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Regulatory control in the construction of spent fuel disposal facility in Finland

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Finland was the first country to license a spent nuclear fuel encapsulation plant and a disposal facility. Posiva Ltd (Posiva) submitted the construction license application (CLA) in the end of 2012. Radiation and Nuclear Safety Authority (STUK) made the review of the CLA and in February 2015 the statement and safety evaluation report were submitted to the Ministry of Economic Affairs and Employment (MEAE). The construction license for Posiva was granted by the Government in November 2015.

STUK started planning the regulatory control of the construction activities after finishing the CLA review. The regulatory control of the encapsulation plant construction follows mainly the principles of a nuclear facility control taking into account the graded approach. The control of the construction of the underground disposal facility requires a novel approach since excavating safety classified rooms in the bedrock keeping in mind the long term safety aspects differs from the other types of nuclear facility construction.

Posiva constructed the underground rock characterization facility, Onkalo, at the facility site during 2004 - 2016. STUK controlled the construction of Onkalo similarly as it would have been a nuclear facility because from the very beginning Onkalo was planned to be a part of the future disposal facility. The experience gained from the control of the Onkalo construction was applied in the development of the regulatory control concept of the disposal facility construction.

The article will give an overview on the regulatory control concept of the spent nuclear fuel encapsulation plant and the underground disposal facility during the construction phase. The construction phase covers the detailed design of systems, structures and components, as well as the feasibility demonstrations, the construction activities, monitoring the construction effects to the underground disposal facility and the commissioning. The review phase of the operating license application is expected to begin in the early 2020s. The planning for the review of the operating license application is on going at STUK. This aspect is also discussed in the article.

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Country or International Organization

Finland

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