
RADIOACTIVE WASTE MANAGEMENT IN GERMANY

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== Nuclear Power in Germany ==

- **Commercial Nuclear Power use since the late 60's**
- **17 NPPs with 20,200 MWe in operation**
- **Plant Lifetime recently extended to 40 – 46 Years**
- **All Radioactive Waste disposed in Deep Repositories**
- **The Federal Government must provide Repositories**
- **It can rely on a Third Party for discharging its Duties**
- **Three Deep Geological Repository Projects:**
 - ***Gorleben (SF/HLW)***
 - ***Konrad (LILW) under construction***
 - ***Morsleben (LILW) phased out***

German HLW/SF Management Concept

- Interim Storage in NPP Pools (limited capacity)
- SF reprocessing until 2005
- Thereafter SF disposal only
- Pu recycling as MOx in LWR
- 3 Central SF/HLW Storage Facilities
- 13 SF Dry Storage Facilities at the NPPs
- Conditioning for Disposal (PKA) (already built)
- Deep Geological Disposal



== Gorleben Project – Milestones ==



22.02.1977

Gorleben Site Selection (NEZ)

April 1979

Start of Site Surface Survey

1980/1981

Four deep boreholes drilled

Mai 1983

Comprehensive suitability statement by PTB

Sept. 1986

Ground-breaking Shaft 1

Oct. 1996

Connection between Shaft 1 & 2 established (840-m-level)

Thereafter infrastructure area development, characterization of Exploration Area 1 (EB1)

01.10.2000

Stop of site characterization

Thereafter stand-by operation

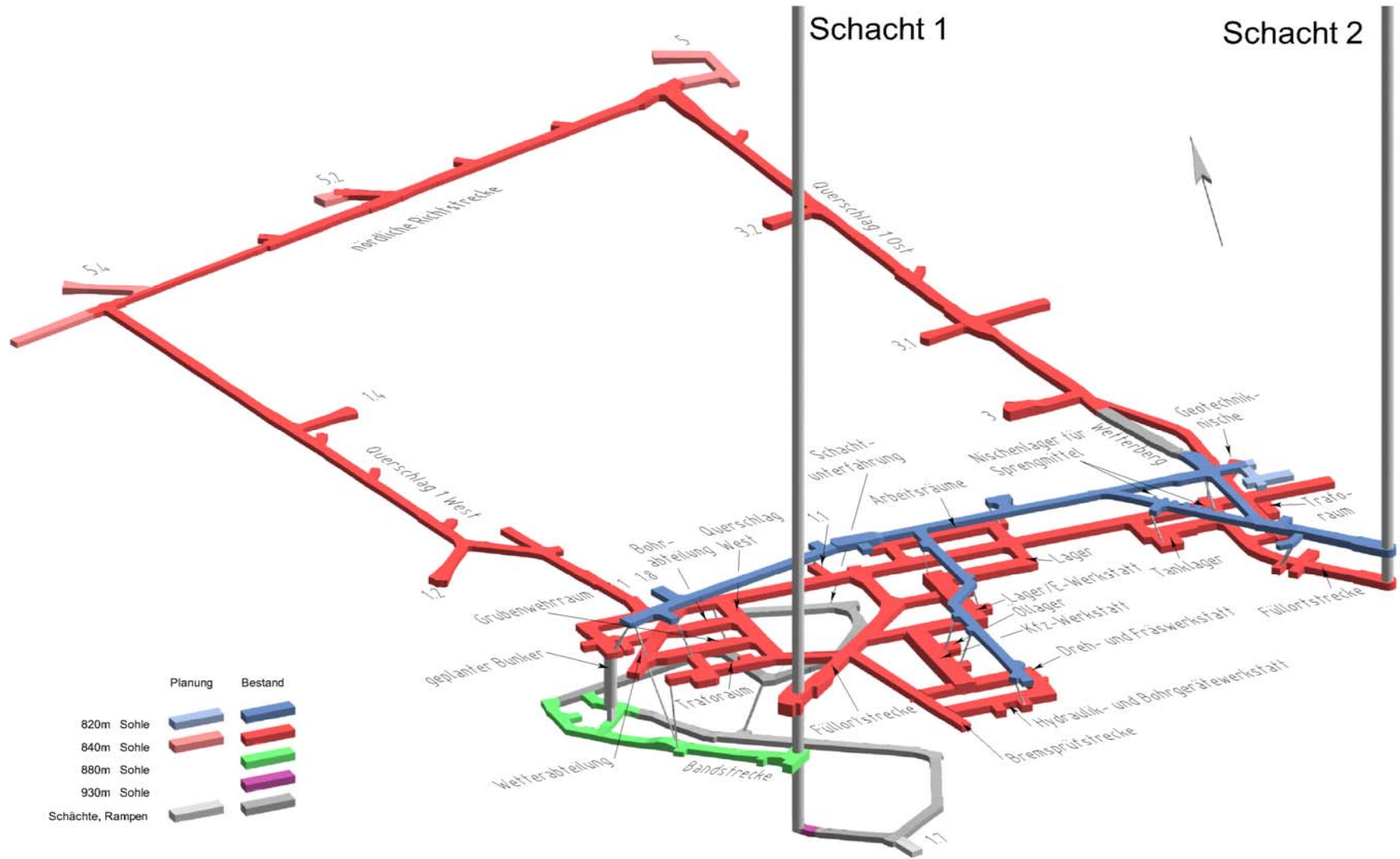
01.10.2010

Gorleben site exploration reassumed (EB1)

== Gorleben Project – Surface Facilities ==



== Gorleben Project – Site Exploration Mine ==



German LILW Management Concept

- NPP waste conditioned and stored on site
- Waste from industry, medicine, conditioned and/or stored at Collection Depots
- 3 Central LILW Storage Facilities
- 17 Waste Storage Facilities at the NPPs
- 10 Collection Depots of the Federal States
- Deep Geological Disposal at Konrad



== Konrad – Deep Repository Construction ==



- 1965 / 1976** Iron ore mine (~7 mil. t)
Deposit: ~ 1.4 billion t
- 1975** Preliminary site survey
- 1982** Site Suitability Statement and License Application submitted
- 1992 / 9** Public hearing (75 hearing days)
- 1993 / 3**
- 2000 / 2001** Consensus Agreement
- Finishing licensing procedure
- No immediate enforcement
- 2001 / 8** Radiation Protection Ordinance amendment
- License application amendment
- 2002 / 6** License Granted
- 2002 / 2008** Litigation
- 2011** Repository Construction
- 2018?** Disposal Start

== Morsleben Repository for LILW ==

- Repository of the former German Democratic Republic
- Became a Federal Repository after German Reunification in 1990
- Used as LILW repository until 1998
- Currently Licensing for Decommissioning
- Very limited Activity Content



== Morsleben - Repository Milestones ==



- 1970** **Bartensleben mine selected as repository**
- 1971** **Start of trial disposal (LLW)**
- 1974** **Repository construction license**
- 1981/1986** **First and second permanent operation licenses**
- 1990 / 10** **Morsleben becomes a Federal Repository, operated by DBE**
- 1991** **Disposal stop, refurbishment**
- 1994** **Disposal restarted**
- 1998 / 09** **Waste acceptance interrupted**
- 1999 / 05** **Waste disposal terminated**
- 2000 / 11** **Anticipated backfilling – license for site closure to follow**
- 2010** **Public hearing for closure**
- 2012** **License for closure?**

Progress was recently achieved in all German Repository Projects:

- *The site exploration at **Gorleben** was reassumed*
- *Survey results for site suitability statement (positive or negative) shall be available at around 2014*
- *A preliminary safety case for Gorleben is under way, and will deliver a site suitability statement by 2012*
- *The **Konrad** deep geological repository (LILW) is under construction*
- *The public hearing for closure of the **Morsleben** LILW repository will be carried out in the next years*