

A Study on the Establishment and Utilization of a Domestic Rapid Dissemination Process for Overseas OE Reports on PHWR

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1. Introduction

Nuclear power plant types are classified according to their power generation methods, and major types include pressurized water reactors (PWR), pressurized heavy water reactors (PHWR/CANDU), and boiling water reactors (BWR). As of the end of 2024, there are a total 417 nuclear power units operating worldwide, of which 45 are PHWRs, accounting for 10.8% of the market share.[1]

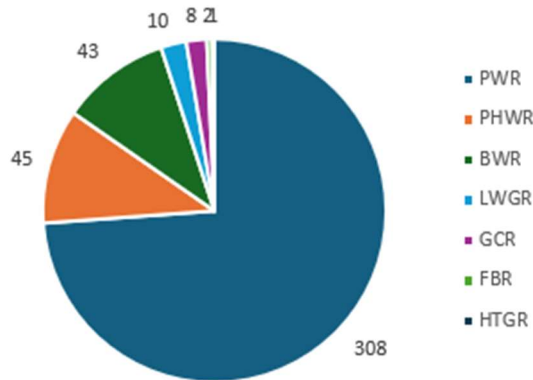


Fig. 1. Type of Operational Reactors

Only 6 countries, including India, Canada and South Korea, own PHWR. As of the end of 2024, a total of 26 nuclear power units (excluding 2 permanently shut down units) are in operation in Korea, and among them, 3 PHWR units are in operation.

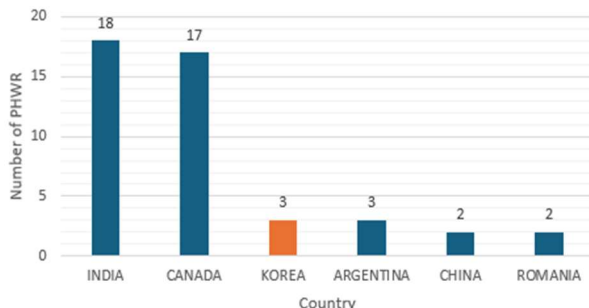


Fig. 2. Countries with PHWR

Due to the characteristics of the reactor type, the number of units is limited and they are operated only in certain countries, so the reality is that there is a small

amount of OE Reports generated during power plant operation. Due to the limited number of PHWRs, it is necessary to share overseas OE Report among reactor types to enhance the safety operation capabilities of power plants, and the need for this is increasing.

This study analyzed the performance of establishing a process to rapidly disseminate OE Reports from overseas PHWR to the domestic power plant and how that information is being utilized.

2. Methods and Results

2.1 Establishment of a domestic rapid dissemination process

Korea Hydro & Nuclear Power Co., LTD (KHNP) has established and operates a KHNP Nuclear Information System (KONIS). This system stores and databases OE Reports covering incidents that occurred during the operation of domestic nuclear power plants, other technical information, OE Reports from overseas nuclear operators, and technical information issued by overseas nuclear organizations.[2] Furthermore, as a member of the World Association of Nuclear Operators (WANO), KHNP shares information by providing OE Reports from domestic nuclear power plants to overseas nuclear operators.[3] Conversely, it reviews OE Reports and technical information prepared by overseas nuclear operators and disseminates them to domestic power plants for utilization.

In 2025, a total of about 5,450 cases of information were obtained from overseas, of which about 5,100 were overseas OE Reports issued by WANO. OE Reports obtained from overseas are currently not separately selected and stored or managed in KONIS only for PHWR types. While it is possible to find PHWR OE Reports using the search function within KONIS, it was decided to establish a separate process due to the difficulties in reviewing only PHWR information and rapidly disseminating and utilizing it.

As a method to establish a rapid dissemination process, we intended to focus on and utilize the information from OPEX Weekly SMM (Screening Meeting Minutes), which is published once a week by CONEXUS, a group of institutions that own CANDU-type nuclear power plants. Among the Highlight Items mentioned in these minutes, only the OE cases of PHWRs were selected and disseminated to domestic power plants of the same reactor type.

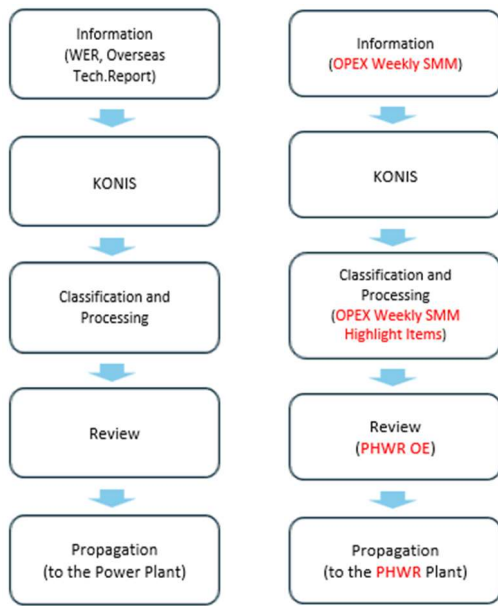


Fig. 3. Flow chart of existing and added processes

2.2 Analysis of Performance in Utilizing Overseas OE Reports

The rapid dissemination process for overseas OE Reports on PHWR has been in pilot operation since January 2026, and the current status of process operation and analysis of the utilization of rapid dissemination are as follows.

From January 2026 to the end of July, OPEX Weekly SMM has been issued a total of 24 times, and 59 items were selected as Highlight Items for each issue. Among these, there were 22 cases of overseas PHWR OE transmitted to domestic two power plants.

The types of results from the utilization of overseas OE cases can be divided into 7 categories (procedure revision, improvement of operating methods, equipment inspection/improvement, mid-to-long-term planning, education and training, existing application, and non-application), and the results of utilization after establishing a rapid dissemination process are analyzed as follows.

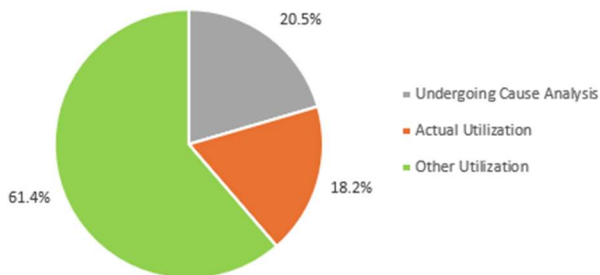


Fig. 4. Analysis of utilization performance

The actual utilization of domestic two power plants (procedure revision, improvement of operation methods,

equipment inspection/improvement, mid-to-long-term plans) was 8 cases (18.2%), other utilization (education and training, existing use, non-application) was 27 cases (61.4%), and there were also 9 cases (20.5%) currently undergoing cause analysis.

3. Conclusions

In this study, an added process was established to explore ways to separately select overseas OE Reports for PHWRs and rapidly disseminate and utilize them for domestic power plants of the same reactor type. After establishing the process, we analyzed the current operational status and examined how it is being utilized at power plants.

The rapid dissemination process has been in pilot operation since January 2026. Since it is the initial stage of implementation following the establishment of the process, several areas requiring operational improvement have been identified, and we plan to gradually improve them. In addition, it is necessary to observe the trends in the actual utilization rate of power plants based on overseas OE cases a little longer.

The establishment of this process has laid the foundation for the rapid dissemination and utilization of OE cases from overseas PHWR.

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