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PA activity by using Nuclear Power Plant Safety Demonstration and Analysis

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(1) Introduction

In this session, INS/NUPEC presents one of PA methods for nuclear power in Japan, „***PA activity by using Nuclear Power Plant Safety Demonstration and Analysis***“, by using one of videos which is explained and analyzed accident events (Loss of Coolant Accident).

(2) Safety Regulations of the National Government

The National Government is fulfilling its role in the ensuring safety of nuclear power plants through safety regulations. In other words, The National Government set forth and establish the safety examination guidelines for siting, safety design, and safety evaluation of nuclear power plants, then The National Government supervise that these are observed well enough to make sure of ensuring safety.

Safety regulations of The National Government are strictly implemented in licensing at each of basic design and detailed design.

Safety regulations made at basic design and detailed design stages (Safety Examinations), are designed to confirm that a given nuclear power plant is sited and designed satisfactorily by meeting relevant safety examination guidelines so that the safety of nuclear power plants can be secured. Safety demonstration and analysis is part of such safety confirmation efforts. „Flow of safety regulations“ is shown in Fig-1.

(3) Safety Demonstration and Analysis of INS/NUPEC

To support safety regulation activities conducted by the National Government, INS/NUPEC continuously implement Safety demonstration and analysis.

With safety demonstration and analysis, made by assuming some abnormal conditions, what impacts could be produced by the assumed conditions are forecast based on specific design data on a given nuclear power plants. When analysis results compared with relevant decision criteria, the safety of nuclear power plants is confirmed.

The decision criteria are designed to help judge if or not safety design of nuclear power plants is properly made. The decision criteria are set in the safety examination guidelines by taking sufficient safety allowance based on the latest technical knowledge obtained from a wide range of tests and safety studies.

Safety demonstration and analysis is made by taking the procedure which are summarized below.

Depending on assumed events, necessary models of nuclear power plants and others are prepared. Then, by setting specific conditions (analysis conditions), associated with such states of nuclear power plants as the normal operation, the abnormal events, or the accidents, behaviors of a reactor and others are simulated by using a computer. Results of analysis are compared with relevant decision criteria.

All of Safety Demonstration and Analysis of INS/NUPEC are reported to the National Government, therefore these are very useful to Safety Examinations of the National Government.

(4) PA activity of INS/NUPEC

In the beginning, rather simple pamphlets and videos were prepared being addressed to the public general. These briefly described results of safety evaluation on each of the abnormal events and the accidents. Some of the safety equipment was relating to safety brought to an end of the abnormal events.

In later years, many opinions had been received on those initial versions which results of safety evaluation on each of the abnormal events of the pamphlets and videos, commenting that they are not effective to give a whole scope of the safety concept. A new strategy was set up that the pamphlets and videos would give a comprehensive introduction on the safety and the safety analysis to those who were interested in achieving safety of nuclear power plants.

And now, INS/NUPEC promote PA activity by using Safety Demonstration and Analysis under Safety Examinations of the National Government. Of course, PA activity of INS/NUPEC stands on a whole scope of the safety concept.

These pamphlets and videos have been used by the lecture not only electric power corporation and public organization for nuclear power, but also universities, etc. „Actual numbers of distribution in 1997“ is shown in Fig-2.

(5) Conclusion

In Japan, various PA (Public Acceptance) pamphlets and videos on nuclear energy have been published. But many of them focused on such topics as necessity or importance of nuclear energy, basic principles of nuclear power generation, etc., and a few described safety evaluation particularly of abnormal and accident events in accordance with the regulatory requirements.

In this background, INS/NUPEC has been making efforts to prepare PA pamphlets and videos to explain the safety of nuclear power plants, to be simple and concrete enough, using various analytical computations for abnormal and accident events. In results, PA activity of INS/NUPEC is evaluated highly by the people.

Fig-1 Flow of Safety Regulations

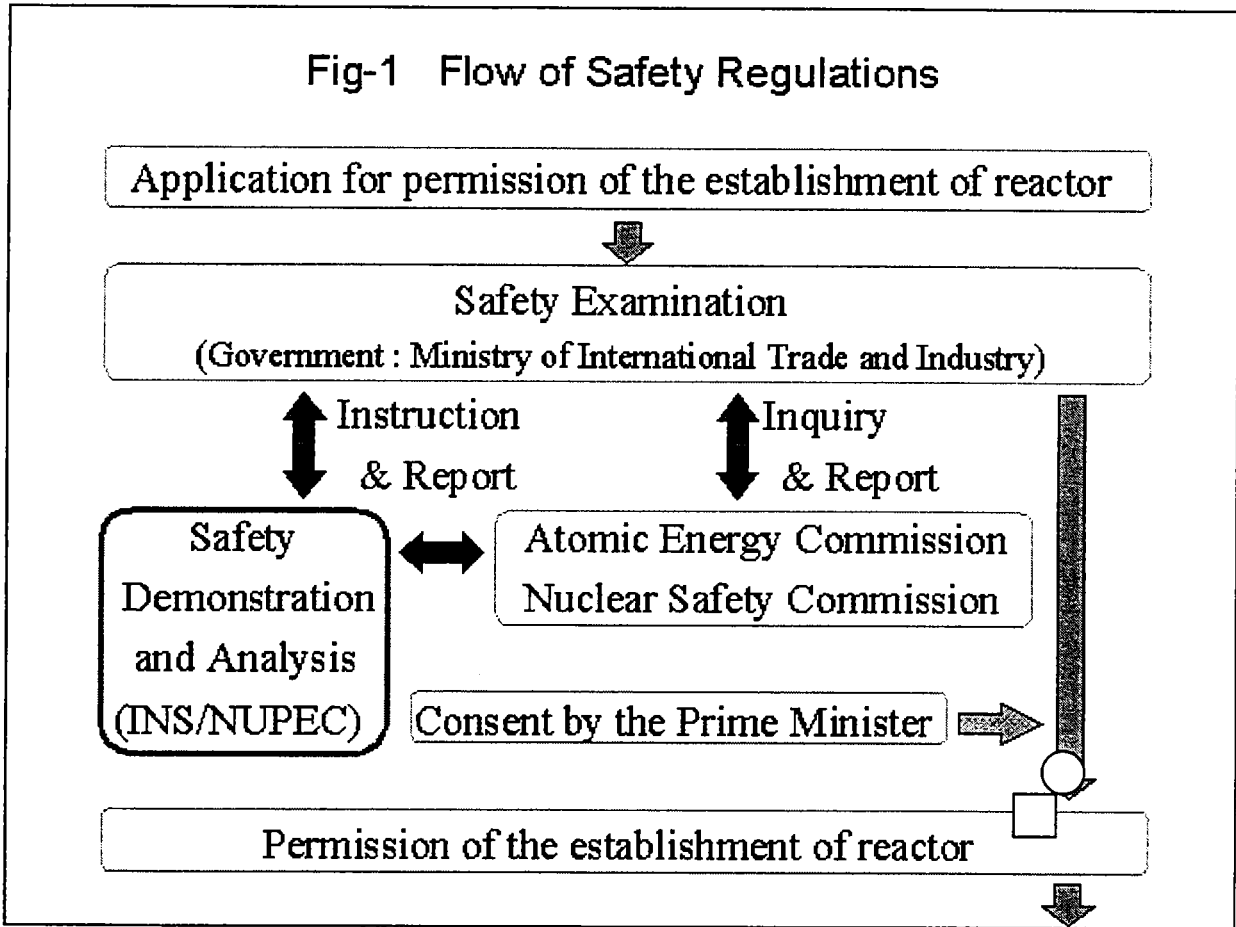


Fig-2 Ratio of Distribution in 1997

