



Overview of JANSI Annual Conference 2024

- Time & Date: March 13, 2024 (Wed), 14:00-17:00
- Venue: Tokyo International Forum Hall D7
- Format: Hybrid (also delivered via Webex)
- Number of participants: Approx. 500 people



Keynote speech



Panel discussion

Opening Remarks



Chairman,
Japan Nuclear Safety Institute (JANSI)

William Edward Webster Jr.

I would like to express my deepest sympathy to those affected by the Noto Peninsula Earthquake that struck the Ishikawa area this January. Our respect and gratitude go out to all personnel who work for safety management at Hokuriku Electric Shika Nuclear Power Station and those working to restore the electric system for the entire Hokuriku region.

This 11th JANSI Annual Conference is a time when the nuclear industry comes together and reaffirms our collective commitment to earnestly pursue the highest standards of nuclear safety.

Today, we have about 100 participants at the venue and about 400 remote participants including the representatives of JANSI member companies and nuclear-related organizations as well as domestic institutions and members from the JANSI domestic advisory committee and international advisory committee. Furthermore, we have representatives from institutions abroad and international organizations. Thank you very much for your participation. This Annual Conference is held every March with the aim of reaffirming the seriousness of the accident at Fukushima Daiichi Nuclear Power Station, and renewing our collective commitment to never forget the lessons learned from the accident. While listening to the valuable lectures of the presenters today, we would like to take the lessons learned from the accident to our hearts again.

Five years ago, with strong industry involvement, JANSI formulated the 10-year strategy. In this short time, we have restarted seven reactors without serious event, and a total of 12 units have restarted operation. Our peer review program has achieved international

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recognition, and we have developed many training seminars, worked with members to implement a systematic approach to training, provided start-up assistance for units returning to service and initiated the early steps for comprehensive performance monitoring and continuous monitoring program. The business, climate, and geopolitical environment surrounding the Japanese nuclear industry has greatly changed in the past five years as well. With increased attention to energy sources that are safe, reliable, economical and produce low emissions, nuclear energy is once again gaining recognition as an energy source which satisfies all basic requirements of society.

Considering substantial progress of JANSI programs as well as stellar industry performance and considering the turbulent global situation regarding renewable energy, this is the right time for us to review the current strategy and move to the next phase. President & CEO Yamazaki will introduce the current ideas of the new 10-year strategy. I want to thank all of you that have put in so much effort in helping us prepare for major revisions in the 10-year strategy.

JANSI has been taking steady steps as a self-regulatory organization to make improvements for more than 10 years. With your support and helpful involvement, JANSI will continue to take on challenges and use our experience to make efforts diligently with wisdom and ingenuity. I believe that the industry's unified voluntary safety improvement efforts will generate synergy with the domestic regulations and lead the operators to achieve further improvement in nuclear power safety.

JANSI's goal of continuous improvement can be achieved by each employee continuing to work under the slogan of "Excellence Starts at Home", moving forward towards the common goals with member companies with all our efforts devoted to further improving the effectiveness of self-regulatory activities. I would like to ask for your continued understanding and cooperation in JANSI's business activities.

Guest Speech



Commissioner,
Nuclear Regulation Authority
Tomoyuki Sugiyama

Thank you for this opportunity to speak to you today.

I would like to speak about my current thoughts as a commissioner of the Nuclear Regulation Authority and my expectations for JANSI.

Japan was struck by natural disaster and experienced a difficult start to the year 2024. I offer my condolences for those that lost their lives during the Noto Peninsula Earthquake, and pray that those in the affected region can return to their normal life as soon as possible. At Hokuriku Electric's Shika Nuclear Power Station, some facilities were damaged, but thanks to the efforts of many people, the station has been maintained under stable conditions without any outbreak of serious situations. On the other hand, this earthquake once again resulted in the public to recognizing the difficulty of preventing complex disasters involving both natural disaster and nuclear disaster.

My understanding of the subject issue is as follows.



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·Nuclear facilities that conform with regulatory requirements have greatly reduced frequency of severe accidents caused by equipment failure and operational error. Any severe accident is likely to be caused by external events. This implies that the peripheral region is faced with many difficulties when a nuclear disaster is about to occur.

·We must not cause further difficulties to the already burdened residents in the site periphery. This means that we must prevent the release of radioactive material outside site premises at all costs regardless of the severity of the external event.

Such expression may have been unprecedented. When considering regulatory requirements established based on lessons learned from TEPCO's Fukushima Daiichi accident, it is obvious that measures to prevent complex disasters in the peripheral region are a must. Nuclear facilities that have conformed with regulatory requirements should have succeeded in implementing such measures. We would like nuclear operators to commit their maximum efforts in adequately reducing the frequency of radioactive materials released outside the site premises, and expect the achievements, based on long-term performance, to be evident to the public. For JANSI, we ask them to support long-term initiatives taken by nuclear operators as an organization tasked with fulfilling the role of conducting autonomous regulatory activities. On the other hand, it is the responsibility of the Nuclear Regulation Authority to focus on establishing a highly effective defense strategy which anticipates the release of radioactive material outside site premises.

I will now speak about the long-term use of reactor facilities. As you know, legal revisions were applied last year to the Electricity Business Act, Reactor Regulation Act and other relevant laws; and there is no more limit to the operational duration of commercial power reactors which was previously set to 60 years. The Nuclear Regulation Authority shall begin transition to the "long-term facility management plan authorization system" which integrates the "system for authorizing the extension of operation duration" and "technical evaluation system for age degradation". This involves screening the facility management plan of reactors, that have been in operation for more than 30 years, up to a maximum of ten years in the future, and also confirms that conformance to regulatory requirements is maintained even when considering the age degradation status of subject facility. The existing periodic safety review and safety improvement evaluation shall also be implemented. Such initiatives will allow for long-term operation. I will now present some points that are important regardless of if you are a regulator or operator.

1. The impact of aging is not limited to material degradation, and extends to various areas.
2. Regulatory activity such as screening attracts the attention of society, but field inspections are just as or even more important.
3. Always commit to gathering new knowledge, and apply them to operator/regulatory activities.
4. Safety standards will wane without continued efforts.

I have spoken about the same topic at the ATENA forum last month, but this is nothing new. If you get down to it, it can be said that subject topics represent continuous improvement which is the theme of today's panel discussion. To continuously push forward improvements in safety, we would like JANSI to support autonomous activities of operators through conducting peer review and identifying plant conditions.

I will now present three requests for JANSI.

The first request is about the peer review. I ask that JANSI conduct these reviews in a strict

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manner to pressure operators adequately. I understand that it is not possible to conduct such review in depth over a wide spectrum of areas; and therefore, requires focus areas to be chosen. But in deciding the focus area, I ask JANSI to consider not only results from the previous peer review, but also deficiencies that have occurred and weaknesses identified by regulators. I hope that this will result in areas for improvement being identified before the Nuclear Regulation Authority does, and that issues are resolved at an earlier stage.

Our next request is about finding good practices. As you are probably aware, the Nuclear Regulation Authority is not very good at giving praise. We have not made progress in establishing a system for granting operators incentives. While we do recognize that motivating operators regarding safety is an important role for a regulator, it is difficult to execute this while trying to enforce strict regulation. Therefore, we request JANSI to fill in the role of giving praise. Commendable initiatives should be praised to encourage operators.

Our third request is for JANSI and the Nuclear Regulation Authority to strengthen communication and coordination. JANSI's booklet lists a figure regarding the use of information on operating experience, while this figure connects JANSI and the Nuclear Regulation Authority with an arrow which reads "information exchange," the exchange is limited to results of screening analysis. I hope this situation is improved with a cooperative system being established which benefits both sides.

These are our three requests.

Finally, as mentioned previously, a panel discussion will be held today on the topic of "Continuous Improvement". Unfortunately, I will be unable to join this discussion, but there was participation by Nuclear Regulation Authority personnel in the past, so please consider this again. I hope that today's panel discussion will be beneficial for future JANSI activities and plans.

This concludes my speech. Thank you.



Chairman,
Federation of Electric Power Companies
Kazuhiro Ikebe

Firstly, I would like to express my deep condolences for those who lost their lives during the Noto Peninsula Earthquake. I would also like to express my deep sympathies for all those affected. While safety at the power station has been confirmed after the earthquake, it did have various impact on the power station. We believe it is important for nuclear operator to conduct thorough investigation to improve power station safety. Thus, a system with FEPC and ATENA which connects operators with vendors was established and the impact of the earthquake is being investigated. In addition to investigation from a technical standpoint, status of damages to the power station shall be identified and operational challenges such as communication of information shall be reviewed. Findings shall be shared with operators to be used in the review of safety measures to further enhance safety.

Regarding recent trends in international nuclear energy policy, five countries: Japan, US, UK, France and Canada, agreed last April at the G7 Minister's Meeting in Sapporo on a joint statement to commit to the maximum use of nuclear power generation. At the COP28 held



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in December, nuclear power was designated as a zero/low emission technology for reducing greenhouse gas, and over 20 countries have declared to increase the capacity of global nuclear power generation facility threefold by 2050. The use of nuclear power being critical for achieving of carbon neutrality was accepted on a global scale.

Domestically, the GX Promotion Act and the GX Decarbonization Electricity Act were approved in May, and the strategy of securing stable supply of energy and realizing carbon neutrality were established as pillars of our national policy. Legislation which defined the value in the use of nuclear power, clarified responsibilities of the government and operators and redefined extension of operation period were established to allow the maximum use of nuclear power. In a cabinet meeting held in August, a decision was made regarding policy for the ocean discharge of ALPS treated water. Following this, TEPCO is strategically making progress for the ocean discharge of treated water, an important step in decommissioning the Fukushima Daiichi Nuclear Power Station. Its safety is being checked in review missions conducted by the IAEA based on international safety standards. Regarding final disposal, revisions were made in the basic policy last April, and the draft reference survey report was disclosed by February 13th. It is very important for the government to be at the front line, and for operations to take place under government responsibility.

As the autonomous regulatory organization of the nuclear power industry, JANSI pushes for improvement through peer reviews and regular performance monitoring/evaluation, etc., and leads initiatives taken by operators to enhance safety. To maximize the use of nuclear power to realize both the stable supply of energy and carbon neutrality, the securing of safety is a major prerequisite. We nuclear operators are taking autonomous and continuous initiatives to enhance safety without becoming complacent with the safety myth, but to increase its effectiveness, it is necessary for the entire industry to work closely together under the principle "Excellence Starts at Home". JANSI's peer review has gained equivalency with WANO, and its role as an autonomous regulatory organization has become even more important. To fully enhance nuclear safety in the industry by fully utilizing experience and know-how and implementing effective and efficient initiatives, we ask for your continued efforts in aiming for excellence.

Finally, learning from initiatives taken abroad through discussions in this conference is a valuable opportunity. We nuclear operators shall use what we have learned and our insights from today in our future activities to continue striving to enhance safety.



Keynote Speech



CEO, Tennessee Valley Authority (TVA)

Jeff Lyash

Continuous Improvement

Tennessee Valley Authority (TVA) delivers power to 10 million people across the seven-state Tennessee Valley region. At TVA, we operate the nation's third largest nuclear power fleet, which comprises 40 percent of TVA's generation. Our three nuclear facilities – Browns Ferry, Sequoyah, and Watts Bar – safely and reliably deliver 8,300 megawatts of capacity – enough to power more than 8.5 million homes. Today, TVA operates one of the top nuclear fleets in the U.S., but for many years, TVA's nuclear fleet was known for poor performance. In 1985, TVA shut down all three of its Browns Ferry units to address performance and management issues. TVA received NRC approval to restart the final unit in 2007. Following the recovery at Browns Ferry, TVA resumed construction on Watts Bar Unit 2, which had been paused in 1985. Watts Bar Unit 2 began commercial operation in October 2016, making it the first new commercial nuclear unit in the United States in the 21st century. During that period, TVA's nuclear operating performance remained cyclical. However, within the past year, all seven of TVA's nuclear units have reached exemplary performance for the first time in our fleet's history. To address our performance challenges, we focused on three critical elements to improve our individual site and fleet cultures: our people, our culture and the reliability of our plants and equipment. I want to focus today mostly on the first two elements.

To improve in those areas, we had to ask ourselves tough internal questions about our standards. For example, did our actions at each site and for each employee match our organizational commitment to nuclear safety? We looked across all aspects of safety – public safety, plant safety, nuclear safety and employee safety. Where our actions did not meet our desired standards, we addressed it through training, through employee conversations, listening to feedback from employees and through employee-led safety teams. We invested in our fleet, and took initiatives that communicated to employees that safety is our overriding priority.

We used safety as part of the foundation of our overall culture. We confirmed if managers and employees started each job with a focus on safety and if peers were willing to coach each other and point out safety issues. Were employees willing to communicate safety concerns or safety improvements to management? Did management address safety suggestions to demonstrate they listened and that it was truly a priority? There is a quote from the late U.S. General and former Secretary of State Colin Powell, "The day soldiers stop bringing you their problems is the day you have stopped leading them. They have either lost confidence that you can help or concluded you do not care." Our people had to know that when they raised an issue, we listened, we cared and we addressed it.

We applied this principle to safety – first and foremost. Because if our team is united and focused on this essential core value, the culture we were building would carry forward to other areas. As we shaped the culture around safety, we could also address our performance culture. We looked at two specific areas: procedure adherence and human performance. Both are harbingers of overall fleet performance, and we decided to look at these through a slightly different lens. In terms of procedure adherence, we looked for



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barriers that caused issues for workers in the field and asked for their feedback. For example, was each procedure accurate, was each procedure executable in the field, did procedures at each unit align with best practices and lessons learned from other units and sites, did procedures include unnecessary steps and was there knowledge that workers in the field had that was not included in the procedure?

And, in the human performance category, would our workers stop a job if the procedure was unclear, if the employee was uncertain or if equipment conditions did not match expectations? And lastly, how did supervisors and leaders react when a job was stopped by employees with questions? Were those workers supported and rewarded, or were they pushed to proceed due to schedules or other pressures? When issues like safety, procedure adherence and human performance became management focuses — from our fleet and site leaders down to employees — our site and fleet culture began to change.

To further improve our culture, we had to improve our teamwork; teamwork encompassing every level of our organization and industry resources. What was the leadership like in the high-performing groups vs in the low-performing groups? Did teams across our sites work together, or did they function in individual silos? Did they consult with each other and share best practices, or did they try to resolve all issues independently? And lastly, as work groups, sites and a fleet, did we incorporate expertise, learnings or insights from around the industry — experts like other nuclear fleet operators, INPO, WANO, our Nuclear Safety Review Boards and JANSI? Or did we just want to get a passing grade from them during evaluations so we could keep doing it our way?

This brings me to another quote, this from National Basketball Association coach Doc Rivers: “Average players want to be left alone. Good players want to be coached. Great players want to be told the truth.” We want to be great players. When our standards were lower, we did not want anyone to question them or us as nuclear professionals. When our standards were set higher, we welcomed conversation, ideas and feedback, because it made us even better and helped us achieve those standards. It began a focus on continuous learning between employees and we sought out improvements.

The final piece of the puzzle in changing our culture was ensuring everyone across our nuclear fleet understood our long-term focus, direction and strategy. In 2018, Tim Rausch joined TVA as Chief Nuclear Officer and set a new path for the TVA Nuclear Fleet to become top quartile by the end of 2022 and the top fleet by the end of 2025. First, we communicated and reinforced this long-term goal across our fleet. We focused on continuous learning, and requested ideas for improvement and feedback.

Secondly, we listened to opinions from our nuclear fleet, individual power station personnel and others from the industry to encourage more critical questions aimed at ourselves to enable self-corrections to be made autonomously. We tried to actively identify potential issues. By setting higher standards and sharing fleet and site metrics, we enabled our entire team to see where they stood and our progress as a fleet against measurable performance standards.

Furthermore, we reinforced our leadership commitment to our fleet performance goal. We made decisions based on our long-term goals and not short-term needs. We highlighted equipment upgrades and plant investments we were making as a fleet to demonstrate organizational commitment to our long-range goals. We asked for and then celebrated ideas and innovations that moved us toward this goal — especially when they came from workers performing the tasks. Also, we recognized employee behaviors that moved us toward our site and fleet goals.

When you put all these actions together, it looks like what INPO calls its “Staying on Top” model. Within our fleet, we called it our “Continuous Improvement Culture” model which includes upholding high excellence standards, leadership and talent development, continuous learning, self-awareness, self-correction and setting long-term direction.



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Implementing this over time, we learned two major lessons at TVA. First is that excellence in nuclear operations is about people and culture. What typically makes nuclear performance cyclical is our standards, our culture and employee/leadership factors that lead to performance decline. We also learned that culture only improves through consistent, aligned leadership reinforcing high standards and continuous improvement. If leaders let standards slip in one area — safety, procedure adherence, human performance — standards began to fall across many areas. If leaders at all levels are not fully aligned on the standards and long-term goals, employees will not be aligned, and performance will wane. Leaders closest to the employees have the greatest impact on culture and performance because that's who employees interact with most. We focused on that level of leadership to have clear expectations, acceptable behaviors and increased training. If leaders are not actively seeking input, ideas, solutions and feedback from employees — those closest to the work — you cannot build a high-performing, self-correcting and continuous improvement culture. Workers will not raise up issue, barriers or challenges that can be quickly addressed before they become larger challenges to performance later.

Beyond individual nuclear sites and fleets setting high standards, we also need to set and reinforce the highest of standards across our entire industry. This is the critical role of an organization like JANSI. In the US nuclear industry, we are exceptionally strong at supporting each other. It has helped propel our performance results across our nation. CEOs identify shortfalls in performance with honesty, sincerity and transparency, and support each other to cooperate in taking initiatives to achieve excellence. At the same time, we also uniformly support INPO, working closely with the organization's team and valuing their feedback.

JANSI should establish a similar role and pursue robust initiatives across the Japanese nuclear industry. The first step is to be thoughtful and deliberate about improvements you want to achieve in this country. Establish strategic outcomes across the entire industry, and conduct continuous performance monitoring and monitor corporate performance. Meaningful feedback and learning should be realized. Then, CEOs and other nuclear fleet leaders must visibly and verbally support JANSI. Everyone must champion standards and initiatives from JANSI. You must be responsive to performance feedback from JANSI. This will further establish mutual standards and support between JANSI and nuclear operators, so that all sites participate in continuous performance improvements.

Allow me to share with you a couple of questions I try to ask myself each day as the head of TVA. How high are my standards and how am I demonstrating them to the organization? Is this communicated appropriately in a manner which does not invite misinterpretation? Do people across all levels of our organization know and understand my long-term goals and vision for TVA? How have I aligned people to that? Is more of our input across TVA from the management level or from those closest to the work and those who execute the work? Are these inputs considered thoroughly? What is the difference between what I perceive as our workplace culture and what employees perceive as their workplace culture? How do we close that gap? As an organization, do we seek out and rapidly implement external feedback and lessons, or are we pushing it aside because we know best?

Culture drives repeatable success and high performance. Let us build, nurture and reinforce a continuous improvement culture at the fleet and site level, and at the industry level.

Panel Discussion

Theme:

Continuous Improvement: How to extend in Japan

Panelists:

Jeff Lyash: CEO, Tennessee Valley Authority (TVA)

Hiroyuki Yamaguchi: Professor, Graduate School of Human-Environment Studies, Kyushu University

Kingo Hayashi: President and Director, Chubu Electric Power Co., Inc.

Hiromi Yamazaki: President & CEO, Japan Nuclear Safety Institute (JANSI)

Moderator:

Akio Yamamoto: Professor, Graduate School of Engineering, Nagoya University

Opening remarks:



Professor,
Graduate School of Engineering, Nagoya University
Akio Yamamoto

The theme of today's panel discussion is how to extend continuous improvement in Japan.

My understanding is that following the accident at the Fukushima Daiichi Nuclear Power Station (1F), continuous improvement has become a very significant keyword in terms of enhancing safety.

You may also be aware that the continuous safety enhancement consideration team at the Nuclear Regulatory Authority (NRA) held a discussion relatively recently.

Operators and other parties have maintained their continuous improvement efforts for over a decade, but the time has come to move on to the next phase. It is my hope to engage in discussions together with the panelists and the audience today.

Our event will first start by having the three panelists—who will give their presentations later—offer short speeches. Then we will proceed with the discussion based on the three points that we prepared today.



Panel Discussion

Short Speech:



President & CEO,
Japan Nuclear Safety Institute (JANSI)
Hiromi Yamazaki

Today, I would like to talk about the status quo and future trajectory of JANSI's efforts towards enhancing and expanding self-regulation. JANSI was established in November 2012 to realize industry self-regulation, which refers to operators going beyond just fulfilling legal regulatory requirements, disciplining themselves and one another to autonomous/continuously enhance safety, and thereby pursuing excellence. A self regulatory organization is a party that leads operators while maintaining an independent standpoint so that the self-regulation of operators advances effectively and efficiently.

This, in the context of a power station, without a doubt, points to activities that promote daily improvement on an autonomous/continuous basis: repeating the cycle of performance monitoring, identifying gaps to excellence and analyzing their causes, devising/implementing solutions, and monitoring the results. To effectively promote this effort, operators have introduced many systematic improvement promotion systems, including CAP, performance indicators, management observations, and risk management. Safety culture and personnel (leadership, knowledge, and skills) carry significance as the driving force behind these efforts as well. JANSI rigorously evaluates from a third party's standpoint regarding whether the autonomous/continuous improvements are effectively implemented and whether the efforts are continuously undertaken, and offers support in the areas of system introductions, effectiveness enhancements, safety culture, and personnel training.

Many of the systems for improvement were fully introduced after the 1F accident. These have become reliably established and are starting to function, and are currently in a phase to further enhance their effectiveness. As for the driving force, our evaluation is that the idea of self-regulation—learning from other companies and promoting continuous improvement—is becoming increasingly established, as seen in the drastic change in attitudes toward the acceptance of peer reviews (PRs) and other examples.

Excellence in power station operation management is the starting point for JANSI's activities. This excellence standard is consistent with WANO and INPO, and is shared worldwide. Serving as a bridge between Japan and global excellence, JANSI evaluates gaps between excellence through PRs and other means to support improvement efforts. JANSI's platform is functioning in terms of support (e.g., operators learning each other's good practices); operator executives share comprehensive evaluation results of their power stations, thereby encouraging improvements through peer pressure.

Since its establishment, JANSI has enhanced its activities including PRs, strengthened the commitment of executives by having all operator presidents participate as JANSI board members, started an integrated assessment system, devised the 10-year strategy, and has thereby endeavored to enhance the institute's functions. We consider that JANSI now has a system ready for leading operators. Incidentally, the institute has become the first organization in the world to have its power station PR program approved as WANO-equivalent based on international standards.

Regarding the current status of power station performances, the number of unplanned shutdowns at restarted plants has dropped significantly from pre-1F times, showing that highly safe/reliable operations are conducted. However, the availability factor is unstable because of the installation work for specialized safety facilities and other factors: the percentage, even when high, stays at around 80%, which is significantly lower than in the

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U.S. where the rate has been maintained at 90% or above for over two decades. There has been a major decline in the number of events subject to reporting under laws and regulations, regarding all domestic plants including those under long-term shutdowns, as well as deviations from limiting conditions of operation (LCO) and failures of important equipment, compared to before the 1F accident. I am confident that JANSI's activities to some extent contributed to the improvement of performances.

JANSI is currently revising its 10-year strategy and is in a phase to further deepen, expand, and enhance the effectiveness of industry self-regulation efforts. The institute is also making considerations based on new changes in the environment, particularly regarding the rising expectations of nuclear power, and U.S. benchmarking.

As the direction for future activities, JANSI has presented (1) having an attitude of autonomous/continuous improvement be instilled from executives and down to the front lines of the field; (2) building a sound community in which operators improve one another; (3) effectively implementing both PRs and (4) continuous performance monitoring in collaboration with WANO so that operators autonomously detect and respond to challenges early; and (5) achieving the world's highest level of safety and reliability. JANSI particularly hopes to further strengthen ties with WANO and boost the effectiveness of autonomous/continuous improvement by harnessing the characteristics of both WANO (i.e., global perspective) and JANSI (i.e., understanding Japan's culture and institutions, and being capable of performing in-depth reviews in Japanese).

Based on this mindset, JANSI devised a new Vision, through which Japan's operators are to aim for a state in which the world's highest level of safety/reliability is achieved and this state is maintained and continued by establishing autonomous/continuous safety enhancement efforts, and, further, JANSI is to aim for a state in which it leads operators from an independent standpoint as a global excellence authority. To achieve this Vision, JANSI has defined the universal elements of self regulation as safety culture, systems, personnel, and JANSI's foundations; arranged critical success factors based on these four pillars; and set contributing activities.

JANSI and INPO annually hold Japan-U.S. CNO Leadership Meetings as a platform for CNOs in Japan and the U.S. to exchange opinions and learn from each other. At last year's meeting, Ameren's CNO Fadi Diya said "Continuous improvement is like climbing uphill on a bicycle. To move forward, one must keep pedaling; once you stop pedaling, falling or moving backward are the only options left." The idea behind the new 10-year strategy is to have people with a healthy safety culture, leadership, and knowledge/skills that boldly facilitate a continuous improvement system to keep climbing uphill, with JANSI standing beside them to provide leadership and support so that the bicycle keeps moving forward.

JANSI will never forget the lessons learned from the 1F accident, lead operators to maintain the autonomous/continuous safety enhancement efforts, and thereby endeavor to establish a culture of continuous improvement in the nuclear industry.



President and Director,
Chubu Electric Power Co., Inc.
Kingo Hayashi

I would like to share efforts for autonomous/continuous safety enhancement at Hamaoka Nuclear Power Station.

To start off, allow me to introduce the three characteristics of the Hamaoka Nuclear Power Station. First, the power station stands 25 km from Tokaido Shinkansen's Kakegawa Station, and is at the hypocentral area of the potential Tokai region earthquake.



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Second, many people, approximately 820,000 residents, live within a 30 km PAZ/UPZ radius.

Third, Units 1 and 2 stopped operating in 2009 and are being dismantled (decommissioned).

Moving on to status of the review process, Units 3 and 4 are under review for natural phenomena regarding the reactor establishment modification permit. The NRA expressed general understanding for the reference seismic motions in September 2023, and we thereby consider that things are proceeding steadily, though we understand there still is a long way ahead.

Now I would like to share our autonomous/continuous safety enhancement efforts. Let me begin by our governance and organizational system.

We have established the Chubu Electric Power Group Nuclear Safety Charter and the Nuclear Safety Improvement Committee as a permanent management committee helmed by the President, and have also established organizations that feature two major characteristics; one is the Nuclear Safety Improvement Committee Advisory Board that takes opinions and reports for the Nuclear Safety Improvement Committee to incorporate the knowledge of outside experts, while the other is the Hamaoka Nuclear Safety Advisory Board (HaABS) to have internal and external experts review the field and report the situation directly to the President.

Allow me to give specific examples on this. The HaABS activity involves staying at the Hamaoka Nuclear Power Station for around a week twice a year to check the field, discuss with station employees, and have findings and advice directly reported to me, the President; it is a very valuable opportunity to hear honest opinions.

The next example, the Nuclear Safety Improvement Committee Advisory Board, features diverse members including an outside risk management expert.

I would like to share a very memorable point that Mr. Hiroyuki Kobayashi, a former JAL pilot and crisis management expert, made at a recent Board meeting on a recent crash accident that occurred at Haneda Airport.

Around half of the nine cabin attendants on board during the accident were new recruits. Of the eight emergency exits, the front two could be opened, but it was difficult to decide whether opening the exit on the left side at the very back was acceptable or whether it would worsen the fire. The cabin attendants made this high-level decision while neither the captain nor higher-ranking cabin attendants could be contacted. In a discussion about the profound unease revolving around 13 years having passed since the Hamaoka Nuclear Power Station suspended operations and half of its operators already lacking operation experience, Mr. Kobayashi said things would turn out fine if thorough drills and simulations are made daily—being a new recruit or lacking experience would not matter. This comment has left a strong impression on me.

Now I would like to talk about communication with the field (station employees).

As a CEO's effort, I visit fields to discuss and observe. There are two points about which I am particularly mindful; the first is about ensuring psychological safety. I focus on listening to the station employees' opinions as much as possible in a way that makes them feel comfortable talking. Given the difficulty to have them share what they are really feeling in person, I seek opinions from employees by asking them to submit various opinions—including non-station topics as well—to me online on an anonymous basis. I receive a lot of critical feedback, which I see as a very good thing.

The second is that I focus on discussing with younger section manager- and manager-class individuals in particular, and these conclude the general characteristics of my effort.

Now I would like to share what expectations of a self-regulatory organization. The key point is that we hope to see a steady implementation of the 10-year strategy. First, we would like JANSI to issue areas for improvements (AFIs) that will lead us to global

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excellence. We would accordingly observe the gap between the status quo and work to improve it.

Second, we would like JANSI to make visual representation efforts so that we can constantly identify our standing. If we have inferiorities, it is important for us to both know about and identify them.

The third (promotion of operators' autonomous activities through peer pressure) and fourth points (support for operators to establish self-reliance) expect support to be provided for operators to become self-reliant. Please refer to the slide.

To add one thing, for the last part on the fourth point, we hope to strengthen our relationship with various organizations: ones including operator-JANSI, inter-operator, and other manufacturers, with JANSI serving at the core. Reinforcing relationships and becoming a better organization, both in terms of rigor and as an information-exchanging platform, will likely help to bring the entire industry up to a higher level.



Professor, Graduate School of Human-Environment Studies,
Kyushu University
Hiroyuki Yamaguchi

I specialize in the fields of organizational psychology and group dynamics, and have been researching management approaches to securing safety in an organizational manner, based on humans' psychological issues and behavior levels. In this context, to improve continuously or to enhance a team's sustainability, I consider it important to advance improvement in a visible manner and on a team

basis instead of improving an entire organization with a single stroke.

Individual training is of course important, but while it must be provided, one should not expect it to result in ensuring safety, because the human cognitive system is full of biases. Considering the possibility that people may act incorrectly by assuming something is correct, there is a need to prevent situations where one person's failure immediately leads to a team-wide accident; instead, the team needs to ensure safety by quickly pointing out and making improvements if someone makes a mistake, or sharing noticed findings to prepare against risks.

One should, however, stay vigilant even when acting as a team. The failure to detect, point out, and correct have been pointed out as errors unique to a team. The failure to detect is about "not noticing"; the causes of which include working styles where, for instance, people are too occupied with their own work and not interested in anything else, or only do what one is instructed to do. The failure to point out becomes the biggest issue for an organization. This is an issue universally seen across industries, and involves people feeling uncomfortable pointing out incorrect actions made by supervisors and senior employees, or keeping quiet based on concerns of being subject to hostility or experiencing a negative impact on personnel evaluations down the line. This results from a shortfall in psychological safety and can be considered a cultural issue of an organization. The failure to correct pertains to an issue of shortfalls/lack of proactivity (e.g., being unable to act by thinking ahead; working passively).

Transforming an organization from one with flawed safety management to a proactive one is the key point to changing into an organization capable of continuous improvement. This requires a culture that takes on challenges; one that allows people to pursue fresh endeavors, and voice opinions about perceived wrongs. To that end, psychological safety is necessary. Psychological safety is not about working amicably with everyone, but about a

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state in which people are guaranteed they can offer criticism and have that accepted without any subsequent backlash.

The traditional approach to organizational management has mainly been a top-down one, where people are ruled by power and jobs are controlled by rules. However, in this age of VUCA (a state of uncertainty where predicting the future is difficult), if the future is uncertain and there exists difficulty in predicting it, free and active exchanges of opinions between people inspire the courage and spirit to take on new challenges. Looking at organizations across Japan today, all industries are in a reactive state, working passively and doing what they are told to do.

What's important is to take the initiative, think ahead, take assertive action—in a positive sense—and be capable of taking on challenging initiatives. To that end, working by having people mutually and actively present their opinions, rather than the leader controlling people through top-down instructions/orders, will likely be key in leadership from here on.

Discussion:



Mr. Yamamoto: Now, let us have a panel discussion about leadership and the significance of promoting continuous improvement, human resources development efforts, and impact of communication.

First, we would like to ask Mr. Hayashi and Mr. Lyash about leadership and the significance of promoting continuous improvement. In the keynote speech, you introduced the mindset and efforts to promote autonomous continuous improvement. What does continuous improvement mean for stakeholders in the broad sense, or what incentive can be given to operators to make continuous improvements in light of this?

Mr. Hayashi: This is a very important and difficult question. We have many stakeholders. When we think about what we can provide, we owe it to all stakeholders to accomplish the tough mission of achieving stable energy supply and increased security in Japan through nuclear power generation as well as carbon neutrality all at the same time. The most important thing for this is pursuit of safety and trust. This does not mean simply following rules and working according to manuals but enhancing safety to a culture that enables maintaining high performance and further improving it. To foster such culture, it is essential to always be aware of gaps between excellence and performance and autonomously and continuously make proactive improvements to resolve this. I believe it is important for the company president and leaders to present a long-term vision within the company and strive to secure and develop human resources, and for all employees to have a strong sense of awareness and self-criticism and proceed with the determination to notice and correct matters on their own.

Mr. Lyash: There are several necessary elements for an organization to commit to continuous improvement. The first element is to understand the impact on the mission. For example, our stakeholders want affordable, reliable, resilient and cleaner energy supplies. Each and every employee needs to understand such mission as well as its impact. The second element is that we must understand our behavior and performance as individuals, as a team, and as an organization, by the minute. We have to figure out if it is a plus or minus for what we want to achieve. We need to understand that our behavior ultimately has a large impact.

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It is also important to guarantee transparency for our stakeholders, although it is difficult in the nuclear energy business. Transparency is to clarify areas where performance is lacking as well as corrective actions, which is sometimes painful, but this leads to building trust with stakeholders.

The role of leadership is essential for continuous improvement. Leadership is not simply owned by CEO and executives. Behavior of leadership comes down to each and every employee. Even the lowest level employee can exercise leadership. We need to empower each and every person to make them feel they are responsible and have something they can do.

Mr. Yamamoto: Mr. Lyash, what is your definition of stakeholders?

Mr. Lyash: There are internal and external stakeholders. Internally, each and every employee is a stakeholder. We need to mutually understand that everyone has their own perspective, rather than being the same. Our clients are also stakeholders, who have expectations for us. For example, they expect reliable, resilient, affordable and clean energy. Politicians and elected people are also stakeholders. What we do must be consistent with what the national government or state is trying to do. In addition, environmental conservation organizations are interested in environment-related matters, and economic organizations are concerned about how we impact the economy. The nuclear energy business is very complicated, and there are no other products that have such implications for safety, people's QOL, and economic prosperity at the national level.



Mr. Yamamoto: I was impressed by your answer of having a very broad view of stakeholders. Mr. Yamazaki, after hearing what Mr. Hayashi and Mr. Lyash said, can we hear about what initiatives you think are especially important as JANSI?

Mr. Yamazaki: There are three most important initiatives. First is firmly established mechanism for improvement which is effectively functioning, second is leadership to run such mechanism, and third is sound safety culture ensured to run such mechanism. It differs among operators from those that have just introduced the mechanism to those that are quite advanced. As JANSI will provide support according to the situation, I believe the mechanism will eventually be in place at every power station in Japan. Next are leadership and safety culture to run such mechanism. If there is a problem here, the mechanism cannot be run. Mr. Lyash said what remains at the end is people and culture. He also added equipment reliability, but mechanism building was done 10 or 20 years ago in the US, so I think he mentioned equipment as the next issue. In Japan, we need to build the mechanism and focus on people and culture for the time being.

Mr. Yamamoto: Leadership in Japan is often misunderstood as something exercised by CEO and top executives, but what Mr. Lyash said was that leadership is exercised by people of all levels. In a book about teaming I read in the past said there are two types of leadership, one with a capital "L" and the other with a lowercase "l". Mr. Yamaguchi, what are your thoughts on the importance and continuous improvement of the two types of leadership as well as their relationship?

Mr. Yamaguchi: In a hierarchical organization like a company, I think leadership of top

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executives can be what is conventionally referred to as, but there is another hierarchy under the top executives, and another hierarchy under that, each with its own group of subordinates. Recognize such group as your own team and exercise leadership to make the team better. To do so, we need to listen to the opinions of our subordinates instead of simply giving your opinions from a higher position.

Leadership is not exercised only by leaders and people in such positions but refers to having a good impact to accomplish goals raised by each and every member.

There is of course leadership to look at the whole picture from a top executive position, properly present one's vision, and pull others toward it, but characteristics of leadership to be exercised by each level are also gradually changing. However, what is in common is that focus is placed on getting subordinates to speak rather than speaking yourself and on eliciting their opinions. Especially for continuous improvement, such leadership will be important to elicit the awareness to do things on our own with a sense of ownership.

Mr. Yamamoto: Mr. Hayashi, you exercise leadership with a capital "L" on a daily basis, but I believe you are also mindful of exercising leadership with a lowercase "l". How would you describe this?



Mr. Hayashi: Let me introduce what I keep in mind. Leadership roles exist at various levels. What is in common is that each person should listen to the opinions of their respective subordinates and peers. We often ask about areas that we do not know about and areas that we are unfamiliar with, but we tend to ask less about areas of expertise and areas where we grew up in. So, I have an awareness that even areas that I know well are completely different between now and 10 years ago and try to think that people who are doing it now have a higher level of knowledge than myself. You stop learning when you think you know everything, so we should start by keeping in mind that your subordinates may know more than you do

and younger people may know more than even your subordinates.

I try to speak after listening to the opinions of as many people as possible at various meetings. I think it is important to make such detailed rules for myself. This is extremely important.

Mr. Yamamoto: Mr. Lyash, do you have any comments or opinions on our discussion about leadership?

Mr. Lyash: To create a continuous improvement culture, it is essential to clarify what is expected at which level regarding leadership behavior. I try to tell it in a story as much as possible. I talk about how someone in this department of this organization did this to make operation better and how it led to a very good result. I think it is important to tell people of different levels examples of leadership behavior of their level.

Mr. Yamamoto: I felt it is extremely important that continuous improvement leads to leadership development at various levels.

The second topic is human resources development. First, Mr. Yamazaki, JANSI is also working to develop human resources in the broad sense. From such perspective, what are approaches and mindsets that you would like to have the people being developed to have?



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Mr. Yamazaki: JANSI currently has two main initiatives. One is leadership training by level, where CEO training, CNO training, site superintendent training and shift supervisor training are conducted at their respective levels. The other is support to improve the quality of training conducted by each power station on their own accord. Power stations are now working on SAT, and it is already in place at some stations.

Especially in leadership training, we keep in mind that leaders must never forget the Fukushima Daiichi Nuclear Power Station accident in operating power stations in Japan. Based on the lessons learned from the accident, we conduct training to be prepared to properly instruct your subordinates in such kind of situation as if you were the President or site superintendent. This is leadership in a crisis, but as it has been conducted for more than 10 years, we have gradually shifted to training to develop leaders who can think about what kind of organization and culture should be created to prepare for a crisis from normal times.

We expect two things from training participants. One is to have them set high goals for themselves and feel they must work together toward such goals, while understanding the importance of autonomous and continuous improvement based on their reflections on the Fukushima Daiichi accident. When your standards are low, you stop learning from outside and be satisfied with the status quo. So, it is important to be aware that you need to always work with high standards, which will lead to self-awareness and self-correction. I would like to have all levels feel this way, so that autonomous improvement is not a task they are forced to do but something that is their own.

The other point was discussed under the theme of Safety II and resilience in the Annual Conference two years ago. Behind the success of various operations on a daily basis, people in the field flexibly address slight deviations from normal conditions using their knowledge and experience 99% of the time, and if something does not go well and results in an accident, we need to educate people that people should not be regarded as the cause of human errors but resources for resilience. In specific, this means not just following manuals but also understanding the background of the manual and developing the ability to think on your own. This leads to autonomous improvement, but it cannot be done by JANSI alone, so we need to have each operator have such initiative in their training.

Mr. Yamamoto: Mr. Lyash, we have some questions from our participants.

In the keynote speech, you talked about adding knowledge that only workers in the field have, which are not written in the procedures, in the procedures. Was this successful? If so, how did you devise ways and what kind of difficulties did you face?

Mr. Lyash: This is something ongoing, so we cannot say that it has been successful and has come to an end. It is important to have workers sufficiently incorporate their knowledge in training materials and procedures to support others. This was very important especially in the replacement of people at the workplace and in plant revitalization projects. The key is to have workers themselves have ownership of the procedures and instill a sense of ownership in them. If the procedures are unclear or incomplete, it is their responsibility to stop their work until the procedures have been revised.

Mr. Yamamoto: Another question for Mr. Lyash. Browns Ferry Unit 1 restarted its operation after being shut down for an extremely long period of 22 years. BWR plants in Japan are also in long-term shutdown, and operators are struggling to develop human resources and motivate workers. Can you give a message to Japanese operators on this matter?

Mr. Lyash: It takes a tremendous amount of effort, because you are trying to rebuild local culture, rebuild decision-making for station operations and rebuild teamwork in an operating environment. And such effort must continue. It does not end at restart; in fact, it starts

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there and continues as long as the operating cycle continues. One advice is to involve others. For example, get JANSI, WANO or colleagues involved to build teams and performance. Then, make gaps objectively visible, acknowledge it, and make an effort to resolve them. It is important to use industry resources as broadly as possible, rather than doing things on your own.

Mr. Yamamoto: I took what you just said also as a great expectation for JANSI. Another question. Mr. Lyash, in your keynote speech, you talked about reliability of people, culture and equipment. If you were to ask operators and the regulatory authority in Japan, you would expect them to set the order or priority in the reverse order. Was it in this order in the US from the beginning?

Mr. Lyash: In the history of the industry, there was a time when we focused on equipment first, but equipment performance is, after all, human performance. Engineers design equipment, maintenance personnel provide equipment maintenance, and operators operate equipment. It is also up to people whether to accept it if equipment performance is insufficient. Equipment performance is important, but in the end, that is the result of people and culture, so it goes in that order.

Mr. Yamamoto: Mr. Yamaguchi, your expertise is people and teams. Before the Fukushima Daiichi Nuclear Power Station accident, ensuring nuclear safety in Japan was biased toward equipment reliability, which is said to be one of the causes of the accident. Importance of people and culture is gradually recognized, but I don't think we necessarily made the switch completely. Based on the situation of other industries, what are your thoughts on the current situation of nuclear energy?

Mr. Yamaguchi: I have visited Fukushima Daiichi and Fukushima Daini Nuclear Power Stations and the Training Center with members of the Central Research Institute of Electric Power Industry, and gave my opinion on what kind of safety management training should be conducted. In past trainings, manuals were created and people were trained to behave according to the manual, but in reality, things do not go according to the manual, or things slip from their minds in the face of reality and people panic because they cannot determine what they need to do. I feel it is important to provide coaching rather than training, where we can determine the situation on our own and autonomously act.



This is an issue of how we regard people. People can think for themselves, make their own decisions, and act on their own. We believe in that power, and we should enhance it. We need to work not only individually but also as a team to share and enhance each other while working together. I believe this is a small shift in perspective when thinking about people, for those who work with safety as key performance.

Mr. Yamamoto: What Mr. Yamaguchi just said goes hand-in-hand with the actions of flight attendants during the accident at Haneda Airport mentioned by Mr. Hayashi in his short speech. I understood your point to be that it is important to work on continuously updating ourselves, but in order to make this possible, I personally think it is extremely important to keep learning. On the other hand, looking at the "Future Human Resources Vision" report of the Ministry of Economy, Trade and Industry,



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I must say that Japanese people unfortunately do not have much of a habit of continuing to learn after entering the workforce. Mr. Yamaguchi, where should we start in our initiative to update ourselves in such kind of situation?

Mr. Yamaguchi: Human motivation is most heightened for goals set by oneself. It does not resonate well if someone from outside tells you what they expect of you or how they want you to be. It is important to give the individual more opportunities to think about what kind of work they can do and what kind of person they want to become, and communicate with the person in a companionable way what kind of learning we should continue to do on a daily basis to achieve this.

Mr. Yamamoto: Mr. Lyash, in the nuclear industry in the US, has the importance of continuing to learn always been recognized, or has it been recognized at some point in time and continues to this day? Please tell us about the historical background.

Mr. Lyash: In 1979, the Three Mile Island accident occurred, which led to the establishment of INPO. As a result of INPO and the industry working hard for decades from there, a perception emerged to seek excellence and not simply comply with regulations. Moreover, the perception was that it is not something that ends somewhere but an ongoing process. The perception matured that the key to achieving and maintaining excellence is to continuously improve your abilities and performance to always be proactive in finding opportunities to become better.

In the past 10 years, such commitment seems to have accelerated in the US. As a result, "staying on top" is talked about at INPO more recently, and the key to this is continuous learning. The American industry is finally starting to get the gist of it after decades, and there is still some groping to be done.

Mr. Yamamoto: The third topic is communication. Mr. Hayashi, what do you emphasize the most when communicating with internal and external parties?

Mr. Hayashi: Let me introduce this specifically for the nuclear business. In the nuclear business, communication is extremely characteristic. For example, there are many occasions that require special communication, since there is a very high degree of expertise in the topic itself, there is a great deal of dependence on the knowledge, experience and skills of individuals, and it is very closed and confidential in some ways. To pursue safety in this context, it is important to share our skills, experience and knowledge with you, and to do so, it is important to have thorough discussions within each team, organization and company. This will allow sharing tacit knowledge held by individuals and some organizations and turning it into formal knowledge. As you voluntarily repeat such formal knowledge in your own work, it will turn into your tacit knowledge. I think the start is to listen, and it is important to create an environment where psychological safety is maintained.

Mr. Yamamoto: Mr. Yamaguchi's presentation materials said that psychological safety is a state where everyone is sure that they do not have to worry about being evaluated negatively even if they freely speak their mind. In a situation of regulatory authority versus operator, where it is difficult to ensure such psychological safety, what kind of communication do you think should be used?



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Mr. Yamaguchi: No matter what industry, Western or Eastern, there is fear and anxiety when trying to communicate within an organization. It used to be said that it is important to somehow shake them off, say what needs to be said, and have the courage to say it out loud, but it is cruel to ask individuals to have that kind of courage. So, it is important to engage in lively discussions on a regular basis, and when opinions are at odds, it is important for managers and leaders to say that it is a good opinion and encourage people to share their opinions more and more, because although it may be painful to hear, it will actually lead to new insights and help eliminate assumptions.

Leaders should encourage people to learn from each other rather than hide it, because everyone makes mistakes, and someone else's mistakes may be a learning experience for others. Or, if they are too busy to take time immediately, leaders should always make an opportunity at a later time. It is important to continue to encourage everyone to work together to improve the team.

Mr. Yamamoto: Mr. Lyash, authority gradient with NRC is an issue in the US. Has its impact changed between the past and recently?

Mr. Lyash: There have been times in the past when the relationship between the NRC and operators was strained and not transparent or open. However, the industry and regulatory authority matured, and its relationship greatly improved. After the establishment of INPO, the relationship between the regulatory authority and operators improved, and the relationship between the regulatory authority and INPO also improved. The regulatory authority has become accustomed to the industry exercising self-regulation and has changed to a more appropriate regulatory role. Currently, communication is relatively good.

Mr. Yamamoto: How much time did it take for the regulatory authority and industry to mature?

Mr. Lyash: I think it took too much time. Moreover, this is a "long and difficult journey", and it is still continuing. I think we need a few decades to get there. However, I think the more we continue our journey, the more positive results we will produce, and the more we will want to build such relationship.

Mr. Yamamoto: Mr. Yamaguchi, Japan is said to represent high context culture and the US to represent low context culture. Can you explain how a high context culture affects continuous improvement or safety improvement?

Mr. Yamaguchi: High context culture is a culture where a high degree of exchange is made when interacting, assuming that we can understand each other without having to explain everything when having a conversation. Low context culture is a culture where you have to put what you are thinking into words to be understood. High context culture has both good and bad sides, but when it comes to safety, it tends to lead to assumptions, in principle. In fact, in the field of rail transportation, there have been many cases where this has led to secondary disasters.

Mr. Yamamoto: After hearing this, I feel JANSI needs to be careful when communicating with operators or when providing education. Mr. Yamazaki, what do you think?

Mr. Yamazaki: We must be very careful of high context in station operations aside from communication with operators. In protecting safety of the power station, we need to



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properly say necessary information out loud or put it in writing, and convey them at appropriate timings.

Currently in Japan, most continuous improvement mechanisms of the industry originate from the US. This means that the mechanisms were successful in a low context culture, but it probably will not be run properly if this is adopted in Japan only in form. For example, when CAP was initially adopted, it was asked to report everything out of the ordinary, but they did not come up easily. I think it was not reported because people in the field thought, "We do not have to go into such detail." or "They must already know it."

This will never make the mechanism work, so we need to ask people to report any information to share that information with everyone and build up experience where everyone can feel that matters are properly addressed after determining the order of priority and improvements are made due to the report. In that sense, we need to adapt the mechanism to Japan based on the culture of the original country, instead of just using the mechanism adopted from the US as is. I believe JANSI's role is to bridge the gap by going back to the original idea of how the mechanism was created.

Mr. Yamamoto: Mr. Lyash, in past discussions, the trend is that low context culture fits well with safety. Is this really so?

Mr. Lyash: We are a low context society, so we must create the context for continuous improvement and safety improvement. Low context is inefficient. It requires much work, and it tends to create conflicts as differences of opinions are brought to light. That is why we need to create the context. This will create a sense of ownership and eliminate assumptions or eliminate blind spots. It could also lead to supporting continuous improvement and learning.

High context culture like in Japan is more efficient in their approach to problems and have advantages in terms of psychological safety. The disadvantage is that built-in biases and blind spots could remain as is. While we create the context, in Japan, the context may need to be dismantled once and recreated.

Methods of the US may not be used in Japan as they are. The underlying ideas and philosophy are probably applicable in Japan, but we need to change the tactics.

Mr. Yamamoto: Lastly, we would like to have each panelist given their comments on today's discussion.

Mr. Hayashi: The discussion was about safety of the nuclear business, but there were also many discussions about management itself. Among them, I was impressed that putting people first is the basis for everything, whether it is safety, efficiency or management, as it was mentioned in Mr. Lyash's presentation. As a leader with a capital "L", I reaffirmed the importance of top executives sending out a message to their employees, who are especially important stakeholders, that people are important, showing their passion, and actually investing in human resources.

Another point from what Mr. Yamaguchi said, it is not a person's job to simply comply with the rules. It is important to once again discuss with everyone what is a job that only people can do. If mechanization advances and generative AI becomes more practical, we may not have to do operations in the indirect sector. However, there will always be work that can only people can do, and that is where we should invest. Therefore, I would like us to keep discussing what that is.

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Mr. Yamaguchi: As it was mentioned by President Hayashi, I felt that if we develop human resources regarding each working person not as a cog in a machine but as a being with the ability to make decisions autonomously, and consider safety management from there, we will be able to improve even further. I think we are going the right way in our path of practice and our efforts for continuous improvement, so I appreciate if we could move forward with a better view of people.

Mr. Lyash: Nuclear technology is essential to helping people around the world escape poverty and protecting the environment. I would like the nuclear industry in Japan to take a leadership position that the world needs. You have an excellent record and have excellent organizations involved. The world expects you to advance to the next level overcoming the tragedy of Fukushima. I think discussions like today are truly important, so please continue to have them. It is important for various leaders of the nuclear industry to encourage and help each other to realize the highest level of performance. Please utilize JANSI for this. INPO became the key in the US, so I hope you can make it happen also in Japan.



Mr. Yamazaki: I strongly felt that we were not mistaken in our year-long discussion on the importance of mechanism, people and culture, especially people and culture, which are a particular focus in JANSI's new 10-year strategy. I thought that a continuous improvement culture could be created by having leaders aim higher with high standards, involving leaders at all levels with a strong will, having them continue to improve on a daily basis as if it were their own responsibility, and accumulating successful experiences in the process. I hope we can work together with the leaders gathered here to achieve the world's highest level of safety and reliability, which is raised in the future vision of JANSI, without being satisfied with the status quo in their respective positions. JANSI will always be by your side to support this.

Mr. Yamamoto: It was a short time, but we had an interesting discussion on three themes. I would like to give my gratitude to the four panelists.

Closing remarks



President & CEO,
Japan Nuclear Safety Institute (JANSI)
Hiromi Yamazaki

The purpose of this year's conference was to raise awareness of the industry through discussions with relevant personnel and obtain valid suggestions, regarding our challenges for the next 10 years.

In the keynote speech, Mr. Lyash, CEO of TVA in the US, gave a valuable and practical talk about continuous improvement initiatives based on his own experience, which is sure to have been a great stimulus for the participants.

In the panel discussion, Mr. Yamamoto led the discussion on how to develop autonomous and continuous improvement in Japan with CEO Lyash, Mr. Yamaguchi of Kyushu University and President Hayashi of Chubu Electric Power. We obtained various beneficial insights, such as autonomous improvement initiatives, fostering of such culture, efforts as top executives, leadership, and communication.

In order to meet the expectations of the society toward nuclear energy, it is important for us nuclear industry to continue to pursue excellence and improve performance, without being satisfied with compliance with the regulatory requirements. I would like us to utilize the many suggestions obtained today in our respective positions.

JANSI will continue to respond to operators' mandates and lead their autonomous and continuous improvement activities as a self-regulatory organization of the industry. Thank you for your participation today.