

Outline of “5-Year Plan from 2013 to 2017”



JANSI
Japan Nuclear Safety
Institute

Japan Nuclear Safety Institute

Preface: Issuing Japan Nuclear Safety Institute 5-Year Plan

About a year has passed since I mentioned “shin (mind),” “gi (skills)” and “tai (body)” when JANSI had just been established. The situation concerning nuclear power is still worrisome today. The purpose of JANSI is to improve the safety of nuclear power facilities via the untiring pursuit of excellence, which essentially requires continuous improvement to the “mind”, “skills” and “body.” This 5-year plan will train the “mind,” “skills” and “body” of JANSI and provide a path to achieving the foresaid goal of improved safety of nuclear power facilities.

However, safety improvements cannot be achieved by JANSI alone. Not only must the operators running nuclear power facilities comply with regulatory standards, but they also need to be strongly determined to animate their voluntary safety activities and to pursue excellence in collaboration with JANSI. Bringing the facilities in line with regulatory requirements is a likely priority, but the operators still need to actively promote their voluntary safety activities, which absolutely necessitates a commitment from the operator’s CEO. We would like the operators’ CEOs to recognize the importance of this commitment.

It is the acknowledged responsibility of JANSI to achieve the goals of this 5-year plan by working in cooperation with operators.

January 2014

Shojiro Matsuura, Chairman
Japan Nuclear Safety Institute

JANSI was inaugurated in November 2012 and is seeking to complete what the Institute of Nuclear Power Operations (INPO) took 30 years to achieve in as short as 5 years. This challenge sounds impossible based on common sense, however, as challenging as it may be we believe it is attainable considering the fact that we have model cases from the INPO, over 40 years of operating experience and the bitter lessons of the accident at the Fukushima Daiichi Nuclear Power Station.

In the wake of the INPO, JANSI has set the pursuit of excellence as its mission. Each department must play an essential role in fulfilling this mission by permeating their organizations and operations with this spirit. This will lead to high quality peer reviews, detailed and effective information analyses, effective and efficient assistance activities, and the ideal situation in which operators apply peer pressure to pursue safety.

JANSI also evaluates safety improvement measures at nuclear power facilities, which is different from what the INPO did. An urgent issue today is the response to severe accidents. JANSI aims to enhance the safety improvement measures at nuclear power facilities in Japan by understanding the situations around the world, looking at things from an international point of view and making use of Probabilistic Risk Assessment (PRA). We will steadfastly solve the numerous challenges facing us one by one.

On a global scale, nuclear power generation has expanded in different nations with safety efforts improved year after year. JANSI will seek a virtuous cycle in which JANSI contributes to safety improvement at nuclear power facilities by introducing global efforts and transmitting its activities back to the world.

January 2014

Takao Fujie, President and CEO
Japan Nuclear Safety Institute

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About 5-Year Plan

Japan Nuclear Safety Institute (hereinafter “JANSI”) was inaugurated based on the consensus of the nuclear power industry of Japan that no nuclear accidents shall occur including the accident at the Fukushima Daiichi Nuclear Power Station (hereinafter “Fukushima Daiichi accident”). JANSI has been strongly expected to establish the effective mechanism that leads the operators’ safety improvement activities as soon as possible. To meet such expectations, this 5-year plan aims to improve safety and reliability of nuclear power facilities in reference to the Institute of Nuclear Power Operations (hereinafter “INPO”) and bring all JANSI activities fully on track in 5 years at the latest.

The 5-year plan is a rolling plan subject to mid-term review in the third year from the issuance (Fiscal Year 2015) and full-scale revision in the fifth year (FY 2017).

Mission

*Pursue the world's highest level of safety in Japan's nuclear power industry
~ Untiring Pursuit of the Highest Standards of Excellence ~*

<Explanation about the mission>

To make nuclear accidents never happen again, the operators primarily responsible for nuclear safety must engage in continuing voluntary improvement of safety, and untiringly pursue the world's highest level of safety. Setting the above mission, JANSI shall create mechanisms and frameworks with independence that will not be influenced by the operators' intentions, provide operators with objective evaluations, proposals and/or recommendations and assistance, and lead the operators' untiring efforts to improve safety at nuclear power stations and other nuclear power facilities.

Vision

We will further improve safety by evaluating on a continuous basis the adequacy of safety improvement measures taken at nuclear power facilities and operation of nuclear power facilities. In the course of these activities, we will establish the standards of excellence in nuclear safety, provide operators with them, and ask operators to pursue them. We will also pursue the excellence in our own activities.

< Explanation about the vision >

The role of JANSI is to provide evaluations and proposals and/or recommendations on the operators' safety improvement measures and operations of their nuclear power facilities in comparison with the standards of excellence and assist the operators' efforts.

To fulfill this role, JANSI will establish the standards of excellence in nuclear safety and provide operators with them. JANSI will also continuously review the standards of excellence in nuclear safety, which are not fixed but constantly raised.

Next, JANSI will figure out how far operators put into practice the standards of excellence in nuclear safety by field reviews or other means, provide proposals and/or recommendations for anything inadequate, and promote and assist the operators' voluntary improvement.

JANSI shall pursue the excellence of its own activities to make its roles effective in the true sense.

Therefore, JANSI shall set the above vision as to how JANSI should be in the future and what the organizational common purpose is.

Features of Organizational Op. & Mgt.

JANSI shall have the following features in its organizational operation and management such that they will fully function as the self-regulatory and self-improving organization established with the consensus of the nuclear power industry of Japan.

◇ Conferring exclusive right of decision to JANSI Chairman

The final approval of the proposals and/or recommendations to operators shall be the prerogative of the JANSI Chairman so that JANSI can provide proposals and/or recommendations to operators in an appropriate manner by adhering to the independent standpoint not influenced by the operators' intentions.

◇ Establishing the International Advisory Committee and technical review group

JANSI shall establish the International Advisory Committee to get an opportunity to exchange views on overall organizational management with the CEOs or other directors of nuclear power agencies overseas. JANSI shall also establish the technical review group consisting of experts inside and outside of Japan to ensure technical objectivity of JANSI's proposals and/or recommendations to operators. JANSI shall enhance the effectiveness of JANSI's management and activities through the operation of the Committee and group, whose objective reviews will strengthen the confidence in JANSI.

◇ Establishing the Special Members CEO Meeting

JANSI shall establish the Special Members CEO Meeting (hereinafter "CEO Meeting") as a permanent meeting structure consisting of the CEOs of all operators and JANSI. In the Meeting, not only shall the JANSI Chairman directly provide operators' CEOs with proposals and/or recommendations and bring out the commitment of the operators' CEOs toward improvement under peer pressure among CEOs, but all operators' CEOs shall share safety issues with one another and raise the level of all operators as a whole. The Meeting shall also be made use of as an opportunity to promote safety culture to all operators and share awareness and communicate with CEOs.

◇ Focusing on the commitment of the operators' CEOs

JANSI shall address its activities with an awareness of the importance of acquiring the commitment of operators' CEOs to improve the effectiveness of JANSI activities. The commitment of operators' CEOs means that the operators' CEOs having an important role in securing nuclear safety actively seek to improve safety with the recognition of pursuing the world's highest level of safety together with JANSI and positively support JANSI activities for safety improvement.

◇ Establishing the Board of Councillors and the Steering Committee

JANSI shall establish the Board of Councillors consisting of intellectuals selected from non-members as a permanent meeting structure with the high level of knowledge that provides necessary suggestions on JANSI's business operation. JANSI shall also establish the Steering Committee consisting of committee members appointed from JANSI member organizations as a permanent meeting structure for smoothly and appropriately promoting JANSI's business operation. JANSI shall make use of the suggestions and view from these meeting structures in improving JANSI's business operation.

Activity Plans

JANSI shall work on its activities in accordance with the following activity plans. The activity plans have been organized into “JANSI Operation Policy”, “Initiative Policy for Activities” and “Policy on Relationships with External Organizations”.

JANSI Operation Policy

◇ Share awareness with operators’ CEOs

JANSI shall share the awareness of safety improvement with operators’ CEOs, acquire the commitment of operators’ CEOs for JANSI’s safety improvement activities, and pursue the excellence of nuclear safety together with operators’ CEOs.

◇ Adhere to independence

JANSI shall adhere to the standpoint independent from operators so that JANSI activities for safety improvement will not be influenced by the operator’s intensions.

◇ Acquire the latest knowledge in collaboration with overseas agencies, organizations and experts

JANSI shall acquire the latest knowledge or good practices and improve its own objectivity and foreseeability through active exchanges, collaboration and competition with overseas nuclear-related agencies or organizations including WANO as well as overseas experts to support the establishment and review of the standards of excellence in nuclear safety.

◇ Share information with operators

What is extremely important for safety improvement is to share information, activities and experiences with operators. JANSI shall manage operators’ information in an appropriate manner and make use of it for safety improvement.

◇ Seek to secure outstanding human resources and cultivate human resources

JANSI shall collect the outstanding human resources as permanent staff members and makes use of their knowledge and experience to carry out effective activities which deal in both hardware and software in

consideration of actual operation of nuclear power facilities.

Initiative Policy for Activities

◇ Establish the standards of excellence in nuclear safety

JANSI shall establish the standards of excellence in nuclear safety to provide effective evaluations, proposals and/or recommendations and assistance for nuclear power facilities.

◇ Focus on activities that lead to safety improvement on the site

JANSI shall inject resources into safety improvement at nuclear power facilities and develop activities more likely to be carried out on the site.

◇ Actively deal with members' requests for assistance

Although different members require different assistance, JANSI shall actively deal with these requests for assistance to solve the members' problems.

◇ Provide active assistance in case any safety issue is found

In case a safety issue is found through peer reviews or other activities, JANSI shall encourage the operator to eliminate the issue and provide active assistance.

◇ Address safety improvement as the entire nuclear power industry

JANSI consists not only of operators but research and development institutions, plant manufacturers, fuel fabrication manufacturers, equipment manufacturers, builders, constructors and other companies, who are directly involved not only in operating nuclear power facilities but the safety of facilities from R&D, design, manufacturing, construction and many other aspects. JANSI shall encourage all these members to address safety improvement and gather their technical strength to solve problems as required.

◇ Make periodic self-assessments and improve the quality of activities

JANSI shall make self-assessments with operators and external experts on a periodic basis to improve the quality of its activities and keep itself objective.

◇ Actively transmit scientific and reasonable information

Although JANSI is not allowed to publicize the details of its activities as it acts on the basis of operator - specific information under the restrictions of disclosure, JANSI shall still publicize the activity records on a periodic basis and actively transmit scientific and reasonable views for the understanding of the general public.

Policy on Relationships with External Organizations

◇ Participate in and cooperate with the academic societies and the association to contribute to improving and promoting civil standards

Civil standards have been increasingly important to improve safety and reliability of nuclear power facilities. JANSI shall actively participate in and cooperate with the academic societies and the association, the core players of civil standards where researchers and engineers of Japan gather their wisdom, so that JANSI will contribute to establishing their standards.

◇ Establish proper complementary relationship with regulations

Both regulatory activities and voluntary safety activities are required to secure and improve safety at nuclear power facilities. JANSI shall seek to understand the details of the regulatory activities to prevent voluntary safety activities from overlapping with the regulatory activities. JANSI shall actively provide cooperation if it is asked for comments by regulations as a private technical group.

◇ Develop a proper cooperative relationship with nuclear-related agencies in Japan

For the purpose of making JANSI activities more effective, JANSI shall build an appropriate relationship with the nuclear-related agencies in Japan and work together with them. Those agencies include the Federation of Electric Power Companies of Japan (FEPC), Japan Atomic Industrial Forum Inc. (JAIF), the Central Research Institute of Electric Power Industry (CRIEPI), WANO Tokyo Centre and other nuclear-related agencies.

Summary of Activities

JANSI, as an expert group independent of operators, is an organization that evaluates the safety improvement activities of operators from the advanced and broad perspectives, provides proposals and/or recommendations of an improvement plan and assists in achieving the plan in collaboration with related agencies inside and outside of Japan. The following shows a summary of activities JANSI addresses.

◇ Evaluations, proposals and/or recommendations and assistance for safety improvement measures

JANSI shall establish the standards of excellence by collecting and analyzing the latest information inside and outside of Japan and provide evaluations, proposals and/or recommendations and assistance for the improved level of nuclear safety to encourage each operator to achieve the excellence.

While it first addresses the urgent issue of severe accident measures, JANSI will extend the scope of its initiatives to the events not exceeding the design basis in the future.

◇ Evaluations, proposals and/or recommendations and assistance for nuclear power facilities

JANSI shall evaluate the operations of nuclear power facilities, equipment conditions, soundness of safety culture and initiatives for improvement in comparison with the standards of excellence in periodic peer reviews and other occasional reviews on specific themes, and provide proposals and/or recommendations and assistance for raising the level of each item.

JANSI shall also dispatch the Senior Representative (SR) to power stations and fuel-cycle facilities on a periodic basis to introduce good practices of other nuclear power facilities and provide assistance for improvement activities at power stations and fuel-cycle facilities.

◇ Basic works that support operators and JANSI

Different activities (e.g. information collection, international collaboration and technical exchanges) shall be carried out to support the abovementioned activities.

Main items of activities in 5-Year Plan

The following shows main items of activities in JANSI 5-year plan.

Cross-organizational activities

◇ Response to the requests from members

Immediately establish the system and address problems if cross-organizational activities are required in response to the requests from members.

◇ Comprehensive solutions of problems

Figure out problems in an accurate manner to lead to comprehensive solutions by properly carrying out JANSI's cross-organizational activities.

Main items of activities of the Strategy Planning Division

◇ Share awareness with operators' CEOs

Strengthen the top management commitment and promote cooperation with operators and plant manufacturers.

◇ Integrated assessment of power stations

Develop the integrated assessment system of power stations on the basis of peer review results, evaluations of safety improvement measures, etc. with the objective of raising operators' incentives for nuclear safety improvement and identifying power stations requiring focused assistance.

◇ External collaboration

Exchange views with Nuclear Regulation Authority (NRA), its Secretariat and the Agency for Natural Resources and Energy (ANRE), promote cooperation with the Central Research Institute of Electric Power Industry (CRIEPI), Federation of Electric Power Companies of Japan (FEPC) and Japan Atomic Industrial Forum Inc. (JAIF) and strengthen the relationship with agencies and experts overseas.

Main items of activities of the Nuclear Safety Division

◇ Implement severe accident (SA) measures

The database of good practices for severe accident measures inside and outside Japan shall be developed on a continuous basis, and problems shall be figured out based on the database by using IAEA SRS-46 (Assessment of Defense in Depth for Nuclear Power Plants). Items requiring measures to be taken shall be identified for these problems, and then, an individual task force shall be established as appropriate to consider techniques for application to plants in Japan and provide proposals and/or recommendations on the measures concerned.

The systems to evaluate measures for fuel-cycle facilities shall be established in JANSI and the assistance measures for fuel-cycle facilities shall be studied and specifically implemented by means of the know-how for application to nuclear power stations.

While it first addresses the urgent issue of severe accident measures, JANSI will extend the scope of its initiatives to the events not exceeding the design basis in the future.

◇ Tasks for individual themes

JANSI established the third-party committee and identified problems on the fire demonstration test, the basis of the current fire protection design. Out of these problems, JANSI shall select those requiring to be followed up, and shall establish the task forces, develop guidelines and carry out reviews on specific themes for power stations and fuel-cycle facilities for such operations control as control of carried-in combustibles, which needs to be independently implemented as an operator.

Task forces shall be established to develop guidelines for other safety-critical themes and reviews on specific themes shall be implemented.

◇ Prepare and operate operator's voluntary Safety Assessment Report (SAR)

The SAR is a document that comprehensively describes the safety of nuclear power plants. JANSI shall develop the guideline for preparing the SAR to assist operators in preparing their SAR. JANSI shall also assist operators in maintaining their SAR as is, making use of it to achieve safety improvement in an integrated manner, and utilizing it for regulatory response and skill improvement through operators' in-house education.

◇ Build the framework for the Probabilistic Risk Assessment (PRA)

The Probabilistic Risk Assessment (PRA) is a core technique for safety assessment in the SAR and necessary for finding vulnerability of plants, verifying the effect of safety improvement measures and

giving priority to the measures.

To further encourage operators to use the PRA, JANSI shall promote the establishment of civil standards and guidelines in relation to the comprehensive risk assessment, the PRA peer reviews to ensure the quality of the PRA and the development of parameters for the PRA using the achievement of such programs as EPRI-RSM and ASAMPSA-E. JANSI shall also take advantage of these activities to provide education and training for human resource development necessary for the PRA.

Since the technical development is needed for the application of the PRA techniques to fuel-cycle facilities, JANSI shall establish its internal system and consider the measures for assisting fuel-cycle facilities prior to specific implementation.

Main items of activities of the Plant Evaluation Division

◇ Implement peer reviews

Conduct high-quality peer reviews for power stations in Japan acknowledged as equivalent to the WANO peer reviews once every 2 years from FY 2017 onwards. Assign the credible grades to power stations based on peer review results, etc. The grading result shall be the input for the integrated assessment of power stations.

Establish the system necessary for conducting abovementioned peer reviews by increasing the number of staff members and enhancing capabilities of team leaders and reviewers with the assistance of INPO and in collaboration with WANO.

◇ Develop excellence guidelines

Develop the Japanese excellence guidelines regarding the operation of power stations and make use of them for peer reviews or the operation of power stations.

◇ Safety culture assessments and assistance

Make external and objective assessments of the voluntary safety culture development by special members and quasi-special members through the conduct of a questionnaire survey and field diagnosis on safety culture, present issues and findings from the perspective of safety culture and promote the improvement of the voluntary safety culture development.

Share the common issues or good practices revealed by the assessments with members as the themes for safety caravan, seminars and teaching material, exchange views for solving the common issues and disseminate good practices to encourage members to work hard to develop safety culture. Also, ensure safety culture permeates members and raise their levels through lectures and seminars on safety culture.

In the future, improve the assessment capability (improve assessment method, develop human resources capable of assessment) and raise the effectiveness of assistance activities (program by type of operation,

systematic operation of JANSI activities related to safety culture) to further enhance the quality of JANSI activities for safety culture.

Main items of activities of the Plant Assistance Division

◇ Assist plants through the Senior Representatives

Provide effective assistance through the Senior Representatives for the room for operators' improvement revealed as a result of peer reviews and other operators' issues. Establish and maintain the mechanism for the assistance through the Senior Representatives.

◇ Assistance through activities by review meetings and committees

Provide assistance for identifying and solving operators' issues and lead operators to improving the effectiveness of their Quality Management System (QMS) activities through the "QMS issues review meeting" for operators' QMS or through the "Human factors review meeting" for human factors.

◇ Assistance for improving operators' capabilities of nuclear emergency preparedness and responses

In relation to operators' nuclear emergency preparedness, provide assistance for the voluntary improvement of operators' capabilities of emergency responses by sharing good practices among operators and promoting solutions to operators' issues through the "Nuclear emergency drill review committee".

Main items of activities of the Operating Experience Division

◇ Optimize the resources in the industry and improve the effectiveness of OE information

Streamline the flow and optimize the resources in the industry for the processing of OE information inside and outside of Japan by seeking to establish the mechanism for OE processing led by JANSI. Also, improve the categories of the documents to be issued and focus on countermeasures in the analysis to effectively prevent troubles from recurring.

Make improvements for promoting the efficient use of NUCIA and enhance follow-ups for the lateral spread of Japanese OE information mainly NUCIA information to promote voluntary efforts.

Establish the system to exchange information with the regulatory agency and enhance the voluntary activities.

◇ Improve the quality of JANSI activities

Promote the use of OE information by sharing the output of the Operating Experience Division with other JANSI Divisions in a proper manner to improve the quality of JANSI activities and responses to operators.

Main items of activities of the Technical Support Division

◇ Technical support for operators' safety and reliability improvement activities

Provide technical support for operators' safety activities to improve their safety and reliability. Specifically, establish and extend the civil standards and the technical basis shared among utilities which serve as the base for operators' safety and reliability improvement activities and participate in international conferences to understand the latest knowledge and share information with operators. Also, provide support for improving operators' safety and reliability based on the civil standards established and the technical basis shared among utilities as well as the latest knowledge collected, and make evaluations of operators by means of reviews on specific themes.

◇ Technical supports for JANSI activities

Provide technical support for the activities of JANSI Divisions to improve the safety and reliability based on the skills developed in each technical field.

◇ Establish civil standards and extend technical basis shared among utilities

Promote establishing the civil standards (standards of the academic societies and the association, voluntary guidelines) and extending the technical basis shared among utilities that serve as the base for safety and reliability improvement activities.

Main items of activities of the Human Resource Division

◇ Systemize the leadership training program

Based on the reflections from the Fukushima Daiichi accident, establish and systematize the leadership training program focusing on the quality-related skills including a sense of mission, risk management, organizational operation for each level from the management to manager levels in order to develop leadership that has a proper understanding of nuclear-specific risks.

◇ Enhance human resource development

Based on the lessons learned from the Fukushima Daiichi accident and other feedbacks, seek to enhance the operation supervisor qualification work and the maintenance skill certification work. In addition, for the purpose of developing human resources capable of dealing with emergency situations, establish the guidelines that clarify the requirements for knowledge and skills necessary for implementing works for nuclear safety by means of the Systematic Approach to Training (SAT) and horizontally disseminate good practices through the use by each operator and the confirmation/evaluation in peer reviews by JANSI to enhance human resource development.

◇ Promote international collaboration

Extend activities in sequence bearing in mind developing the platform for international collaboration and raising the recognition of JANSI overseas in the next 5 years to promote international collaboration essential for pursuing the world's highest level of safety.

Main items of activities of the General Affairs Division

◇ Activities as the administrative department

Develop the four-pillar activities namely institutional operation & internal control, services for staff members, public relations activities, and IT management as the JANSI's administrative department.

◇ Secure and cultivate outstanding human resources

Secure and cultivate human resources based on the 5-year plan and establish and enhance the human resource database to extend and enhance the scope of activities.

◇ Send information

Send information on JANSI activities to stakeholders inside and outside of Japan on a timely basis and in an appropriate manner.

◇ Information management

Strictly manage and operate the information obtained from members.

Conclusion

The 5-year plan shows how JANSI would be in the future and the activity plan in the next 5 years. JANSI will develop the business plan of each fiscal year based on this plan.

With a goal of fully bringing JANSI activities on track in the next 5 years, this plan is basically developed in the most reasonable ways available so far on the issues JANSI considers important. However, a large proportion of JANSI activities have just been launched, which represents a great possibility of finding a more effective approach to the issues or additional issues no one had been aware of. If that is the case, we should be flexible enough to adopt better approaches without hesitation taking into consideration the individual situations. Therefore, the mid-term review will be conducted for this plan in the third year (FY 2015) from the issuance and the full revision in the fifth year (FY 2017).

Finally, we would like not only JANSI officers and staff members but relevant JANSI members to thoroughly understand the content of this plan to execute our mission and achieve our vision.