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Operator View on Safeguards Implementation for New Type of Facilities (encapsulation plant and geological repository)

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The Finnish solution for the geological disposal of spent nuclear fuel is based on a facility complex consisting of an above ground encapsulation plant and an underground disposal facility that are connected by a vertical shaft transferring the encapsulated fuel into the repository. The schedule was outlined in 1983, when the Government decided on the objectives and programme for the nuclear waste management. According to that schedule the disposal site was selected in 2001 and the construction license application for the facilities was filed in 2012. The construction license application is based on the multi-disciplinary research and development carried out during the three decades. The knowledge of the site has been confirmed by constructing the underground rock characterisation facility ONKALO starting in 2004. ONKALO is designed and constructed considering that the future repository can benefit of the infrastructure and underground premises. Currently ONKALO serves as in situ testing and demonstration facility for the development of the disposal operations. The construction of the encapsulation plant and further excavations for the repository are expected to start in 2015.

Implementation of the safeguards control started together with the excavations at the site. The control ensures that ONKALO is excavated as declared and that any other works compromising the integrity of the geological containment do not exist. In the context of the construction license application, the first comprehensive basic technical characteristics (BTC) for the facilities were provided together with the site declaration. The encapsulation plant and geological repository both are new type of facilities. The fit for purpose design information provided in the BTC and development of the safeguards concept for the new facilities have required interactive communication between the international and national regulators and the operator. This work continues presumably at least until the operation of the facilities starts in about 2022.

Country or International Organization

Finland

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