

JANSI Annual Conference 2018 overview

[Conference overview]

Date held: May 22 (Tue.), 2018 13:30 to 17:40

Venue: Iino Hall & Conference Center

Participants: approx. 390



[Opening statement]

Shojiro Matsuura, Japan Nuclear Safety Institute (JANSI) President and CEO

I hereby declare the commencement of the "JANSI Annual Conference 2018," the 5th such instance of this conference. This conference strives for widespread knowledge of JANSI activities for not only our members, but all parties involved in nuclear energy. Additionally this conference also strives for the exchanging of opinions on the meaning and roles of voluntary regulatory organizations from diverse viewpoints to both heighten and enhance JANSI activities.

Last year, this conference was held for an entire day beginning in the morning. However, upon receiving input from the participants, we have decided to concentrate the contents from this instance onward into a half day conference. We thank you for attending and would appreciate any input you may have.

The trial usage of reviews on inspection measures which use the US model as a basis is to commence in the latter half of this fiscal year. As continual measures by utility operators for voluntary safety improvement are considered a major prerequisite of such review, we believe that the roles and responsibilities held by the voluntary regulatory organization JANSI will become ever more vital. We would like this conference to focus on national government regulations and voluntary regulations for the exchange of opinions on the enrichment and normalization of voluntary safety improvement activities, so as to renew our awareness of their importance.

[Remarks by participants]

Toyoshi Fuketa, Nuclear Regulation Authority (NRA) Chairman



The importance of an attitude where there is mutual acceptance and approval of attitudes and efforts between regulatory authorities and the regulated parties cannot be overstated. We expect the regulated parties to act as a collective of professionals with a grasp of the field that bear a singular responsibility towards safety. Towards this end, it is important that the utility operators accept responsibility for their facilities when promoting the safety of such to society at

large.

The deliberate delays and omissions seen in the TEPCO Fukushima Daiichi Nuclear Power Station accident have been harshly denounced. There is a tendency to influence decisions toward the conclusion that there are no human errors, and even if such exist, they would not be so grave as to require action. Therefore, courage and decisiveness are necessary to invest the valuable resources currently at our disposal to prevent the future occurrence of vague potential disasters. To prevent failures due to omission, the NRA is focusing on the 2 inhibiting factors of deficiencies in incentives and errors in prioritization. Without sufficient incentives, nothing will lead to action even if the knowledge, understanding, and awareness required to prevent problems are possessed. If leaders or the organizations are aware of existing potential threats but do not believe they require focus in earnest, then this will lead to failures in prioritization. Continued consideration of the relationships between the individual, the organization, and across organizations is vital to avoid failures due to omission. We need JANSI and the industry to pursue such consideration.

Jacques Regaldo, World Association of Nuclear Operators (WANO) Chairman of the Board



WANO strives to heighten safety through the performing of reciprocal support, advancement of information exchange, and sharing of best practices. The sole objective of our organization is the pursuit of "excellence," which places nuclear safety as the predominant priority. It is with that mindset that we believe the independence of voluntary regulatory organizations and the regulatory authorities of the national government must be ensured. The results of the positioning process performed for peer reviews received by stations and utility operators, as well as stations themselves, are confidential information. Under no circumstances should this confidential information be communicated to regulatory authorities, as the securing of the highest levels of reliability and transparency are invaluable, as is the maintaining of a "double safety barrier" comprising assessments performed by WANO with inspections and monitoring performed by regulatory authorities. The safety culture we strive for is a stringent one. While design quality and function alongside professionalism are necessary items, safety culture represents a valuable facet for which voluntary regulatory organizations must systematically perform assessment. Towards this end, strict self-assessment and the ability to learn from human error are required in addition to an attitude of openness and a questioning attitude. The same can be said for continual training. Once an accident occurs in the industry of nuclear power, its effects will spread to all utility operators. We must remain humble and with strong convictions, as these are musts for safety. Above all else, we must not forget that nuclear safety is to be given the utmost priority.

William D. Magwood, IV, Organization for Economic Co-operation and Development / Nuclear Energy Agency (OECD/NEA) Director-General



The world watched as Japan underwent various changes in light of the experiences of the TEPCO Fukushima Daiichi Nuclear Power Station accident. The establishment of JANSI was a sign that the Japanese nuclear power industry had not only regained its footing, but was making progress. Although their journey is still ongoing, they have accomplished much on their way. Nations across the globe undertook efforts for

improved safety after the accident, but the common feature among these was a tendency to focus on improving equipment and hardware. This meant there was little focus on the human side of safety. The human factor cannot be fully improved solely through the drafting of reports and holding of workshops. True improvement of the human factor requires the diligent accumulation of daily decisions and actions.

That is why the success of JANSI holds the key to such improvement. When referring to the lessons learned from the Fukushima Daiichi Nuclear Power Station accident, we can see that nuclear safety cannot be achieved unless there is excellence in human and organizational performance both, in addition to excellence for stations and equipment.

JANSI neither operates a station, nor will it become a secondary regulatory authority. What it does do, is provide a framework under which utility operators can work together to raise the excellence of safe performance. In some ways, JANSI is the "conscience of the industry." The greatest role JANSI fulfills will not be to merely perform review and guidance; it may be to lead utility operator attitudes toward reform.

[Keynote speech] The establishment of a Reactor Observation Process in the US

Luis Reyes, Nuclear Regulatory Commission (NRC) former Executive Director of Operations



Among my experiences over the 30 plus years involved in regulations, I would like to reflect upon those relating to the introduction of the Reactor Observation Process (ROP) in the US. The impetus for the ROP was the Three Mile Island (TMI) incident in 1979. Although the INPO had been established and the framework of peer reviews had been organized, it was at the time of the TMI that the public began to hold doubts about nuclear power. Congress demanded reform in the structure of regulations. In an effort to boost manpower, the US Nuclear Regulatory Commission (NRC) introduced the forerunner measure to the ROP in 1980. However, this proved to be a great

burden on utility operators. The most important point in the reform of the observation program was "transparency." There was an upsurge in the desire to understand the activities of regulatory authorities, as well as the equipment and performance of the station. There were also criticisms leveled at the NRC that their observation activities were not very predictive. As there were only qualitative indices which led to differing observation results, even for similar events, those criticisms gained steam from both the utility operators and the general public. It was also around this time that Probabilistic Risk Assessments (PRA) began to see usage. The aim of such PRA was to eliminate subjectivity for the achievement of greater accuracy. At the station, PRA were utilized in the prioritization of station upkeep and equipment investment. There was not only a free market, but a demand for efficiency as well.

The NRC began improving its observation program based on PRA, conducting trial usage of ROP over a 6 month period spanning from May to Nov. of 1999 at facilities in 5 areas within the US. The transition to the full scale usage of ROP took place in Apr. 2000. From that time up to the present day, meetings on improvements have been periodically held on both the regulatory side and the utility operator side. These types of discussions are vital for ROP. With the PRA being a long list of numbers, even engineers need time to comprehend them. This is doubly true for the general public. Due to this, the activities in the ROP were color coded by importance

so they could be used for communication with that general public. It was realized during the trial usage period that there were discrepancies in judgment of importance between utility operators and the regulatory side. Ultimately, approx. 60% of those discrepancies were due to the human factor. How to improve upon this matter will be a challenge we face in the future. As for the sharing of information, open dialogues are necessary towards this end. It will require an attitude of striving toward raising safety from both sides in the dialogue. There are 2 nations which have adopted the ROP since its introduction in the US, ahead of Japan. These nations are Spain and Mexico. Though there may be differences in the structure of regulations between these 2 nations, they both made the ROP suit conditions within their own nations by utilizing the experiences gained by the US. What did these 2 nations undergo in the transition to these measures? Their experiences are sure to prove to be valuable sources of reference.

[Session] Enriching the foundations of voluntary regulations

<Short speech>

Chairman: Prof. Naoto Sekimura, Vice President of the University of Tokyo



Our commercial power stations have undergone much in the 7 years which have passed since the TEPCO Fukushima Daiichi Nuclear Power Station accident, and I would like to cover the various issues that they face at present from 4 major viewpoints.

Firstly, there are issues accompanying the increased regulatory demands. While such demands are being issued through forms such as specific regulatory standards and restrictions on the number of service years, it goes without saying that additional knowledge and re-assessment for safety are needed for such demands.

Secondly, there has been a sea-change in the attitude towards accidents which are either within design standards or exceeding design standards. The developments in attitudes toward leeway or external events for new design standards must be taken into consideration so that risk information and PRA in particular can be effectively utilized for such sea-changes.

Thirdly, there is currently a demand for the additional installation of various machinery and equipment relating to safety. The issue here is the format by which they will be categorized from the viewpoint of level of importance. This is a highly important matter relating to the continual improvements and maintenance performed by utility operators and the industry as a whole.

Fourthly, there is the matter of when such changes and reforms will be executed, and the amount that will be spent on such matters. The IAEA assessment is that the average cost of measures following the Fukushima Daiichi Nuclear Power Station accident at over 400 nuclear reactors worldwide was 20 billion JPY. However, the amount being currently spent on reactors in Japan which have been reactivated exceeds this by an entire digit. From viewpoints such as those of voluntary regulations, the foundations for appropriate and accurate response to these issues must be established into the future for the continual improvement of safety.

Dominique Minière, Électricité de France (EDF) Group Senior Executive Vice President

The presence of contractor companies is an extremely important factor in assuring nuclear safety at various stages. How will observation be performed during the manufacturing of items such as equipment off site? The continued increase of demands on the nuclear power industry has been accompanied by an increase of risks as well. The first such risk is "falsification." This phenomenon is like a signal worldwide. Allow me to introduce the case of the Creusot Forge, which is one of our company's facilities. The "carbon anomaly event" was discovered in 2016 at Flamanville Nuclear Power Plant Unit 3. Although this problem was corrected at the start of 2017, root cause investigations are still ongoing. The reporting of falsified data in at least 2 files also took place in 2016, which raised doubts over the safety levels of two steam generator units. Our company decided to review approx. 3,800 files at the Creusot Forge factory, reaching back all the way to the early 1970s. Although 80% of the files have undergone analysis, this resulted in a voluminous amount of work over a 2 year period to resolve this problem. As a lesson learned from this problem, our company decided it would conduct education and training regarding the risks of "falsification" for the various EDF employees and contractor company employees involved in design and manufacturing. Additionally, we mandated that all suppliers must certify that there are no problems pertaining to falsification. Surprise inspections have also been performed by EDF. We are also considering the performing of checks using big data in the future.

Preston D. Swafford, CANDU Energy Inc. President and CEO

I would like to use my experiences gained as a part of management at a US electric power company in the 2000s to explain how the nuclear power industry was fortified through ROP. One of the many merits of the adoption of ROP was the thorough elimination of subjectivity. In the past, the inability to provide effective response measures via subjective discussions had existed. However, after the adoption of ROP, there have been items such as PI (Performance Indicators) jointly used by all electric power companies in addition to probabilistic evidence gained through items such as PRA. This enabled a focus on issues for equipment and materials, as well as areas pertaining to safety, instead of being distracted by superficial areas. Additionally, the ROP brought transparency to regulations, and has proved quite useful as a tool for communication with local residents. Speaking from my own experience, I can say that ROP asks you to "take a good look at the PI." If any unfavorable warning signs should be discovered, then immediate action must be taken. Unless these appropriate measures based on PI are taken, there is the risk of greater impact from such signs in the future. I hope all participants not to underestimate the value of tools for early detection. The advancement of measures such as these is sure to ultimately lead to voluntary safety improvements by utility operators. I believe our experiences will prove useful as reference for what JANSI is currently striving to achieve in Japan.

Shuichi Kaneko, Nuclear Regulation Authority (NRA) Oversight Planning and Coordination Division Director

When we consider the image held by the general public on the work performed by "the national government," "governments," and "government offices," it may not be a favorable one. Concepts such as stubbornness, formality, and inflexibility may come to mind. As a nuclear regulatory organization, we believe that we must work to shed this image, if only somewhat. Instead of putting off response to new knowledge, our aim must be to strive for swift efforts toward pressing matters. In the transition to new inspection regulations, we must strive to keep the roles of both the utility operators and regulatory organizations in mind to improve measures for observation. We would also like to enrich communication with various relevant parties to the full extent possible, beginning with the regulated side, as this is an area which we as a regulatory organization have often received criticism for lacking. We are currently making every effort toward the diversification of opportunities for dialogue with not only the regulated side, but with the general public and groups interested in nuclear power regulations. What must we do to promote these types of changes? I propose these 4 factors for promoting changes: (1) awareness and understanding of both foreign and domestic matters, (2) technical ability, (3) leadership, and (4) an organizational atmosphere with high sensitivity toward safety. Although our positions may differ between the regulatory organization and the regulated side, we believe that the matters compiled here would prove useful in future measures.

Tomoaki Kobayakawa, Tokyo Electric Power Company Holdings, Inc. President

We at TEPCO drafted the "nuclear safety reform plan" in Apr. 2013. The failure to prepare for accident due to "the assumption that safety had already been established" was given in this plan as a root cause of the Fukushima Daiichi Nuclear Power Station accident. The conclusion we reached was that the overconfidence and arrogance we had in our own safety prior to the accident must be eliminated and that a top down reform starting from upper management were vital. This nuclear safety reform plan promotes the specific advancement of 6 measures from the 3 viewpoints of "safety awareness," "technical ability," and "dialogue ability." As an example of one of these measures, an action plan is being performed for the dissemination of safety culture throughout the entire organization via the enhancement of safety awareness held by management and the fostering of nuclear power leaders. We are also receiving various types of advice on nuclear safety via the enhancement of both internal and external observation functions. In order to strive for this dissemination of safety culture, we have stipulated traits for the individuals, leaders, and organizations which realize a healthy nuclear safety culture (10 Traits), and are performing daily reflections by each individual alongside group debates towards this end. For the improvement of technical ability, we have established a "nuclear human resource development center," adopted the SAT (Systematic Approach to Training), and provided a training program for our employees. The future issues facing the improvement of nuclear safety which we believe require tackling are measures to enhance the abilities of operators who, due to long term shutdown, have no operating experience with actual

equipment, highly precise management of items such as equipment due to factors such as design changes, and the human resource development and preparations of foundations necessary for technical development.

Shigeki Iwane, Kansai Electric Power Co., Inc. President and Director



Ever since the occurrence of the Mihama Nuclear Power Station Unit 3 accident in 2004, we at KEPCO have undertaken efforts to perform recurrence prevention measures and rebuilding of safety culture which take the lessons learned into consideration. After the occurrence of the Fukushima Daiichi Nuclear Power Station accident, we gained a sense of urgency that "there will be no future for nuclear power in Japan unless voluntary and continual safety improvement activities are promoted." It was with this sense of urgency that we drafted a road map in 2014, and we have promoted measures in accordance with said map. We will adopt the "Risk Informed Decision Making (RIDM)" process into station management so as to strive for further improvement of safety. Through the proper understanding of station conditions and usage of PRA for the quantification of risks for problems likely to occur, there will be results obtained which will be considered in performing decision making toward the improvement of safety. The basis of voluntary safety improvement using RIDM will focus around 3 key points: (1) performance observation and assessment (PI), (2) assessment of risks including PRA, and (3) decision making and execution. The Corrective Action Program (CAP) and Configuration Management (CM) will be vital as functions to support this process. The role we expect to be fulfilled by JANSI is to confirm, from viewpoints such as the level of importance to safety, whether RIDM has been appropriately adopted into voluntary safety improvement activities, so that they may aid us in the improvement of safety. The knowledge gained from the Ohi Nuclear Power Station, which is a pilot plant for the new inspection regulations, will be shared among utility operators. This will then be utilized to its full extent so that it may lead to the efficient optimization of station management. In this way shall we strive for further improvements in safety.

Shojiro Matsuura, Japan Nuclear Safety Institute (JANSI) President and CEO



As a voluntary regulatory organization, JANSI must realize the concepts of utility operator commitment, awareness, and ideals through its activities with a "safety focus," where safety is constantly placed as a central tenet. The nuclear power industry acts as members forming the communal body around JANSI. In order to improve safety, JANSI must utilize peer reviews to oversee performance and how businesses are operated in each field from a fellow viewpoint to confirm whether there are any safety problems, while receiving the cooperation of the utility operators.

The results of these reviews will be compared against safety performance objective levels for the nuclear power industry worldwide (PO&C: Performance Objectives and Criteria) to clarify the points needing improvement, with the necessary items being shown as recommendations. A major prerequisite to these is for utility operators

to fulfill their duty to improve safety based on the standards for their nation. The level of safety in Japan must be continually improved voluntarily upon this prerequisite. Efforts to improve safety must be kept in the awareness of top management at utility operators. We shall make every effort to dutifully meet the expectations of the utility operator. The constant exchange of information and opinions with the utility operator, so that the mutual benefits of such exchange can be utilized to raise the level of ensuring safety for electric power companies as a whole, is both our duty and our responsibility.

<Panel discussion> (honorifics omitted)

Chairman: Prof. Naoto Sekimura, Vice President of the University of Tokyo

Panelists: Dominique Minière, Électricité de France (EDF) Group Senior Executive Vice President

Preston D. Swafford, CANDU Energy Inc. President and CEO

Shuichi Kaneko, Nuclear Regulation Authority (NRA) Oversight Planning and Coordination Division Director

Tomoaki Kobayakawa, Tokyo Electric Power Company Holdings, Inc. President

Shigeki Iwane, Kansai Electric Power Co., Inc. President and Director

Shojiro Matsuura, Japan Nuclear Safety Institute (JANSI) President and CEO

○**Chairman Sekimura:** We would now like to proceed with the discussion. The first topic will be on how those involved in overseas utility operators view the efforts being made by Japanese utility operators, based upon the contents spoken by the Presidents of TEPCO and KEPCO. Furthermore, we would like to hear if you have any recommendations on areas requiring improvement from the viewpoint of voluntary measures, or examples of Japanese efforts which are excellent.

○**SEVP Minière:** I believe the efforts are highly positive. This goes for the efforts by the utility operators, TEPCO and KEPCO, as well as the efforts by JANSI. Possessing an internal entity that functions to perform self-assessment is important. Above all else, the utility operator bears the singular responsibility for nuclear safety. There are two points I would like to focus upon.

The first point is the roles of regulatory authorities and voluntary regulatory organizations in nuclear safety. Although WANO established a post-Fukushima committee, we have discussed here that our organization must remain independent and act efficiently. The self-assessments performed by utility operators do fulfill a vital role, but that role must be performed independently.

The second point is the comparison and openness of self-assessment. Such assessments are performed at EDF once every 2 years, with WANO peer reviews also being received every 2 years. I believe it is important that a very strong culture in nations such as Japan or France must be utilized when conducting self-assessment. After which, it will be important for such assessments to be conducted by teams comprising peers from many nations.

○**President Swafford:** I have watched the growth and development of JANSI over the past 4 years, and I believe efforts for voluntary regulations have come along with much support. The reflection of the lessons learned from the Fukushima Daiichi Nuclear Power Station accident was on target and consistent with the efforts undertaken in the US. What will JANSI need in its next phase? I believe it is the power to act. The support of utility operator CEOs and Presidents for the JANSI organization will prove invaluable towards this end, as will the dispatching of skilled human resources from the utility operator to JANSI. It is equally as important to show respect when JANSI team visits a site. This will lead to compliance with matters indicated by the team. The dispatching of skilled human resources from the utility operator to JANSI will boast benefits such as the enhancement of both the organizations at the site and the parent company. Additionally, it is vital that the utility operator discover and identify problematic areas earlier than the regulatory authority. That is what a voluntary regulatory organization must accomplish. After all, is it not important for JANSI to discover and identify

problematic areas before the regulatory authorities? Another matter of great importance is to maintain a critical view. While I feel it is splendid that the Japanese culture shows proper respect for others, it would be problematic if that respect leads to an inability to indicate problematic areas when seeking and identifying problematic areas for nuclear power facilities. JANSI must be able to view matters critically, and this is an area where I believe they are also improving as well.

○**President Kobayakawa:** SEVP Minière indicated the importance of independence in the self-assessment function in particular, as well as the importance of internal and external peer reviews. What we feel is the most important in the 7 years since the accident is the knowledge that we are the agents in realizing safety. However, we may not be able to realize every issue, and we may even make mistakes. That is why we believe it is very important to accept vital indications based on expertise and fact. The ensuring of independence has been requested of Dr. John Crofts, so that this internal party (who is our Nuclear Safety Oversight Office Director) may become independent for proper performing of oversight, but what will ultimately prove to be of extreme importance is that the board of directors or the President receive such indications in earnest for proper handling. The specific indications on what must be changed are received for reflection into actual activities, and this is a common item which holds true for independence, self-assessment, and peer reviews.

○**Chairman Sekimura:** I believe the viewpoints presented here are invaluable ones. We would like, starting from President Swafford, to speak in more depth about how the reflection they touched upon should take place to encourage further specificity and diversity of viewpoints in enriching noticed matters and accumulated information. If you could include your own examples, it would prove even more helpful.

○**President Swafford:** While this may be similar to in-depth protection, I believe it is of unequivocal importance that problems are firmly understood for site quality assurance and programs. When the JANSI team visits or an event occurs at the station, the members of the site must earnestly receive these external parties and any remarks they may have for reflection into corrective actions. Instead of an attitude of introversion and isolation, the attitude to be adopted should be open to indications from external parties. That is the ideal state to strive for, and one which would be truly healthy.

○**President Iwane:** Regarding self-assessments, we at KEPCO have established a "safety validation committee" in addition to the establishment of the company-wide and division-wide "safety promotion committee" for the purpose of Mihamata Unit 3 accident recurrence prevention. This "safety validation committee" has the contents of implementation viewed by experts who are an external third party, and said committee progresses while receiving their input. We would like assessments to be performed from both a compliance and safety culture basis, via the safety validation committee, and the performance basis, via the reciprocal provision and receipt of indications through the mutual piloting of the stations of the other party by maintenance and electrical experts in coordination with other PWR electric utilities and the nearby Chugoku Electric Power Company. However, we believe that the further improvement of their precision will rest with clarification of the workings of Risk Informed Decision Making (RIDM) where levels of importance for matters including PI are analyzed, so that matters such as input, output, and the process for narrowing down levels of importance are given a thorough look by third party experts. As for the relationship with JANSI, having CEOs support JANSI would be an absolute essential in ensuring that JANSI possesses effective power and can raise its level. What

we believe is important for CEOs is to share the ideal state of JANSI, possess an awareness of gaps between this state and current conditions, and strive as utility operators to fill those gaps. Since I believe one of those gaps is in human resources, relevant topics must be considered, such as how to dispatch skilled human resources alongside consideration of how dispatching to JANSI should be positioned within the career of said dispatched human resources and how to best utilize said human resources upon their return from JANSI.

Additionally, as we at KEPCO will be undertaking CAP and RIDM, we would like JANSI Peer Reviews (PR) to be PRs which appropriately match such endeavors. We believe that ensuring a culture of criticality takes root at JANSI is important, and towards that end our relationship of trust with JANSI will be important. Not only will the relationship of trust between top management be important, but so will thorough discussion by parties executing duties at the station and JANSI. Additionally, we would like discussions conducted to cover how best for the station to utilize JANSI outside of PRs for voluntary safety improvement.

○**Chairman Sekimura:** First, I would like to hear the input from SEVP Minière regarding these remarks. Second, I would like Director Kaneko to give any remarks on the utility operator activities as seen from the regulatory side. Furthermore, I would like to receive remarks on how future inspection measures will lead the upward spiral for both regulations and utility operators.

○**SEVP Minière:** Self-assessment will require 2 important matters. The first is human resources, which will be of extreme importance. Skilled human resources must be dispatched to JANSI and WANO, and the returning human resources should be given promotions and raises. Additionally, the matters proposed by inspection organizations must be accepted and received in earnest. People have the tendency to deny or refuse weaknesses, which becomes particularly true in cases where understanding is not sufficient. Thus, the major responsibility of leaders will be to maintain an awareness of that matter and firmly accept the existence of such weaknesses. In other words, they must accept the results of assessment, whatever they may be, so as to ensure that measures against problems are definitively executed.

○**Director Kaneko:** Within the remarks by President and CEO Matsuura, they spoke of the importance of JANSI realizing various activities upon gaining the commitment of the electric power company. I agree wholeheartedly. While the remarks by JANSI may prove to be bitter pills to swallow, I felt that dedication to earnestly listening and firmly accepting such remarks would be a vital factor in promoting these voluntary measures. Among the keywords in a differing point was the keyword of CAP. I believe this contains a concept similar to the "from the bottom up" concept held by the term "voluntary." I also believe a clearer awareness should be considered of whether these voluntary "from the bottom up" activities or improvement activities, called CAP can firmly take root and safely attain fruition. In fact, no matter how we as a regulatory authority plan the new inspection program, if we do not confirm with utility operators and consider critically what kind of awareness each individual inspector has and what they will consider as a problem and will look at, the program will fail to advance at all. Therefore, in this sense, I believe that CAP must effectively become a measure which advances "from the bottom up." This will allow it to become an extremely significant measure toward the voluntary ensuring of safety. This, in turn, will allow our regulatory measures and the utility operator activities to achieve the upward spiral mentioned by Chairman Sekimura and lead to further improvement of safety. Indeed, this would allow matters which we consider problematic to be received within the CAP for assessment and the

performing of assessment. Necessary matters will be performed, while matters less important to safety may be set aside and given lower priority. I felt it was very important that activities be promoted under such an understanding.

○**Chairman Sekimura:** President Iwane, do you have any remarks on these matters from the viewpoint of CAP?

○**President Iwane:** From the viewpoint of what significance "from the bottom up" is given by CAP as Director Kaneko stated, I believe a culture of praise must be formed. The giving of due praise for improvement activities is vital. To ensure such a culture takes root, CAP must be organized and systemized so that awareness is gained of how much progress has been gained in improvements via CAP. Improvements upon such progress must be continued. It would be highly beneficial if this PDCA process is shared by all for further improvement of safety. That is the format I feel this matter should take.

○**Chairman Sekimura:** Our next topic of discussion will be the viewpoints of priority and acceleration, which were touched upon by NRA Chairman Fuketa. The placing of priority in matters such as regulations, including possessing an awareness of hazards and managing risks, is an issue. Furthermore, prioritization in terms of time, which NRA Chairman Fuketa described as swiftness, is also an issue. Another issue which exists is the method by which RIDM is performed based on risk information so that their results may be explained. The regulatory side in Japan had long struggled to include the term of swiftness. However, it is believed that the concept of "without unnecessary delay" has been firmly included in the NRC, when taking them as an example. Therefore, we would like the swiftness mentioned by NRA Chairman Fuketa to be broken down and explained by Director Kaneko. After this explanation, we would next like explanations on examples in France, the US, and Canada. We will then discuss what plans exist in Japan as a contrast, as well as which matters will require deliberation in the future.

○**Director Kaneko:** There is a quote from NRA Chairman Fuketa that I would like to share. "Take heed, lest purple prose be used to effectively and specifically delay what must be done." I believe that the matter of swiftness which Chairman Sekimura just spoke of was the main message which NRA Chairman Fuketa wished to convey in their opening remarks. While both the regulation and regulated sides are striving to progress, what is important will be what significance is actually given, both specifically and in effect, to such forward progress. I believe the priority assigned will likely be based on their significance or the scale of their impact. The intent of NRA Chairman Fuketa was to ask for prioritization of matters which must be undertaken immediately and matters which require swift results, within a framework which considers factors such as risk and safety for such matters. This is also one of the major viewpoints which must be used by the regulatory organization, and what I believe to be a framework of their values.

○**Chairman Sekimura:** I would now like to ask for remarks from SEVP Minière on whether there are examples of realization of such concepts in France, as well as any relevant matters.

○**SEVP Minière:** There are 2 matters I would like to cover. The first matter is prioritization. The placing of priority is clearly a matter which the management must first perform. That makes self-assessment very important. For an example of the measures taken in France, the organizations performing nuclear power inspection view stations from 15 fields, perform measurement on 7 levels, and use standards to assign colors

such as orange, red, and yellow. In this way is prioritization performed. The second matter is risk information and risk management. I feel that the phrase risk management has some negative connotations. Referring to this as safety improvement would have more positive connotations. As I am sure you are all aware, safety improvement has no end. It must undergo continual and constant improvement in facets such as design, human factor, and safety culture.

○**President Swafford:** On the matter of risk information usage, the basic foundation for risk information usage is only considered and prepared after PRA for the entire station has come together, such as site PRA and earthquake PRA. However, unless there is internal skill to begin with, the question of whether assessment and prioritization can be performed becomes a difficult one. Once these have begun to be used as tools, it can be seen that decision making leads to rather different results than before. For example, various measures have been taken in where to invest capital, such as upgrades to BWRs post-Fukushima, but ultimately the decision was to introduce backup high pressure core injection systems. The merits of this choice were a nearly double digit decrease in core damage frequency. The right choice can truly lead to a great impact. I believe the direction which should be taken in the usage of risk information should ultimately be one which results in rewards for the electric power company. I also believe that this would gain further trust from the regulatory authority.

○**Chairman Sekimura:** Thank you for your input. It was both extremely valuable and pointed out some home truth regarding skill. I would now like to ask President Kobayakawa for his input on these remarks.

○**President Kobayakawa:** I believe we received some very valuable input. As I believe it is important that the management ultimately perform rational decision making and commit to those decisions, I feel that the ability to create a rational framework in which RIDM, and by extension PRA, can objectively identify important matters for positioning of such matters based on this identification is invaluable. There is a perception that Japan still has a long way to go, and I believe that the role played by JANSI as a collective of professionals in this process will be a major one.

○**Chairman Sekimura:** We have received several questions regarding the topics we have discussed thus far. There were several questions for Director Kaneko, which I would like to compile and ask of the Director. One question was regarding the issues being faced in the efforts to customize a new inspection measure with the adoption of ROP for Japan. Another was regarding the difficulty of deliberating upon all necessary matters in the 2 years remaining until full scale utilization, with this time frame including the trial run period. We would now like to receive the answers to these questions from Director Kaneko.

○**Director Kaneko:** Regarding the first question of customizing the ROP measure for Japan using the US as a model, our basic attitude is that we will try to adopt a measure that is as similar as possible. Our honest stance at this time is that actual customization can take place at a later time. While there may be several areas where efforts are necessary due to differences in measures owing to differences in the histories or structures of laws between our nations, we will generally adopt similar items. Regarding the second question of a lack of time, I believe they are absolutely correct. There were revisions to laws in the previous year, and we have a 3 year execution period in which we must make preparations. I do not believe we can resolve every issue in that time frame. I also do not believe that a perfect Japanese oversight system can be created simply by undergoing a

trial run for a year and a half. However, our current intent is to get as close to the minimum level of acceptability (at least 60 for a passing grade, in university grade terms). As it is said that there have been approx. 20 years of improvements and advancements in the US from that point, we believe it is important to continually strive for improvement while following those same types of improvements and advancements.

○**Chairman Sekimura:** Thank you. Next, we would like to ask some questions of SEVP Minière. We have received an explanation on how the EDF strove to resolve the issues with Creusot Forge. We would now like to hear what types of cooperation there were on the regulatory side in France regarding communication, deliberation, and resolution measures, as well as whether there were areas where it was difficult to gain agreement. We received about 2 questions regarding this topic, which were asked for the purpose of allowing a wider range of deliberations upon viewpoints for adoption of ROP from the US and issues with CAP. We would now like to hear the response from SEVP Minière.

○**SEVP Minière:** The issues in question were very important as a case of the transparency with nuclear safety authorities, which meant that it had to be definitively shown that such transparency existed. The efforts made were after raising the objective of response which gave the top priority to nuclear safety, and said efforts were performed under complete transparency. The purpose of this was to ensure complete transparency for not only the regulatory authorities, but for the general public as well. We gave various types of explanations to the media. This was not a simple task by any means, but it was one for which we believed we needed to bear responsibility. Our belief was that, if a problem existed, then it was our duty to deal with such problems as quickly as possible. We mobilized 100 EDF engineers to work full time in dealing with the issues in question, and said issues were completely resolved after 2 years of hard work. We also ensured the absence of issues aside from the issues in question. For example, there was incorrect data for a certain steam generator. We performed proper checking of said data to confirm whether said generator was operable. Deliberations were held with the regulatory authorities until the end of 2016, with deliberations continuing to be performed in 2017 as well. Ultimately, it was in Mar. of 2018 that approval for recommencement of operation was received.

○**Chairman Sekimura:** Thank you. Our final topic for debate will be the expectations for JANSI held by voluntary regulatory organizations. As we have already received remarks on how JANSI would like to advance regarding this viewpoint from President and CEO Matsuura, we would first like to receive remarks on these expectations from President Kobayakawa and President Iwane. Then, we would like to hear if there are any particular expectations of JANSI as a Japanese voluntary regulatory organization from President Swafford.

○**President Kobayakawa:** As NRA Chairman Fuketa has stated, a voluminous amount of data will be required on matters such as how risk information will be handled in the future. Naturally, it would be better to definitively stock up on data being performed by all parties over such data by a single party. A firm commitment to matters for which immediate response can be performed, discovered through a collective organized effort, would also aid in speedy resolution over a single utility operator struggling to find such matters. I believe these collective efforts would serve an extremely vital role in being the driver of actions with such speed or ensuring new technologies are definitively refined into ones with higher quality. That is the role we expect of JANSI.

○**President Iwane:** We have many expectations for JANSI. The first is to thoroughly look at cases of global excellence, then look at Japanese CAP, so as to provide guidance to our efforts to make these CAP attain

global excellence. The second is the provision of support to each company, such as through the issuance of guidelines on a common foundation. We expect JANSI to provide support such as that which takes current conditions into consideration and support for stations. This will help alleviate the very heavy workload facing each company during their preparations for such common foundations, such as the current adoption of RIDM, as the Japanese nuclear power industry itself is tackling numerous amounts of issues, among them issues such as the adoption of new inspection measures. The third is to focus on such matters through measures such as focusing on such matters in JANSI peer reviews, so as to provide support which allows us to implement RIDM more smoothly, which will ultimately allow RIDM to take root more firmly. As the expectations for JANSI grow ever stronger, we hope that they may consider human resources along with us regarding these matters.

○**Chairman Sekimura:** Thank you. Next we would like to hear the remarks of President Swafford. Earlier, we received an explanation from WANO Board Chairman Regaldo who focused on the viewpoint of an independent safety organization. We believe that the current expectations for JANSI from utility operators in Japan will not always be from this viewpoint, and may include different facets. Therefore, we would like the remarks of President Swafford to cover how voluntary or independent safety organizations in Japan should strive to be, based on their experiences in the US and Canada. Did any of the items such as expectations from utility operators which you just heard seem odd? Alternately, what are your thoughts on this matter based on your own personal experience?

○**President Swafford:** I wholeheartedly agree with the remarks given. I believe an unwavering commitment to excellence should be made. At the INPO office in Atlanta, there is a poster with the word "excellence" written on it. But the last "e" is missing from that word, and that is for a good reason. It shows how excellence can never be truly achieved, yet it is a goal which we must strive toward. I do not believe that dealing with regulations is a role meant for organizations such as JANSI. Instead, I believe the role of the voluntary regulatory organization is to pursue excellence and contrast matters against best practices. When looking at station performance from around 1981 or 1982 onward, it can be seen that it has improved every year. I believe this shows that there is mutual studying and learning, particularly from the mistakes of the other, and that this was not achieved by a single utility operator alone. Earlier, there were remarks touching upon the expectations for JANSI, and I believe those expectations should be to improve their functions and abilities, gain insight from events and lessons learned around the world, and utilize those matters learned. Additionally, I believe the role or expectation of JANSI is to seek proper response from utility operators on such matters to allow improvement of performance every year. Those are the matters sought in the US, and I believe that JANSI will develop into an organization which can achieve this.

○**Chairman Sekimura:** Thank you. We would next like to hear the remarks of President and CEO Matsuura. Based on your experiences, how do you believe that JANSI will continue to function as a voluntary regulatory organization with continual advancement into the future?

○**President and CEO Matsuura:** Regarding the independence of JANSI, this independence refers to whether the organization is firmly established and possesses the ability to do so on its own. Essentially, I believe this is a matter of the people who comprise such an organization. Additionally, the forces exerted upon it from external sources will determine that independence. In English, one of the definitions of independence is whether it can

avoid being influenced by undue pressure. These were the words used by André-Claude Lacoste of France during discussions on independence within the IAEA INSAG, and they are words I agree with. Regarding this matter of undue pressure, I vowed to myself to remain steadfast regardless of any undue pressure we may receive from electric power companies when I accepted the position of chairman of JANSI. Thankfully, no such pressure has been exerted upon us during my tenure, but this stance is one I intend to keep. Whether we possess the ability to be independent truly depends upon the human resources comprising our organization. The overwhelming amount of human resources comprising JANSI is members with experience at electric power companies. Accordingly, it is important how many skilled members are assigned to JANSI from electric power companies. This matter of what types of human resources would be assigned and from where was negotiated with each company individually shortly after the establishment of JANSI, but such dialogues did not go smoothly. As this is a matter where the big picture must be considered, I believe that the direct discussion of human resources between all electric power companies and JANSI for decisions which led to the formation of a "human resource deliberation committee" that is held several times each year shows matters are definitely making advancements in a positive direction. Another matter is how human resources will be developed within JANSI. The framework for human resource development within JANSI has been firmly established since around the previous year, and such development will be promoted within said framework. I believe that human resources firmly gaining abilities from various facets such as these for the improvement of effective ability via the experiencing of peer reviews and investigations into excellence, alongside the gaining of abilities by JANSI through the aforementioned human resource deliberation committee and facets such as the commitment of various CEOs will allow JANSI to maintain its independence. As for matters such as CAP, guidelines on this matter have been drafted by JANSI, and I would like definitive efforts on this matter to continue into the future.

○**Chairman Sekimura:** Thank you. If any of our panelists have any remarks after hearing this declaration of intent by President and CEO Matsuura, please feel free to share them now.

○**President Iwane:** I believe it is a very good thing that advancements are being made in a positive direction through the human resource deliberation committee. As I believe that human resources are a vital key to the management of the organization, I feel that it is important that appropriate response be taken by each utility operator upon learning of the issues facing JANSI itself or the issues with human resources. Therefore, I would like such matters to continue being covered at committees such as these. Regarding the guidelines, I would like JANSI to exhibit leadership in this matter while firmly establishing the distribution of roles. There remain many realistic issues facing the industry in Japan. I hope that the utility operators and JANSI can conduct thorough communication so as to possess a common awareness and strive toward mutual improvement on matters which we, the utility operators, must ensure are performed, alongside matters for which JANSI should provide support.

○**Chairman Sekimura (summation):** Thank you. I would now like to head into a summation of our panel discussion. I feel there has been very productive discussion on the future role of JANSI. I believe a singular direction has been shown regarding voluntary regulatory organizations, independent regulatory organizations, and the commitment by utility operators to activities. In addition to the enrichment and progression of various

activities among utility operators, regulations in Japan have become extremely well fortified with the progression of discussions on standard drafting, judgment, and inspection measures. To allow the guiding of a framework which possesses strengths such as the effective improvement of nuclear safety on an industry scale while taking the structure of the reciprocal benefits which I just spoke of into consideration, I feel that JANSI will have an ever greater role to fulfill. The utility operator must take the path travelled thus far into consideration when considering safety measures, not only for the hardware side, but the manner in which risk information is created and utilized, as well as the manner in which risk governance will be improved and RIDM will be promoted. The role which JANSI is expected to fulfill within these actions by the utility operator is to be an independent organization with an objective, third party viewpoint. It was just a year ago that Dr. Richard A. Meserve spoke of Strength in Depth at the meeting held by the Agency for Natural Resources and Energy, and this concept being announced in INSAG-27 means it is a fundamental concept which should lead to such a role for JANSI. I believe that all of the members which have participated in this conference here today have confirmed that a relationship of further positive tension with the regulatory side should be established while all relevant parties unify their efforts to promote the continued improvement of safety for nuclear power. With that, I would like to close this panel discussion.

[Survey results] 73 answers collected

- The keynote speech and sessions (short speeches and panel discussions) were generally understood and well received.
- For the keynote speech, many answers stated that a good understanding was gained of the experiences of ROP introduction in the US, and that the advice given based on these experiences would prove valuable as reference for introduction in Japan.
- For the short speech portion of the session, many answers stated that the contents from each presenter were simple and focused, and facilitated understanding of the topics for discussion in the later panel discussions.
- For the panel discussion, many answers stated that discussions were kept well organized thanks to the leadership exhibited by the Chairman. However, some answers stated that the contents of discussion were merely retreading the contents of the short speeches.
- While the conference length was shortened to half a day, there were no remarks nor requests received upon this matter.

END

[Closing remarks]

Hiromi Yamazaki, Japan Nuclear Safety Institute (JANSI) Executive Vice President



I believe this conference was an excellent opportunity to re-establish our dedication and gain a renewed awareness that the major prerequisite for the adoption of a new inspection measure by the national government, which represents a major turning point, is that the singular responsibility for ensuring the safety of the power station lies with the utility operator itself, and that additionally, the responsibilities of the utility operator do not stop at the boundaries of regulations, but it is of the utmost importance that voluntary and continual safety improvement activities must continue to be enriched. I hope all in attendance can take the products of the endeavors here today back to their own organizations for widespread utilization. We at JANSI will also continue to support the efforts being made by the utility operator via reviews in the field and support activities. I would now like to take this opportunity to explain about the next Annual Conference. At that time, we would like to take a look back upon the activities performed thus far in a renewed dedication to the founding mission of JANSI, which is to ensure that accidents such as the Fukushima Daiichi Nuclear Power Station accident will never be repeated. The next Annual Conference is scheduled to be held in March of next year. Finally, I would like to give my thanks as the conference organizer to all of the participants for their time, from those who spoke at the podium to those in attendance.