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CHANGES IN REGULATION AT THE SCIENCE AND TECHNOLOGY AGENCY

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Abstract

This paper summarizes recent changes in the regulation at the Science and Technology Agency (STA) of Japan. The changes are based on the lessons learned from the series of incidents at the nuclear facilities of Power Reactor and Nuclear Fuel Development Corporation (PNC). It is considered that the safety culture was missing in the organization, which was reflected in the rating of the International Nuclear Event Scale (INES) level of the incidents. The PNC is going to be reorganized in October 1997, and the outline of the reorganization is also presented.

1. Understanding of the situation of incident and cooperation with the related organizations

1.1 Understanding of the situation of incident

At the fire and explosion incident at Tokai Works of the Power Reactor and Nuclear Fuel Development Corporation (PNC) on March 11, 1997, the Nuclear Safety Bureau (NSB) received the first report about thirty minutes after the fire, and based on it, NSB made a press release. However, since the situation of the incident was not fully grasped due to the lack of information at that time, NSB announced that the fire had been put out and there was no environmental effect. After that, because of the lack of information about the release of radioactive materials and intake of radioactive materials by workers, the situation of the incident could not be fully grasped, which caused the wrong judgment of the expansion of the incident.

In addition, though, since the Monju incident in December, 1995, NSB made communication forms beforehand to perform fast and precise informative communication and has guided the operators to send important information while confirming it. From the communicative situation of PNC in this incident, it became clear that such guidance only brought a poor result. From now on, the problems in reporting and communicating have to be reviewed thoroughly to improve the communication forms and report and confirmation items.

NSB has dispatched the staff on the site to quickly grasp the precise situation when required at the time of incidents since the MONJU incident. This time, NSB dispatched the staff on the spot when, after the incident, the situation of the workers' intake of radioactive materials became clear, and after that, strengthened the situation grasping activities of the incident on the site by dispatching additional staff when the explosion occurred. However, as for the dispatch of the staff, as it was judged based on the limited information from the site, it took a long time from the occurrence of the incident.

Based on these experiences, a system is being studied to immediately respond to emergencies, such as dispatching of staff and specialists to the site, and strengthening the system for quickly assessing the situation at the site.

1.2 Communication and cooperation with the related organizations after incident

In the Tokai incident, NSB has tried to provide information in a positive manner, for example by announcing the situation to the press four times on the first day and three times on the next day, according to a communicative report from PNC. However, since the system was not adequate to obtain fast and precise information from the site and NSB depended greatly on the information from PNC, the released information partly included misinformation.

NSB has successively made contacts with Ibaraki Prefecture and confirmed the situation with each other since the incident occurred. Even though Ibaraki Prefecture and the related municipalities also took necessary measures based on the reports from PNC, adequate measures were not taken because the report from PNC were not fast and precise and the information provided from STA was not also enough.

Based on such situations, NSB must provide guidance to PNC as well as the operators of all nuclear facilities to report precise information to the related organizations quickly.

STA has reviewed its publicity system, in cooperation with the related local governments, when incidents of radioactive materials' release to the environment occurred at nuclear facilities.

2. Relations with the safety regulation

2.1 Operation Management System

As for the operation management of the PNC Tokai Works, NSB supervises the observance of safety rules by receiving explanations about the operation schedules and operative situations from PNC. The staff also confirms the site situation of as occasion calls for. The situation confirmation of the site for this operation management has been coped with by occasional visits of the staff who worked at the head office.

Tokai Works consists of various facilities. Based on the incident, the situation of each facility should have been always grasped precisely. The operation management expert official must be permanently stationed on the site and more careful observance and guidance on the operative situation is essential.

Though NSB dispatched staff to the Tokai district to take emergency measures after the incident, it is considering the permanent stationing of an operation management expert official in the Tokai district to strengthen the operation management system.

In addition, NSB began to conduct on-site inspections without prior notice to enhance the preservation of the management system of the nuclear facilities and the emergency responding system.

2.2 Safety Management by Technical Specifications

Operators of reprocessing facilities must explain the necessary safety measures of the facilities for which management is especially required for the reprocessing facilities and in emergency cases based on the Nuclear Reactor Regulation Law.

As for the technical specifications which is the base for the safety management in the operating stage of the facilities, the following should be reviewed.

? A definition of the operation schedule in the technical specifications and a review of the contents when approving the operation schedule
? Whether the technical specifications of this facility were adequate to ensure safety.

2.3 Consideration for fire and explosion in safety examination

In the Tokai incident, the fire occurred and the ventilation filter systems were plugged, which made it difficult to maintain a negative pressure in the cell and the radioactive materials diffused from the cell into the building. The fire was extinguished by the sprinklers, but the explosion occurred ten hours later, which caused the damage of windows and doors of the building, a loss of the confining function, and release of radioactive materials to the environment.

In view of the incident, the way of regarding safety examinations are viewed from the following points:

? Preventive measures against overheating and reactions of bitumen to prevent fire.
? Fire detecting systems and fire extinguishing equipment.
? Ventilation functions in the cell in case of a fire.
? Equipment required to handle the situation and the prevention of expansion of such incidents.
? Considerations of the explosion

3. International Nuclear Event Scale (INES)

In Japan, nuclear power plants are regulated by MITI. Experimental and research reactors and nuclear fuel cycle facilities are regulated by the STA. For these facilities, the provisional level was rated by the operators, and the final level by STA.

However, as the provisional level for the Tokai incident could not be rated within 24 hours by PNC, this system was also reviewed. NSB now rates both the provisional and the final levels of the events.

4. Reorganization of the Power Reactor and Nuclear Fuel Development Corporation (PNC)

4.1 Name Change

PNC's name in Japanese will be changed to "the Nuclear Fuel Cycle Development Corporation". (Official English name yet to be determined.)

4.2 Relocation of Headquarters

Headquarters offices will be relocated from Tokyo to Tokai-mura in order to emphasize the importance of operations at the local level. (Some headquarters functions will be moved to Tsuruga City where the Fast Breeder Reactor Monju is located.)

4.3 Changes to Executive Management

The number of members of the executive board will be reduced from eleven to ten, and their terms of service will be shortened from four years to two. The term of the current board members will end with the establishment of the new corporation (slated to take place in October 1998).

4.4 Establishment of a Management Oversight Board

In order to insure transparency and acceptance by society, an evaluation mechanism in the form of a Management Oversight Board will be introduced. The Board will give advice and opinions retarding questions made by the president of the corporation, and will consist of 15 members who will be appointed by the president and approved by the Prime Minister.

4.5 Reformed Mission

Overseas exploration of uranium ore, research and development concerning uranium enrichment and development of the Advanced Thermal Reactor will be halted in three to five years. The main mission of the new corporation will involve:

-Development and necessary research concerning Fast Breeder Reactors and FBR fuel;
- Development and necessary research of technologies related to reprocessing; and
- Development and necessary research of technologies related to processing and disposal of high-level radioactive waste.