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- 255 Editorial: Nuclear Waste: The Battle for Gorleben**
Dr Anthony R. Michaelis, Editor, London
- 292 The Asse Salt Mine: The World's Only Test Facility for
the Disposal of Radioactive Waste**
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HEYDEN

Title 294

A special reprint was ordered of this important contribution.

ISR 5/4 Nuclear Waste Disposal—Gorleben Title 294

“Rioting and bloodshed to oppose technological progress are nothing new”. This was the opening sentence of my Editorial, for the issue published in December 1981, critically reviewing all possible technologies to dispose nuclear waste, such as indefinite storage in and under the earth, the ocean, or the ice of the Antarctic and in space, for example on the Moon. I cited the violent and bloody opposition of politicians and ecologists to the German site at Gorleben, where the abandoned Asse salt mine had been used for research and safe disposal of low and medium level radioactive wastes since 1965. German plans for a full scale industrial repository, the so-called *Entsorgungszentrum*, (a total disposal system) failed, because of political and environmental opposition. [See also Title 93, Atomophobia]

Guided and escorted by a very good friend I was able to visit the Asse Salt Mine on two occasions. Driving me in the special underground inspection car was Dr (now Professor) Carsten Salander, then the Head of the Department of Nuclear Power Plants of PreussenElektra, Germany’s second largest electricity utility, and also in charge of the German Company for Reprocessing of Spent Nuclear Fuel, the DWK. I was much impressed by the thorough research approach and the care of depositing the thousands of drums containing the radioactive waste. Naturally I invited him to contribute an article to ISR.

A salt mine has many advantages for a very long term and safe acceptance of radioactive waste. Geological salt formations are extremely stable and persistent, due to the plasticity of rock salt under pressure from the overburden of geological strata. This prevents the access of ground water which could leach out radioactive compounds and return them to the biosphere. Furthermore, due to the geo-mechanical stability of rock salt, large cavities can be excavated and these remain firm and unchanged even without any man-made support. In addition the rock salt has excellent thermal conductivity and thus allows the dissipation of heat generated from high level wastes. The stability of the Asse mine was attested by its geological age, Permian, of more than 200 million years.

In I S R 5/4, published in December 1981, Salander and his two colleagues, Dr Proske and Dipl-Ing. Albrecht published a 12-page article on *The Asse Salt Mine—The World’s only Test Facility for the Disposal of Radioactive Waste.* They described in detail the geology of the Asse, the salt mining activities in the Asse salt dome and the underground workings. They discussed the test disposals of low level, intermediate and high level wastes, the acceptance criteria, independent research, and the waste depositories within the envisaged *Entsorgungszentrum*. The article ended with a discussion of the opposition in Germany to all nuclear power, and the political actions needed for safe waste disposal.