



2002

## Sweden's radioactive waste management program

### Low-level radioactive waste

Sweden disposes of low-level short-lived radioactive waste at its Final Repository for Radioactive Operational Waste (SFR), in granite rock 50 meters (164 feet) below the Baltic Sea. The SFR is 60 meters offshore, connected by a tunnel to the site of the Forsmark nuclear power plant in central Sweden. The first of its kind in the world, the SFR has been in operation since 1988. Radioactive waste will remain at SFR for 500 years, until its radioactivity is reduced to acceptable levels.

The SFR uses a multi-barrier approach to containing radiation. Some low-level radioactive waste is put into large rock vaults of granite bedrock. Other low-level radioactive waste is put into silos surrounded by protective barriers of clay and concrete.

### Spent nuclear fuel and high-level radioactive waste

After an initial one-year cool down period at the nuclear power facility, spent nuclear fuel is sent to Sweden's Central Interim Storage Facility for Spent Nuclear Fuel, or CLAB, located in Oskarshamn in southern Sweden. During the first 30 years at CLAB, spent nuclear fuel cools in water in an underground rock cavern built to shield against radiation release. The facility will reach maximum capacity in 2004, so construction to enlarge it is under way.

### Reprocessing spent nuclear fuel

Sweden's spent nuclear fuel was sent to France for reprocessing until the mid 1980s, when it was decided by Swedish authorities that disposal would be less costly than reprocessing.

### Transporting radioactive waste

Sweden has operated a radioactive waste sea transport system since 1985. A specially built ship, the M/S Sigyn, carries all radioactive waste between nuclear facilities and CLAB.

### Deep geologic disposal plans

Extensive research into deep geologic disposal has been in progress since the late 1970s. Following interim storage at CLAB, copper waste canisters of spent nuclear fuel will be shipped to a deep repository in granite bedrock. The canisters will be embedded in special clay called bentonite, which will swell and encase the canisters after groundwater fills the space between the rock and the clay.

Sweden is considering implementing its repository concept in stages. For instance, it may place 10 percent of its spent nuclear fuel waste into the repository, then wait for a number of years so that the emplaced waste can be monitored and evaluated.

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U.S. Department of Energy  
Office of Civilian Radioactive Waste Management

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