



Federal Ministry  
for the Environment,  
Nature Conservation and  
Nuclear Safety

## **The Closure of the Morsleben Repository (ERAM)**

**Joint Convention on the Safety of Spent Fuel Management and on the  
Safety of Radioactive Waste Management  
Second Review Meeting  
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Federal Ministry  
for the Environment,  
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## The ERAM Site



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## The ERAM Site



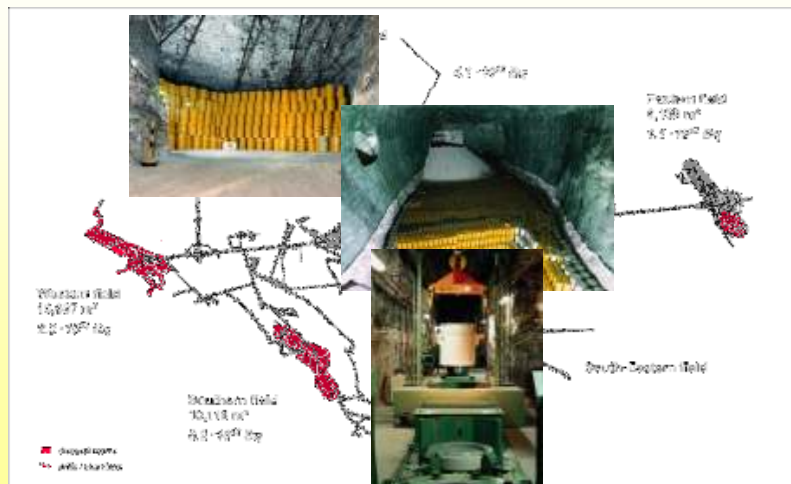


## Facts about ERAM

- It is located in North-West Germany in Saxony Anhalt in the River Aller Area, about 135 m above sea level
- The former potash-salt-mine consists of two shafts - Bartensleben and Marie and a roadway-system that stretches 5.6 km NW to SE and 1.4 km W to E
- The sinking of shaft Marie began 1897. The sinking of shaft Bartensleben took place from 1910 to 1912. The respective mine openings are connected at several places.
- Radioactive waste was disposed from 1971 to 1998 in a depth of about 500 m below ground



## ERAM Mine Openings on the 4th level





## Disposal in ERAM (only waste with negligible heat generation)

Waste producer group	Volume in m <sup>3</sup>
Nuclear power plants	23816
Decommissioned nuclear power plants	6528
Research institutions	2592
Nuclear industry	159
State collecting facilities	3090
Others	523
Reprocessing	45
<b>Total</b>	<b>36753</b>



## Responsibilities in the operation of a repository

The operation of a repository in deep geological formations requires the cooperation of

- the mining entrepreneur (i.e. the Federal Office for Radiation Protection, BfS),
- the operator (the company which acts under contract of BfS),
- the self surveillance department (EÜ),
- the competent mining authority and
- the plan approval authority.

## Responsibilities in the operation of a repository

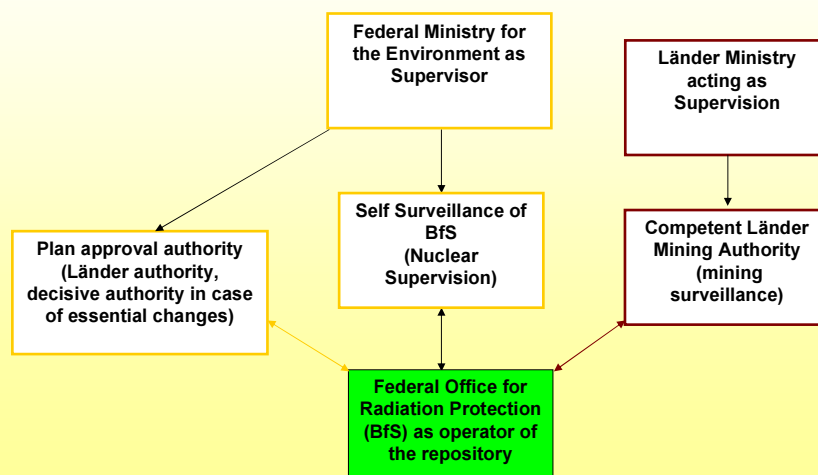
Result of the different touched legal fields:

Two responsibility strings are meeting within the BFS

- the mining responsibility and
- the nuclear responsibility.

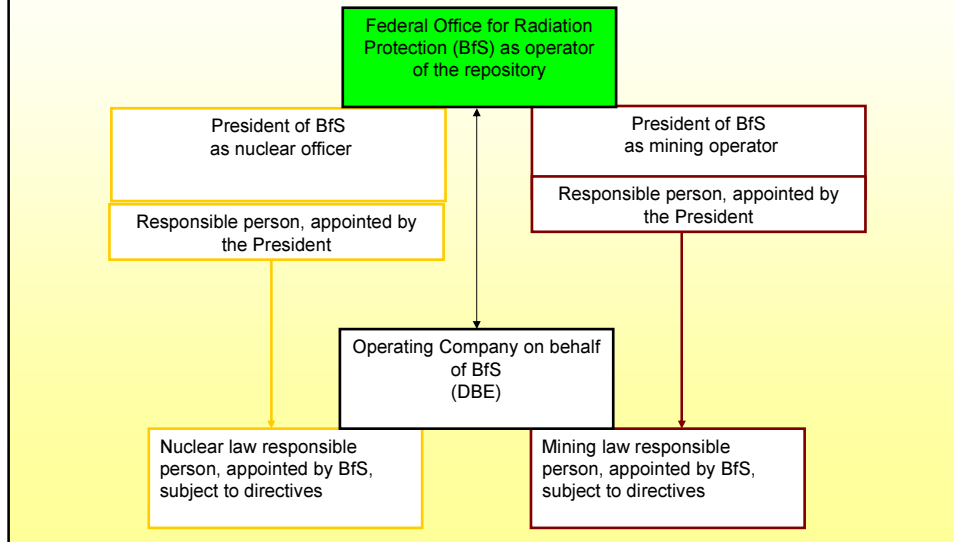
The department for self surveillance is constantly involved,  
the competent plan approval authority is only involved in cases of  
essential changes.

## Responsibility during operation I





## Responsibility during operation II



## Plan Approval Procedure for the Closure of ERAM

A „Plan Approval Procedure“ has to be enforced for the licensing of a new repository as well as for the closure of the ERAM.

Competent authority for the licensing is the respective Federal State Authority, in the case of ERAM the Ministry for the Environment of Saxony-Anhalt.

The Federal Office for Radiation Protection (BfS) acts as applicant.



## Plan Approval Procedure for the Closure of ERAM

While carrying out the necessary planning, contracts are given for scientific elaborations like

- working out the conception or
- designing components of the sealing for ERAM.

The goal is to get a transparent safety assessment that proves safety and security for the closure works and the after closure period for up to a million years.



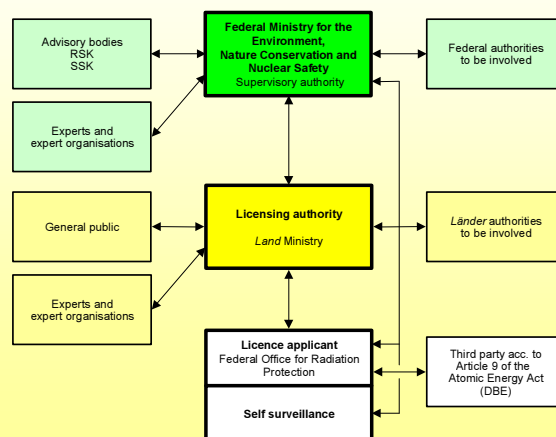
## Plan Approval Procedure for the Closure of ERAM

- A Plan Approval Procedure includes every touched field of law except mining law.
- Mining law will be executed by the competent mining authority.
- Licenses from both involved authorities have to be granted before work can start.
- In the case of ERAM this means BfS will have to obtain licenses from
  - the Environmental Ministry and from
  - the Board of Mines of Saxony-Anhalt

## Further Legal Requirements

- the Construction and Regional Planning Act (*Bau- und Raumordnungsgesetz*),
- the Federal Immission Control Act (*Bundes-Immissionsschutzgesetz*),
- the Federal Water Act (*Wasserhaushaltsgesetz*),
- the Federal Nature Conservation Act (*Bundesnaturschutzgesetz*),
- the Closed Substance Cycle and Waste Management Act (*Kreislaufwirtschafts- und Abfallgesetz*),
- the Environmental Impact Assessment Act (*Gesetz über die Umweltverträglichkeitsprüfung*).

## Parties in the Plan Approval Procedure





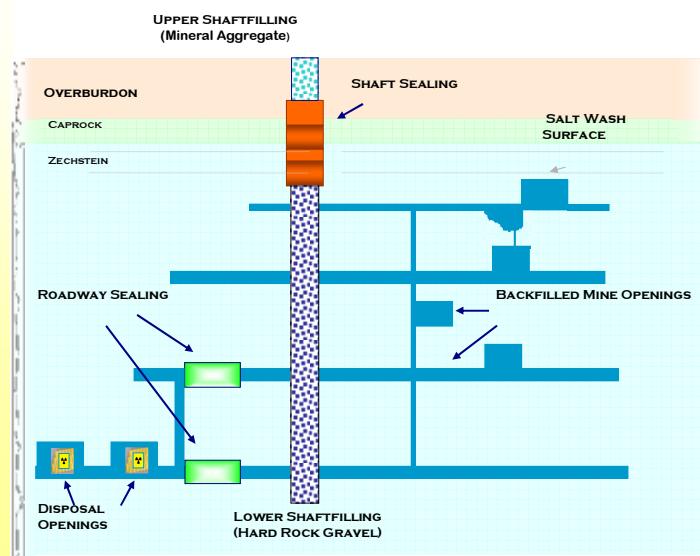


## Prerequisites for a Plan Approval for the Closure of ERAM

- The State of the Art of Science and Technology has been met in the planning of every precaution against damage to individuals or the environment
- All of the disposal site will be sealed off against the biosphere
- Radionuclides which might be transported from the disposal site to the biosphere must not lead to individual dose rates of more than 0.3 mSv/a
- An Environmental Impact Assessment has been undertaken and has come to the conclusion that no undue effects have to be expected

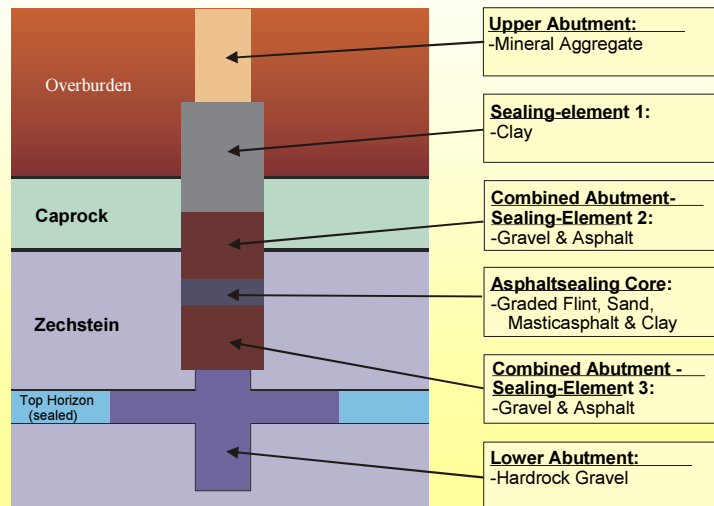


## Essential Measures for the Planned Closure





## Principle of Shaft Sealing



## ERAM Disposal Cavern to be Sealed

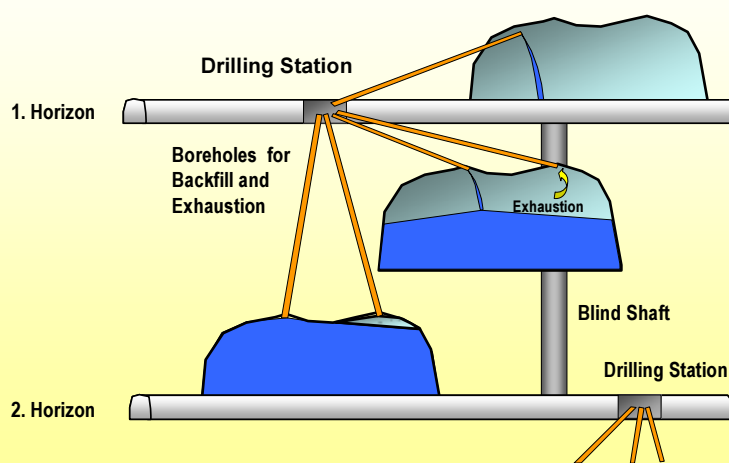




## ERAM Salt Mine Opening to be Backfilled



## Principle of Backfilling of Openings



About - 4.8 Million m<sup>3</sup> will be backfilled  
- 1.5 Million m<sup>3</sup> will remain open



## Conclusions for the Morsleben Plan Approval Procedure

- The long term safety assessment as preclusion for the closure has been successfully completed
- Unacceptable gas pressure is not to be expected
- The radiological protection goal concerning the water and gas routing will definitely be fallen below
- The radiological protection goal will generally be fallen below even concerning alternatives and parameter variations



**Thank you**

**for your Kind Attention**