The Status of Domestic Nuclear Power Plant Decommissioning Plan

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1. Introduction

Domestic nuclear safety legislation was amended in 2015 to require submission of decommissioning plans for both construction and operation permits of power plants. As a result, KHNP has prepared decommissioning plans for all operating power plants and received approval for their licensing procedures. In addition, they have developed decommissioning plans for planned power plants as well. This paper will examine the types and concepts of decommissioning plans that Korea is managing.

2. Method and Results

The International Atomic Energy Agency (IAEA) provides guidelines and reports related to the safety of many nuclear power facilities worldwide. Especially, for safety, standards for regulatory standards are presented and developed. The IAEA requires that operators who establish a decommissioning strategy must plan decommissioning in compliance with the national policy.

In Korea, there are two types of license documents related to nuclear power plant decommissioning submitted to the government: final decommissioning plan and initial decommissioning plan. Both plans align with the International Atomic Energy Agency (IAEA) requirements. The initial decommissioning plan is subject to renewal every ten years based on operating permit conditions, requiring approval for changes in operation.

Table 1. Domestic Decommissioning Plan [1]

IAEA Standard	Domestic
Initial Decommissioning Plan (IDP)	O
Updated Decommissioning Plan (UDP)	O
Final Decommissioning Plan (FDP)	O

Furthermore, all of these plans have been structured according to the Nuclear Safety Commission's guidelines in eleven chapters, and their writing instructions are also provided. The standards for these plans are outlined in Table1, along with their application methodologies.

Table 2. Korea Decommissioning Plan [2,3]

Chapter	Contents
1	Introduction
2	Project Management
3	Site & Environmental State
4	Decommissioning Strategy
5	Decommissioning Feasibility Designs
6	Safety Assessment
7	Radiation Protection
8	Decommissioning Activity
9	Radioactive Waste Management
10	Environmental Assessment
11	Fire Protection

The recommendations related to decommissioning have been inspected by the IAEA, and are required to obtain permission for the above items from the regulatory authority. Prior to the FDP, there is an Initial Decommissioning Plan (IDP) in licensing documents related to decommissioning in the construction and operation stage of the facility, and both IDP and FDP operators must obtain approval from the regulatory body to initiate construction, operation, and decommissioning.

These decommissioning plans consider the history of accidents that have occurred during construction and operation of power plants, as well as reflecting the latest environmental conditions on site. These decommissioning plans are revised to incorporate these revisions when drafting final decommissioning plans. This revision is required every ten years based on operating permits for nuclear power plants, and after renewal and obtaining an operating permit.

3. Conclusions

All nuclear power plants in the KOREA have approved decommissioning plans. For operating and under-construction reactors, decommissioning plans are included as part of the operational change permit documents, while final decommissioning plans have been prepared for permanently shut down Kori Unit 1 and Wolsong Unit 1.

Since there is still much time until permanent closure for operating and under-construction reactors, their decommissioning plans must be periodically managed during construction. However, these initial decommissioning plans for operating and under-

construction reactors are based on two units, but revisions are made targeting one unit, resulting in unnecessary administrative waste. The newly established legal framework cannot keep up with the current system.

The legal framework should be improved so that the decommissioning plans for all domestic nuclear power plants can be regularly revised, ultimately becoming truly useful documents when performing actual decommissioning.

REFERENCES

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