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Safeguards Aspects Regarding a Geological Repository in Sweden

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Swedish spent nuclear fuel will be deposited in a geological repository after having been encapsulated in copper canisters. The Swedish Nuclear Fuel and Waste Management Company (SKB) has applied for licenses to build an encapsulation plant in Oskarshamn and a geological repository at Forsmark. The encapsulated fuel will be transported by ship in specially constructed transport containers from Oskarshamn to Forsmark (450 km).

The Swedish concept is close to that assumed by the IAEA for defining model safeguards approaches for such facilities. However, there are certain differences; one being that the encapsulation plant will be directly connected to the spent fuel interim storage (CLAB). This, to an extent, complicates the the monitoring of movements of spent fuel. Another difference is that the transport casks for copper canisters will be removed underground in the geological repository.

Informal meetings are being held with Euratom and the IAEA on the preliminary designs of the encapsulation plant and the geological repository.

This paper will discuss challenges that we can expect at the encapsulation, transportation and deposit stages. These are, for example, spent fuel verification techniques, CoK during encapsulation and transport and canister identification. Verification of the design of the geological repository is essential and should be done mainly by in-situ observation using, for example, laser techniques. This can be combined with other techniques such as satellite imaging. Geophysical monitoring can be made redundant through the proper use of AP measures such as Complementary Access and extended Information Analysis.

Country or International Organization

Sweden

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