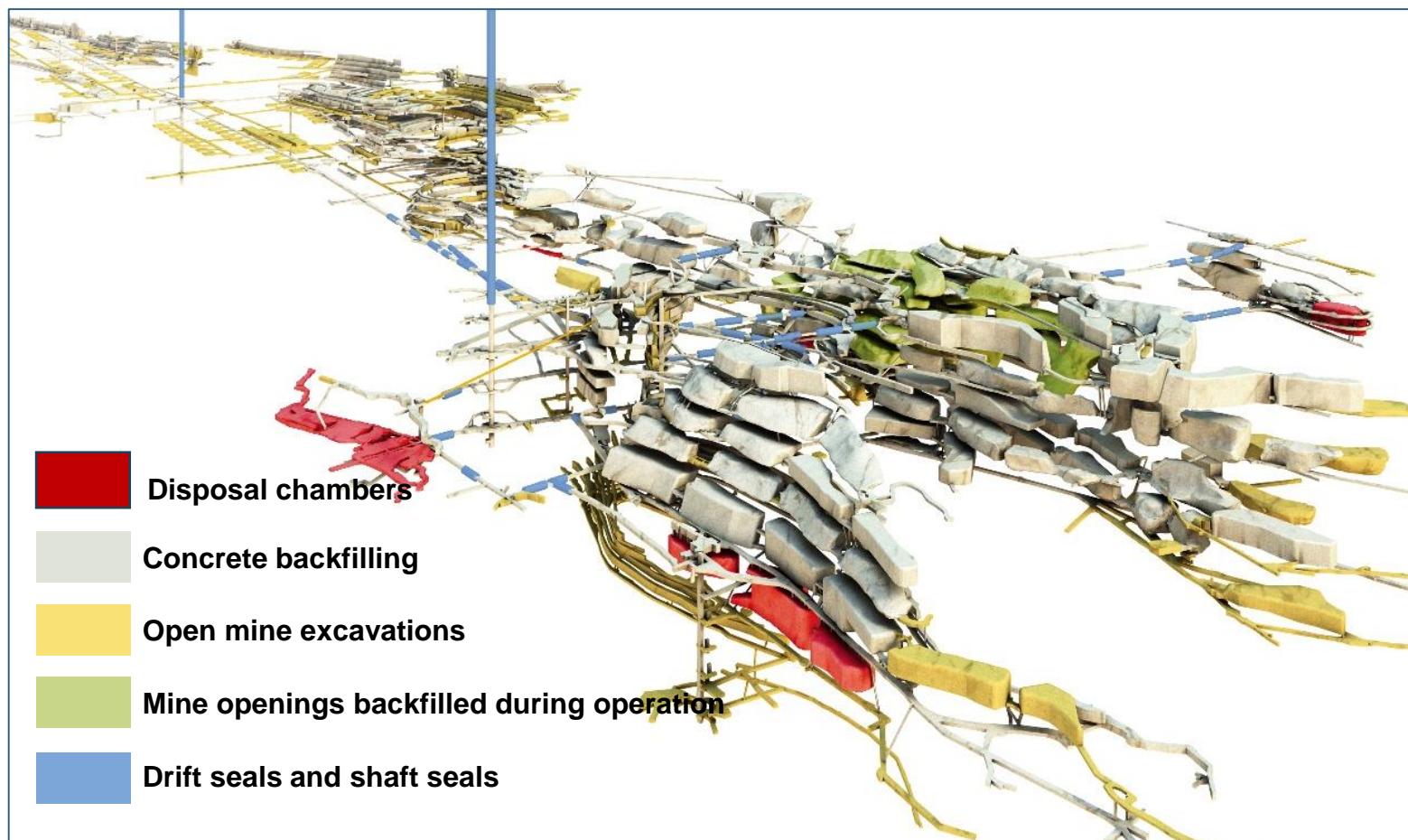
## Licensing procedure for closure of the repository

- Development/optimization of adequate construction and backfilling materials
- Optimization of EBS design
- Demonstration tests for provided EBS
- Numerical modelling for longterm safety assessment

- **Expected License: 2028**

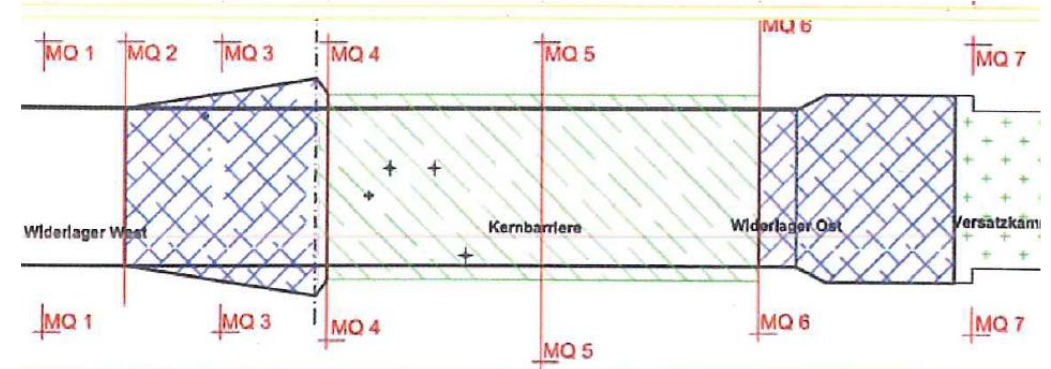
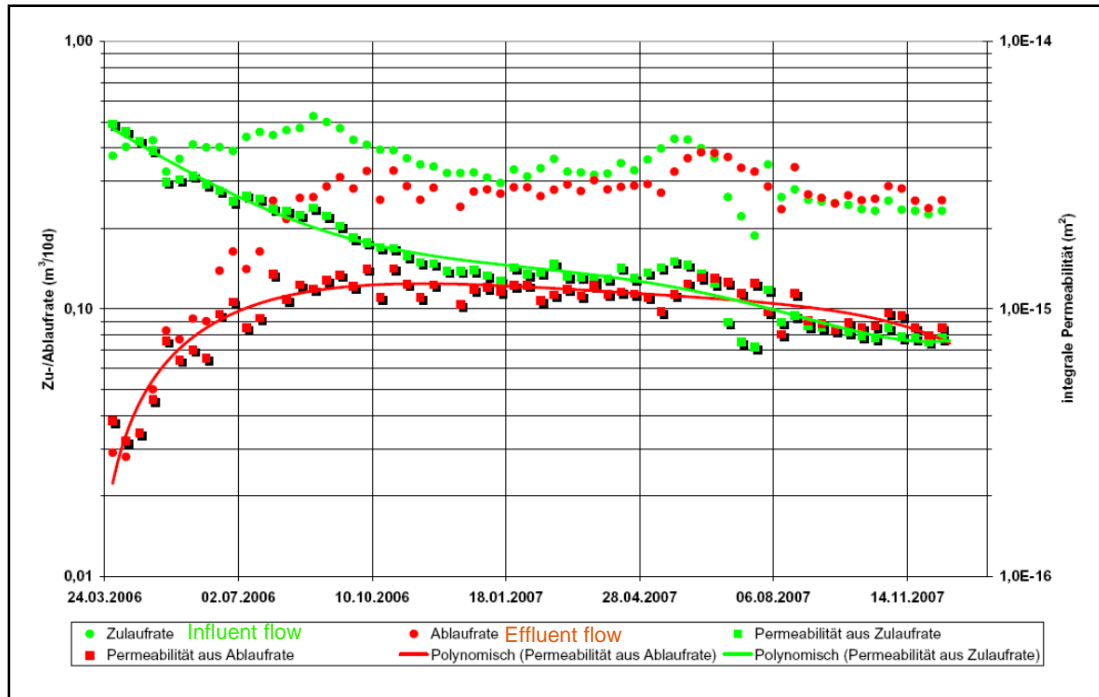


# Morsleben repository: closure concept



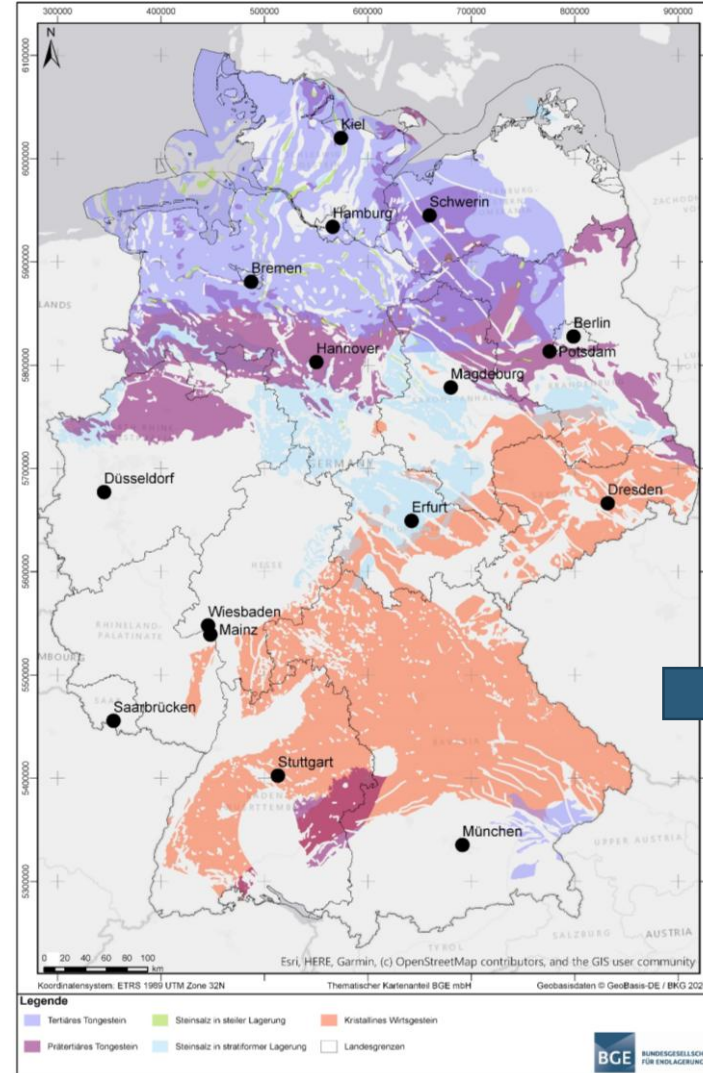
# MORSLEBEN REPOSITORY: CONSTRUCTION OF TEST BARRIERS FOR REPOSITORY CLOSURE

## Test barrier in salt, Morsleben repository

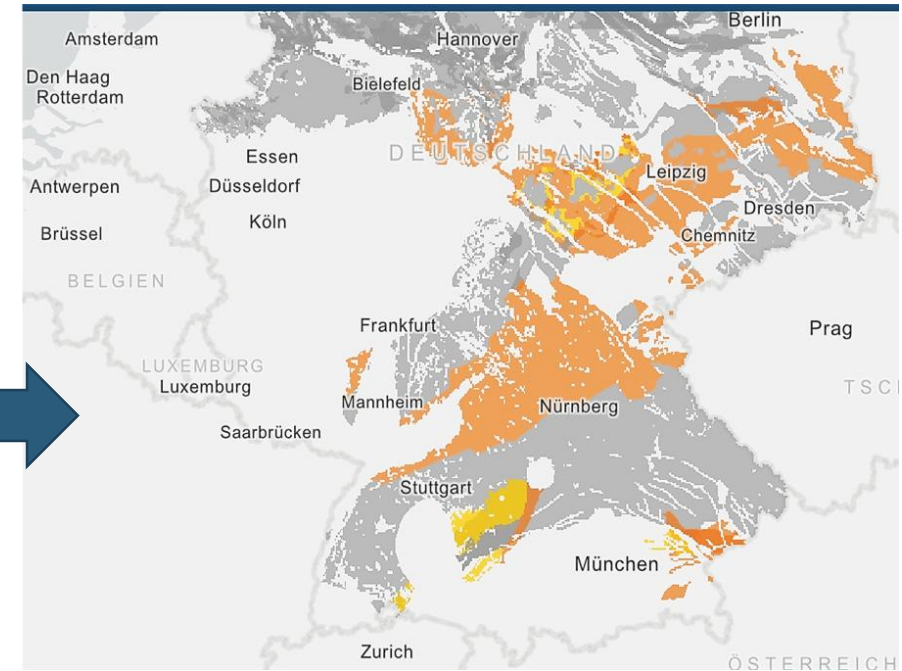


# SITE SELECTION PROCEDURE FOR HLW REPOSITORY

- Step 1 of phase 1 of the site selection procedure: evaluation of data from the geological surveys of the federal states. Application of site selection criteria defined in the **Site Selection Act** > **90 sub-areas**, corresponding to 54% of the area of Germany (BGE 2020).

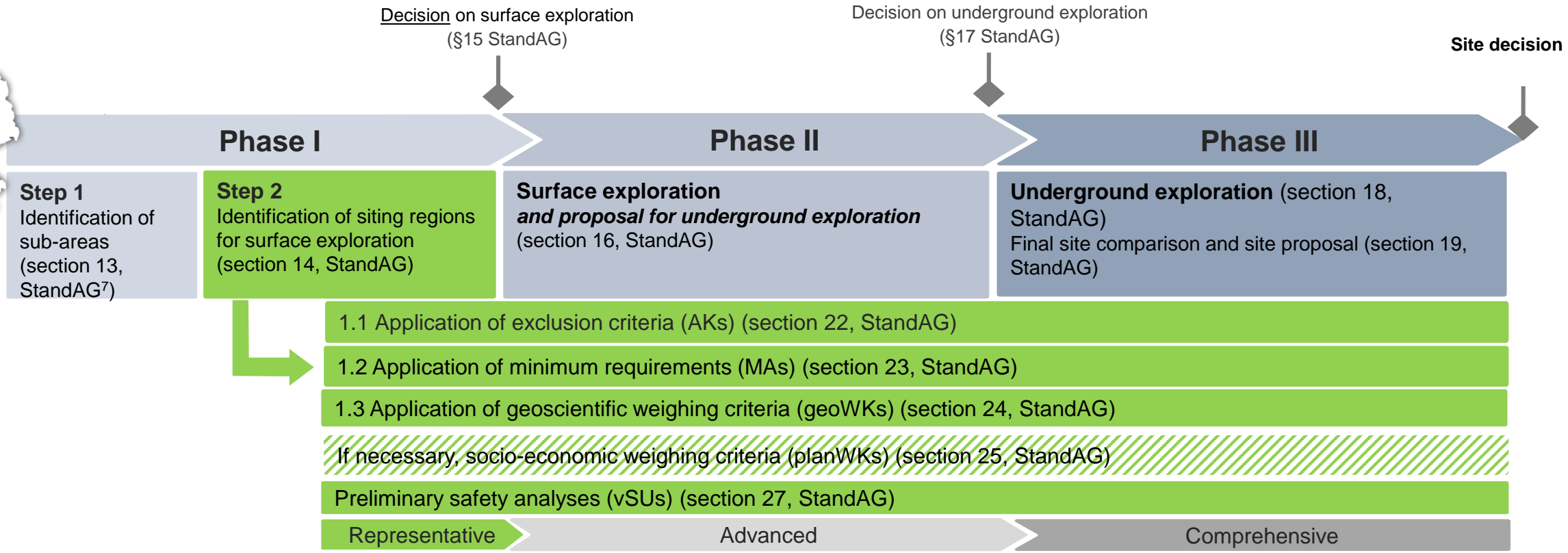


**Step 2 of phase 1: further screening to identify the most suitable sites for Surface exploration**



Status: November 2024, coloured areas excluded, investigation of grey areas continues.

# SITE SELECTION PROCEDURE



# RESUMEE OF SOME FUTURE HIGHLIGHTS



- **2025: Start of sinking of Asse Shaft 5**
- **2028: License for closure of the Morsleben repository**
- **2030: Commissioning of Konrad repository**
- **2033: Start of waste package retrieval from the Asse mine**



**Thanks for your Attention**