

Status of Development of Final Decommissioning Plan for Kori Unit 1

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1. Introduction

The Final Decommissioning Plan (FDP) is a license document required for approval of the decommissioning of power generating reactors and related facilities in accordance with Article 28 (2) of the Nuclear Safety Act. The FDP is a document that describes all activities to permanently shut down a licensed nuclear power plant and to exclude it from the scope of the law through dismantling of the facility and site or removal of radioactive contamination. In accordance with the recently revised Nuclear Safety Act and the legal requirements for decommissioning such as the Enforcement Regulations of the same Act, the licensee must submit a license document to the regulatory body for the nuclear power plant subject to decommission.

In this work, we briefly introduce the activities such as research projects, decommissioning engineering, and reviewing overseas case on the decommissioning plan that are being carried out to develop the FDP for Kori Unit 1 in accordance with the instructions for the FDP, as specified in Notice No. 2015-8 of the Nuclear Safety Commission [1].

2. Performing Research Projects Related to Decommissioning

We are currently carrying out research projects to secure input data for the FDP of Kori Unit 1 such as

decommissioning risk analysis and work difficulty evaluation of decommissioning process. This project aims to develop the technology for the detailed decommissioning cost and process, the program for evaluating decommissioning volume/cost/process, analysis and evaluation of major factors for decommissioning strategy, technology for evaluation of contamination/dose change during decommissioning, and radiological characterization guidelines.

In addition, researches are under way to secure groundwater contamination restoration, groundwater monitoring and contamination evaluation, site release guidelines, and safety evaluation technology.

3. Performing Decommissioning Engineering for Kori Unit 1

Decommissioning engineering is being carried out to promote the decommissioning project of Kori Unit 1. Decommissioning engineering consists of the four fields such as business process design, construction design, radiological characterization, and waste treatment facilities for decommissioning of Kori Unit 1.

The decommissioning project process design includes the development of the integrated process, the detailed process of the decommissioning stage, and the process management system. The decommissioning construction design includes the dismantling of the buildings/structures of the

radiation controlled/non-controlled area and the comprehensive planning for the use of the site/building. Radiological characterization includes the development of radiological characterization procedure and environmental impact assessment. Finally, the decommissioning waste treatment facility includes the basic/implementation design licensing of the waste treatment facility.

4. Reviewing Overseas Cases on the Decommissioning Plan

In order to develop the FDP of Kori Unit 1, the decommissioning plan of Zorita nuclear power plant (NPP) in Spain is secured and the related documents are under review. In addition, decommissioning plan of the Yankee Rowe NPP [2] and the First Nuclear Power Plant in Taiwan were reviewed to examine the scope and depth of the FDP.

5. Conclusion

We developed the Final Decommissioning Plan (FDP) for the decommissioning of Kori Unit 1, the first commercial nuclear power plant in Korea. This FDP will be continuously revised through reflection of results of research and engineering related to decommissioning.

In addition, we intend to enhance the completeness of the FDP for Kori Unit 1 by reflecting the analysis results of the decommissioning plan of the Zorita NPP and the First Nuclear Power Plant in Taiwan.

REFERENCES

[1] Nuclear Safety Commission, “Nuclear Safety Commission Notice No. 2015-8, Regulations on

the Preparation of Nuclear Power Plant Decommissioning Plan” (2015).

[2] Yankee Atomic Electric Company, “Yankee Nuclear Power Station Decommissioning Plan, Rev. 0” (1996).