

Schacht Komrad mine, intended nuclear waste storage site. Photo: Sean Gallup/Getty



Sitting on a nuclear bombshell

For years, German politicians turned a blind eye to the massive amounts of nuclear waste dumped in a research repository near Hannover. Then a report warned that the site, Asse II, was in danger of collapsing. The scandal over Asse is only the tip of a highly radioactive iceberg.

| by *Stefan Nicola*

The images resemble production stills from a cheap Hollywood thriller. Some 125,000 rusty yellow and brown barrels are dumped carelessly into taverns deep below the ground, covered with dirt or salt, and left there to wait out time. The barrels contain nuclear waste, and they are located inside Asse, a research repository for low- and mid-level nuclear waste in Lower Saxony, near Hannover. Here, German scientists in the 1960s launched research into nuclear waste storage, a project that has gone terribly wrong.

German Environment Minister Sigmar Gabriel in September called Asse 'Europe's most problematic nuclear facility' after it surfaced that since 1988, some 12,000 litres of sodium chloride have been gushing into the site each day. Officials say 60 million litres of groundwater, which in this former salt mine has turned into sodium chloride, have so far seeped into Asse and have been contaminated by leaking barrels of radioactive waste. This has created a nasty nuclear cocktail that might even mix with groundwater in the region. Moreover, according to a report by the Environment Ministry of Lower Saxony, the entire structure is in danger of

collapsing. Asse, Gabriel said, 'has as many holes as a Swiss cheese.'

The severity of the problem, which has developed into a major scandal in Germany, has long been known. State and science officials had been informed early on, but said they didn't grasp the magnitude of the problem. Many people in the region don't believe that. They say the problem was swept under the rug. 'I think a public discussion about the problems at Asse has been deliberately prevented,' Stefan Wenzel, the environment policy speaker of

former operator, the Munich-based German Research Centre for Environmental Health, accusing it of having ignored the gravity of the issue.

Scandal continues |

Gabriel has used the scandal to portray himself as a crisis manager. He has placed Asse under the responsibility of the Federal Office for Radiation Protection (BfS), which has to handle the site according to nuclear regulations, significantly raising its security standards. Gabriel said Asse will be in 'good hands' with the BfS. The problem is that

Asse contains a nasty nuclear cocktail that might even mix with groundwater

the Green Party in Lower Saxony, tells EER. 'People in my constituency feel deceived, they are angry, they fear property value losses, and they have lost trust in the actors on the ground.'

Asse has also been neglected because it was designated as a research site, meaning it was handled according to mining regulations. Officials are enraged at the

officials don't know how to handle the waste buried in Asse. The former operator wanted to flood the repository, but geologists claim this could lead to radioactivity washing into the biosphere. An analysis from a Bochum engineering office revealed that Asse could be stabilized with concrete to enable work there beyond 2014, the date the earlier study set for its possible collapse.

'All options must be checked thoroughly – be it repairing or closing Asse securely, or even hauling out all waste,' says Wenzel. But even the seemingly best option, digging out the waste, will result in severe risks for the people doing the job, say experts.

The price tag for making Asse safe will be high. The BFS is already in charge of closing another (less problematic) dumping site – Morsleben, in former East Germany – for

'When it comes to highly radioactive waste, we have the challenge to store it securely for one million years, or 40,000 generations,' says Wenzel. 'In Asse, we failed after only one generation.' CDU officials are aware that the issue has to be tackled if they want to effectively further their pro-nuclear campaign. 'It's a problem we will have to solve, whether we phase out nuclear now or in 20 years,' says Joachim Pfeiffer, the

billion has been spent on research to find out whether Gorleben can securely hold in radioactivity for one million years. In 2000, however, the former SPD/Green government imposed a 10-year research moratorium on Gorleben because of significant public protests and began searching for an alternative site. But that search hasn't started yet.

'People in my constituency feel deceived, they are angry'

an estimated €2.2 billion. The head of the BFS, Wolfram König, has played down expectations that his agency could easily clean up the mess. 'We will have to take a rational approach to the problems. I don't want to raise expectations too high.'

Worst time for Merkel |

The scandal comes at the worst time for Chancellor Angela Merkel's conservatives, who are in a political battle with the Social Democratic Party to reverse the decision to phase-out nuclear energy by 2021 (see the article on page 32). The CDU's secretary-general, Ronald Pofalla, has lauded nuclear power as an 'eco-energy source'. Reports of leaking waste barrels have shed light onto the dark side of nuclear power. The Asse scandal also reveals that Germany is behind in finding a solution to the nuclear waste problem.

Granted, the government has just launched construction for a permanent storage site for low- and medium-level waste – Schacht Konrad – near Braunschweig. The multi-billion-euro project, at a former iron ore mine, was given the green light in 2007 after years of legal battles with anti-nuclear activists. Yet while low- and medium-level waste accounts for 90% of waste volumes, it accounts for only 2% of radioactivity. The real difficulty lies in storing highly radioactive waste items (such as spent fuel rods), which heat up greatly and radiate for millions of years. German reactors have accumulated some 12,500 tonnes of that nasty stuff so far.

spokesman for energy policy in Merkel's CDU. Yet experts argue politicians have failed to act over the past years.

Politician block progress |

'Since 1999, nothing has been done on the question of where and how to best store highly radioactive nuclear waste,' says Jürgen Kreusch, a geologist and one of Germany's leading experts on nuclear waste storage sites. 'German politicians, with their actions, are blocking any progress.' Kreusch is referring to the stand-off that has erupted over Gorleben, a repository in Lower Saxony that was chosen in the 1970s to become the country's main site for the permanent storage of highly radioactive waste by 2030. Over the past three decades, some €1.5

'It's a pity that no progress has been made during the past three years,' says Jens Hobohm, energy expert at the German Institute for International and Security Affairs. 'You have to have broad consensus on such a problem. It has to be regulated once and then followed up with determined actions.' Both sides of the German political spectrum are blaming each other for failing to act.

'We could be much closer to a solution of the problem of permanent nuclear waste storage if research at Gorleben had continued,' says Pfeiffer. Chancellor Merkel has urged Gabriel (who belongs to the SPD) to lift the research moratorium in Gorleben.

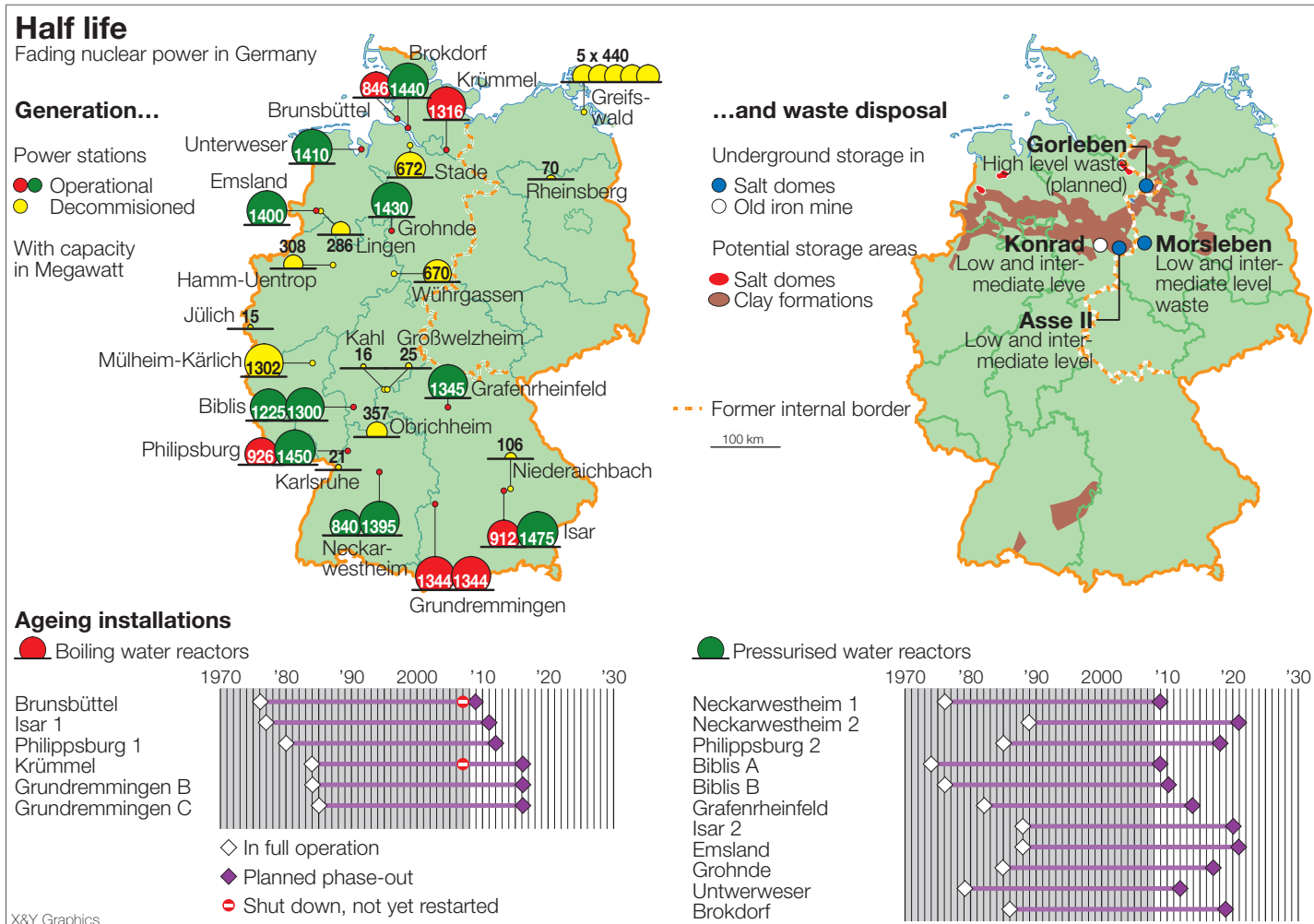
SPD and Greens claim Merkel is clinging to Gorleben – in their view a problematic site – because alternative repositories are located in states where her conservatives are in charge. They say the recent scandal in Asse, a site with similar features, indicates that Gorleben should be questioned. 'One has to double-check what mistakes were made in Asse,' Wenzel says. 'We must not make the same mistakes again.'



Stefan Wenzel, Green Party

Wenzel talks about the early research at Asse, where Gorleben-style conditions were tested in a cavern deep below the salt mine. 'This research was stopped all of a sudden in the early 1990s, and no one really knows why.' There exist early reports of leaching in Asse, and similar dangers have also been reported about Gorleben,' he adds. 'We therefore must have a completely new site search open to all possible conclusions.'

The conservatives don't agree. 'Gorleben was chosen from 140 salt repositories after a thorough scientific examination process,' Pfeiffer says. He claims the call for a new site search is a politically motivated delay tactic. 'We don't have to spend another several hundred million to find out that



Gorleben is the most appropriate site.’ But Kreusch, the geologist, says money can’t be the reason to keep pursuing Gorleben. ‘The reason has to be the security of a final repository and also the acceptance of the public. And in both issues, Gorleben is performing quite poorly.’

Gorleben-Gate |

To understand the protests that have accompanied Gorleben, one has to go back to 1973, when the search for a permanent storage site began. The government identified three promising sites, all in Lower Saxony. Gorleben was not among them. After opposition from state officials, the government let Lower Saxony choose its own site. It eventually chose Gorleben, located in a scarcely populated area bordering former East Germany that the state wanted to boost economically.

‘The selection process was about jobs, not geological security,’ Kreusch says. In the early 1980s, it turned out that the site has an unstable roofrock and is in contact with groundwater. Kreusch argues in favour of comparing Gorleben – made up of rock salt – to other geological formations, such as granite or clay.

Other nations using nuclear power, including France and Sweden, long ago updated their search strategies for nuclear waste storage sites. Switzerland is using a method very similar to the one proposed by Kreusch and his colleagues. Swiss authorities have chosen a site consisting of opalinus clay. The French also decided to store their nuclear waste in clay. Similar formations exist in southern Germany. ‘It’s doable, but one has to be willing to consider it,’ Kreusch says.

The problem is that the alternative sites are located in states governed by the CDU. Senior politicians from both states are vehemently opposed to a new site search. Kreusch disapproves. ‘So many mistakes have been made in the past, that the public is not willing to let the business-as-usual scenario continue,’ he says. ‘If you want to make progress, you have to realize that sentiment, and jump over your own shadow.’

Meanwhile, an intermediate storage facility has been erected at Gorleben to deal with the highly radioactive waste that has been hauled there over the past few years. It’s a steel warehouse storing spent fuel rods sealed in some 80 Castor containers. The warehouse isn’t located deep below the earth. It’s sitting above ground, right by a street meandering towards the small town of Gedelitz. ■