

## **Periodic Inspections: Online Maintenance to Be Reflected in Regulations**

**On December 16, the Ministry of Economy, Trade and Industry (METI) held the second meeting of a study group on inspections, which discussed issues related to maintenance and management inspections. The study group, whose activities had been temporarily suspended, was established under the Advisory Committee for Natural Resources and Energy's Nuclear and Industrial Safety Subcommittee. It is headed by Prof. Haruki Madarame of the University of Tokyo Graduate School.**

At the meeting, the Nuclear and Industrial Safety Agency (NISA) proposed that the concept of reliability-oriented inspections be incorporated into regulations, particularly by doing such things as employing online maintenance technology. It also asked the nation's electric power utilities to apply such a concept to their efforts to improve inspections. (See the November 15 article entitled "Periodic Inspections: Current Interval Lacks Scientific Basis.")

Currently, electric power utilities in Japan conduct their maintenance and management of nuclear power plants (NPPs) in accordance with the relevant regulations of the Japan Electric Association. Those plans principally reflect the concept of time-based maintenance; i.e., the concept of having inspectors during a period inspection look intensively at equipment that has been used for a certain period of time. However, such a method has several problems. First, it is difficult to conduct management based on the condition of specific, individual equipment. Moreover, a plant site can become very chaotic during a periodic inspection, with quite a few engineers needed on site at the same time.

With online maintenance, in contrast, appropriate maintenance times and methods can be determined based on the results of online maintenance monitoring during operation. That system is already well established outside of Japan, and domestic utilities have also established basic technology (for monitoring vibrations, etc.), and begun applying it to actual plants.

NISA made its proposal under such circumstances, saying, "It will help achieve a better form of maintenance and management activities by the electric power utilities, and regulation should be considered so as to encourage their efforts further."

A few members were cautious, making such comments as, "Clearer guidelines for online maintenance should be provided," and "There has been insufficient explanation of the reasons why time-based maintenance alone does not work." However, the bulk of the members present supported the appropriateness of the incorporation of the concept of reliability-oriented inspections into regulations.

In addition, NISA representatives expressed the agency's view that redundancies exist between periodic inspections and periodic safety management inspections, and that some manner of fusing the two methods should be considered (such as by being present at inspections, confirming records and sampling).

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