

ACTIVITIES OF JAPAN NUCLEAR TECHNOLOGY INSTITUTE JAPANESE TSO OF INDUSTRY

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Abstract. Nuclear energy is a superior form of energy in that it delivers stable power supplies and counters global warming, and it is important to promote nuclear power generation as the core power sources for a nation. However, the Japanese environment surrounding nuclear energy is changing drastically, following the liberalization of market and recent series of troubles or falsifications shaking public confidence in nuclear energy. In the above mentioned situation, nuclear industries and organizations must fulfill their individual roles, and amass its strength to work toward enhancing industry initiatives for safety activities, securing safe / stable plant operations, restoring public confidence and initiate revitalization of nuclear energy operations. The Japan Nuclear Technology Institute (JANTI) has been established as a new entity for supporting and leading the industry's further progress in March 2005. Members of JANTI are not only utilities but also component manufacturers and constructors. JANTI enhance the technological foundation of nuclear energy based on scientific and rational data, coordinates its use among a wide range of relevant organizations, and helps members enhance their voluntary safety activities. At the same time, it is independent of utilities, and exercises a function of checking industry at the objective, third-party standpoint. As for the activities of JANTI itself, information disclosure and the establishment of a council comprising external members will enhance administration transparency.

1. Introduction

Nuclear energy is a superior form of energy in that it delivers stable power supplies and counters global warming, and it is important to establish a nuclear fuel cycle and to promote nuclear power generation as the core power sources for a nation.

However, the Japanese environment surrounding nuclear energy is changing drastically, following the liberalization of market and recent series of troubles or falsifications shaking public confidence in nuclear energy.

In order to draw the characteristics of nuclear energy in the above mentioned situation, nuclear industries and organizations must fulfill their individual roles. Moreover, it is essential for the entire nuclear industry to amass its strength to work toward enhancing industry initiatives for safety activities, securing safe / stable plant operations, restoring public confidence and initiate revitalization of nuclear energy operations.

The Japan Nuclear Technology Institute (JANTI) has been established as a new entity for supporting and leading the industry's further progress in March 2005.

2. What is the Japan Nuclear Technology Institute?

JANTI is designed to enhance the development of the technological foundation and voluntary safety activities, and contribute to the revitalization of the Japanese nuclear energy industry, thereby generating common benefits for members.

It amalgamates, realigns and takes over the functions of the Central Research Institute of Electric Power Industry (CRIEPI) and Nuclear Information Center and Nuclear Safety Network (NS Net) which was established in the wake of the JCO criticality accident. It is also

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equipped with other functions such as support of instilling the safety culture, promoting the development of voluntary consensus standards, training engineers and keeping them competent to become a new entity that amasses the combined strength of the entire nuclear industry.

It's members are 122, which were composed of not only utilities but also component manufacturers and constructors in March 2010.

It enhances the technological foundation of nuclear energy based on scientific and rational data, coordinates its use among a wide range of relevant organizations, and helps members enhance their voluntary safety activities.

At the same time, it is independent of utilities, and exercises a function of checking industry at the objective, third-party standpoint.

As for the activities of JANTI itself, information disclosure and the establishment of a council comprising external members will enhance administration transparency.

3. Organization

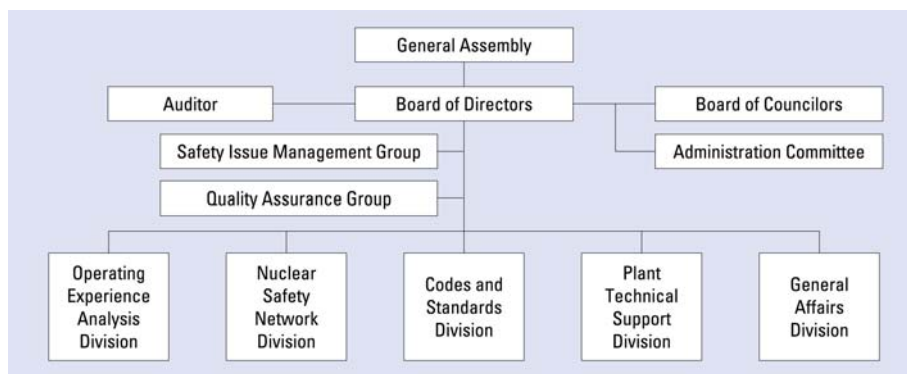


Fig. 1 Organization of JANTI

4. Outline of JANTI Activities

4.1. Gathering, Analyzing and Utilizing Information

The Operating Experience Analysis Division takes over and enhances activities relating to information gathering, analysis and utilization, previously undertaken by the Nuclear Information Center, within CRIEPI. It analyzes information of accidents and failures to issue recommendations and follow up correction of utilities if necessary. Gathered information are made available to the public or shared among utilities via NUClear Information Archives (NUCIA). Fig. 2 shows the flow of activities.

4.2. Instilling the Safety Culture

The NS Net Division is the successor to the activities of NS Net, which was established in the wake of the JCO accident in 1999, supporting and encouraging member's

efforts toward operational safety improvement.

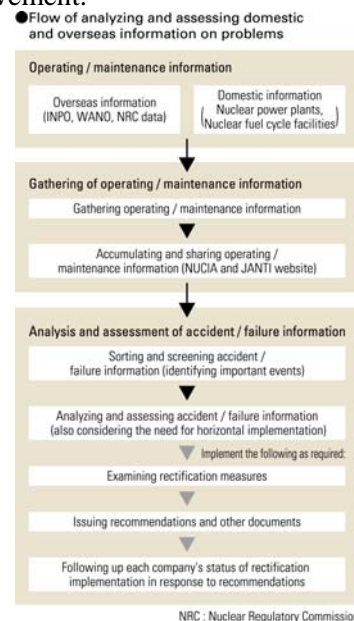


Fig. 2 Flow of Analyzing and Assessing the information

As far as nuclear power plants are concerned, it conducts peer reviews based mainly on site observations to support safe and reliable operations of nuclear power plants, in cooperation with INPO and WANO. And it suggests the improvement (Area for improvement needed) in the peer review with taking account of operational experience around the world to extract good practices (strength) to help members enhance their voluntary safety activities.

Aside from electric power companies, the members who take on various projects in nuclear power industry are making diverse endeavors toward nuclear safety in accordance with the character of their activities (use of fissile materials or not, quantity used, potential for criticality, and so on) were reviewed and supported to enhance members' safety culture.

Targeting managers of member companies, it organizes "the Safety Seminars" involving experts on the theme of nuclear safety. Moreover, "Safety lectures" are presented with the themes of root causes of recent troubles and improprieties.

4.3. Development of Voluntary Consensus Standard

The performance-based regulations by law demand the development of voluntary consensus standards. Fig. 3 shows the background of Japanese codes and standard development.

The Codes and Standards Division supports the development of voluntary consensus standards through compiling draft standards and developing their technological basis, so as to meet the needs of the nuclear industry. Fig. 4 shows the codes and standards development.

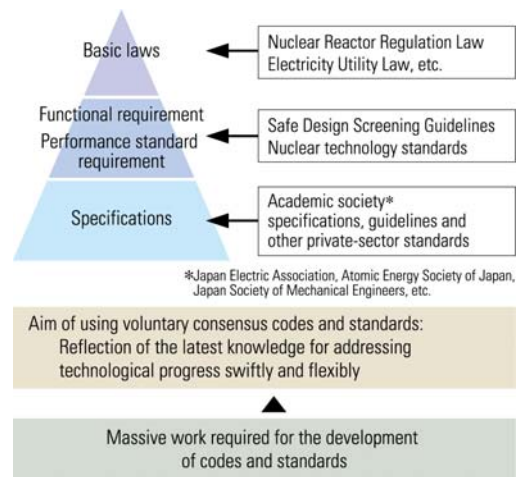


Fig. 3 Background of Japanese Code and Standard development

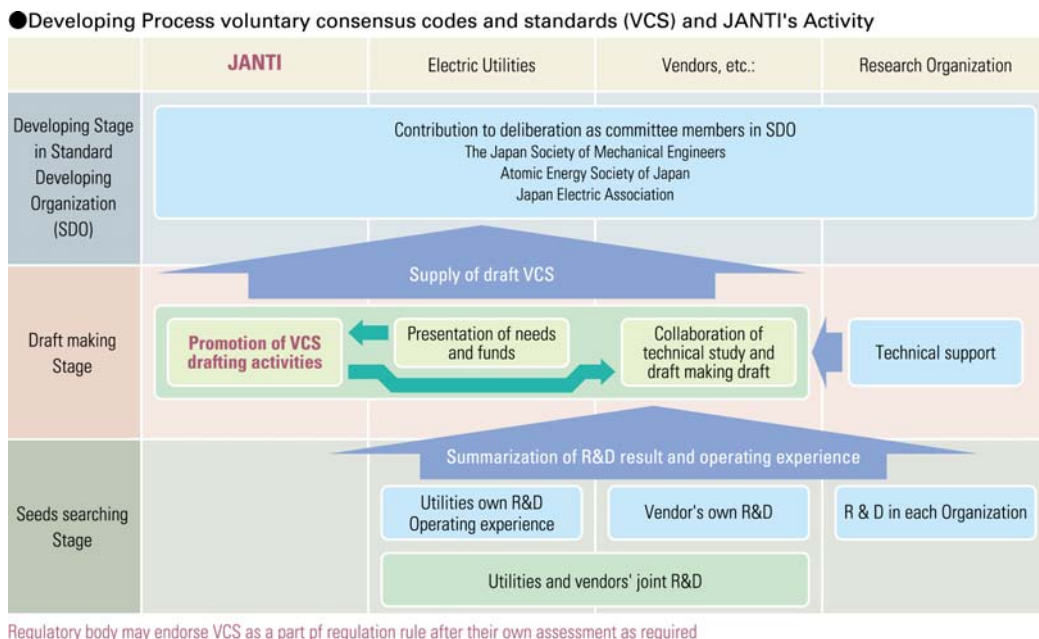


Fig. 4 Code and Standard development

4.4. Training Engineering and Keeping them Competent

The Plant Technical Support Division makes an ongoing effort in substantiating qualification systems for engineers engaged in operation and maintenance activities of nuclear power stations and providing them with related seminars.

It performs an activity to assess the competency of a person to be responsible for operation on the basis of the Rules Concerning the Assessment of a Person's Competency to be "Responsible for Nuclear Power Station Operation" (JEAC4804) and the pass/fail rules of the individual reactor licensees. Fig. 5 shows the assessing the competency of operator in account.

With the aim of introducing a skills-certification system concerning the maintenance activities, it accelerates the preparations for introducing this system. The preparations include not only the establishment of private-sector guidelines that provide for the objective evaluation and certification of the skills of those engaged in maintenance activities but also the creation of test problems to evaluate the skills.

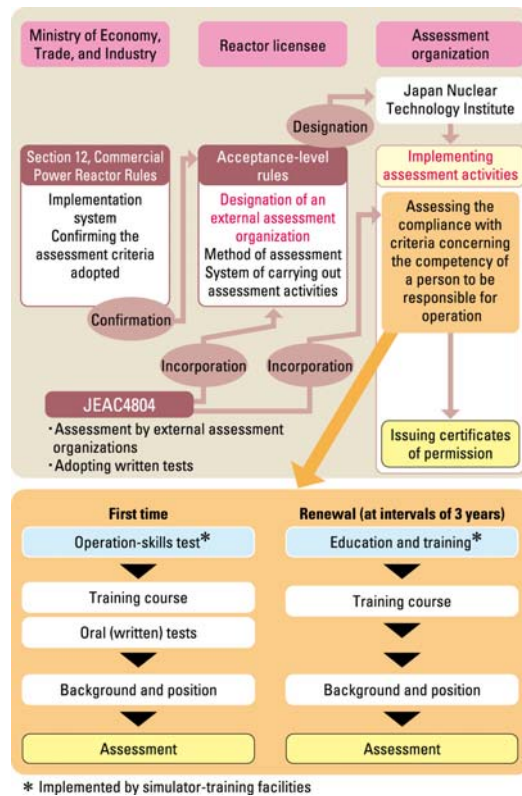


Fig.5 Assessing Competency of Operator in Account

4.5. Maintenance and Management of Common Electric Utilities technology Foundation

The Plant Technical Support Division also analyzes and organizes items of maintenance-related information to offer benchmark information to field expert engineers; simultaneously, it accumulates expert knowledge, such as the know-how produced out of their activities, to support activities to optimize the maintenance.

5. Conclusion

JANTI is TSO of Japan Nuclear Energy Industry, contributes to the revitalization of the Japanese nuclear energy industry, thereby generating common benefits for members. Moreover, JANTI enhances the technological foundation of nuclear energy based on scientific and rational data, coordinates its use among a wide range of relevant organizations, and helps members enhance their voluntary safety activities.