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Extending the SFR

skb.se

Eventually Sweden's nuclear power plants are going to be decommissioned and dismantled. All the waste from this process that contains radioactivity will then be deposited in the Final Repository for Short-lived Radioactive Waste, the SFR.

The SFR at Forsmark is owned and operated by SKB, the Swedish Nuclear Fuel and Waste Management Company. The facility has been in existence since 1988 and houses low and intermediate level operational waste, such as used protective clothing and nuclear power plant components that have been replaced. But radioactive waste from research, hospitals, and industry in Sweden is also deposited in the SFR.

SKB is now planning to extend the facility. The idea is to create a new section linked directly to the existing SFR. Initially the new section will house decommissioning waste from Sweden's nuclear power plants. This can include reactor components, metal waste, concrete and other construction materials contaminated by radioactive substances during operation.

Six new rock vaults

The existing SFR's rock vaults lie about 60 metres below the bottom of the Baltic and are reached through an access tunnel and a construction tunnel that starts close to the harbour in Forsmark. The new vaults in the extension will be deeper, about 120 metres below the bottom of the sea. This is where studies have shown that the rock has suitable properties.

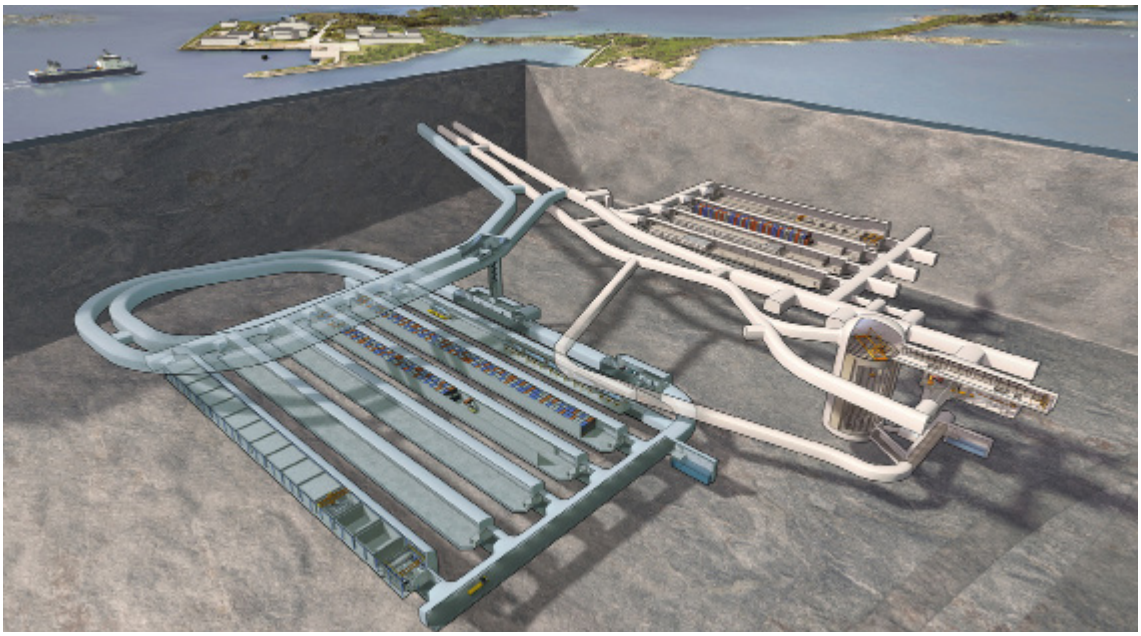
The new section of the SFR will have five rock vaults that are 275 metres long and one 240-metre vault.

When the extension is completed the SFR will be three times its current size. The final repository for the low and intermediate level waste, both operational and from decommissioning, will be gathered at one site and in one facility.

Twice as much

The existing SFR can house about 63,000 cubic metres of low and intermediate level operational waste and is now more than half full. In the future there is going to be almost twice as much decommissioning waste as operational waste. The amount of decommissioning waste and operational waste for which there is no room in the existing SFR is estimated at about 180,000 cubic metres.

Far from all of the decommissioning waste from the nuclear power plants will have to be placed in the repository, however. The bulk of it is not radioactive at all. In some



The existing SFR is shown in grey on the right. The new section on the left is in blue. After extension the SFR will be three times bigger than it is today.

Photo: Lasse Modin

Decommissioning waste will mainly be transported to the SFR at Forsmark by SKB's own vessel, M/S Sigrid.

Photo: Curt-Robert Lindqvist

The reactors at Barsebäck have been shut down and are already waiting to be dismantled.

cases it will also be possible to remove the radioactivity in different ways so that material can be exempted. It can then be recycled instead.

Waiting for dismantling

Barsebäck nuclear power plant was shut down permanently in 2005 and is now waiting to be dismantled. Decisions have also been made to close two reactors in each Oskarshamn and Ringhals nuclear power plants. There will also be decommissioning waste from the old reactors at Ågesta and Studsvik.

After the extension there will also be room in the SFR for decommissioning waste from all Swedish reactors that are still operating today.

Applications submitted

At the end of 2014 SKB submitted its applications for a permit to extend the SFR to the Swedish Radiation Safety Authority and the Land and Environment Court. These applications will be reviewed in relation to both the Nuclear Activities Act and the Environmental Code. Not until the permits have been issued can construction begin.

Constructing the extension itself is expected to take about five years and will employ about 200 people. It is planned to remove about 1,140,000 cubic metres of rock during the construction work.

Photo: Lasse Modin

Preparatory surveys for the extension of the SFR were conducted in 2008–2010. The results have led to the selection of a location for the extension.

Background

The Nuclear Activities Act lays down that holders of permits to operate nuclear installations are responsible for ensuring that facilities that are no longer in operation are decommissioned and dismantled. SKB (the Swedish Nuclear Fuel and Waste Management Company) is jointly owned by the nuclear power companies. They also fund its operations, for example through levies on electricity from nuclear power that are paid in to the Nuclear Waste Fund.

SKB is tasked with managing Swedish nuclear fuel and radioactive waste in a safe way. For more information see www.skb.se.