

May 27, 2025

Tokyo Electric Power Company Holdings, Inc.
Board of Directors

Results from the Monitoring of Nuclear Safety Reforms
22nd Nuclear Reform Monitoring Committee Meeting

In September 2012, Tokyo Electric Power Company Holdings, Inc. (hereinafter referred to as, “TEPCO HD”) established the Nuclear Reform Special Task Force in order to reflect upon the Fukushima Daiichi Nuclear Accident. In conjunction with this, TEPCO HD also established the Nuclear Reform Monitoring Committee (hereinafter referred to as, “NRMC”) in order to monitor and supervise [reform] initiatives from an outside perspective.

The NRMC monitors and supervises the reform initiatives that must be implemented by TEPCO HD so that it can be a nuclear operator with the world’s highest levels of safety awareness, technological capability, and the ability to engage in dialogue with society.

At the 21st meeting of the Nuclear Reform Monitoring Committee held on February 13, 2024, the NRMC commended TEPCO HD for its implementation of initiatives to address key issues pertaining to the string of incidents [that had occurred recently]. However, it is important that TEPCO HD continue to voluntarily engage in the initiatives it has implemented and make improvements so as to create sustainable systems/mechanisms/culture while also refining its organizational capability to steadily implement them.

Therefore, based on the details of past monitoring results, the NRMC has monitored/supervised TEPCO’s voluntary and continuous initiatives from, in particular, the perspectives of “improving safety culture/safety” and “communication.”

This monitoring/supervision by the NRMC has been implemented in the form of a midterm report presented to TEPCO HD (October 17, 2024), opinion exchanges with upper management, visits to the Fukushima Daiichi Nuclear Power Station (hereinafter referred to as, “Fukushima Daiichi”) (June 17, 2024, etc., 2 times in total), visits to the Fukushima Daini Nuclear Power Station (hereinafter referred to as, “Fukushima Daini”) (May 23, 2025), visits (February 14, 2024, etc., 4 times in total) to, and reviews (May

13~17th) of, the Kashiwazaki-Kariwa Nuclear Power Station (hereinafter referred to as, “Kashiwazaki-Kariwa”), and attendance at various briefings, etc. (February 7, 2024, etc., 6 times in total).

In addition, at the 22nd Meeting of the Nuclear Reform Monitoring Committee held today, TEPCO HD gave a report on the status of improvements that have been made pertaining to the key issues as well as the status of nuclear reform initiatives.

- At Fukushima Daiichi, there have been no significant troubles since the commencement of the ocean discharge of ALPS-treated water on August 24, 2023 and 12 discharges have been implemented. Dismantling of the tanks in the J9 area, which have been emptied in conjunction with ocean discharge, began on February 13, 2025. This is the first time that welded tanks have been dismantled so we would like TEPCO HD to prioritize safety while proceeding with the dismantling.

Furthermore, trial retrieval of fuel debris, which is the third and final stage of the Mid/Long-Term Roadmap, was implemented and the first ever sample of fuel debris was successfully retrieved on November 7, 2024. Even though there were small issues, such as the incorrect ordering of the push pipes and camera malfunctions, etc., safely retrieving a fuel debris resample was a huge accomplishment considering the high dose environment in which the task was performed. The second trial retrieval was also completed on April 23, 2025. All worker radiation exposures were carefully controlled when working in radiation areas to ensure that all personnel radiation dose exposures were kept to well within all international and national radiation protection limits. We would like TEPCO HD to continue to take great care and remain vigilant during the implementation of this task.

The NRMC confirmed that TEPCO HD has conducted cause analysis and implemented countermeasures to address the four troubles that occurred, such as the body contamination of a worker in the additionally installed ALPS building, etc., conducted inspections to assess risks for all work underway at Fukushima Daiichi, and is engaged in improvement measures to address issues identified during these inspections. At the same time, TEPCO HD is also enhancing its operator/worker-first system/education and gradually making facility/environmental improvements. Whereas the NRMC commends TEPCO HD for these efforts, it also expects to see a decrease in troubles as a result of these initiatives.

Furthermore, in regards to decommissioning, there are many new facilities, equipment, and work being handled by other companies and the NRMC cannot deny

that TEPCO HD is engaged in tasks that cannot complete on its own. Therefore, TEPCO HD must strive to further improve its technological capability while also continuing to persevere to gain understanding from external parties.

- In light of the December 2023 classification change pertaining to nuclear regulatory inspections at Kashiwazaki-Kariwa, Unit 7 was charged with fuel in April 2024, and in June of the same year technical preparations for startup were completed. Furthermore, in February 2025, the Nuclear Regulatory Authority approved the safety regulations for Unit 6 thereby completing all inspections required for startup.

However, since deviations from the limiting conditions for operation (LCO) caused by a partial malfunction of satellite telephone equipment at Unit 7 occurred four times in the last year, on April 30, 2025, the Nuclear Regulatory Authority changed the safety record index [for Kashiwazaki-Kariwa] to Category 2 and the plant was slated for additional inspections. Even though the equipment was restored within the period specified in the safety regulations after LCOs were deviated, LCOs should not be repeatedly deviated by the equipment with the same function in a short period of time, and the NRMC would like TEPCO HD to ascertain the cause and implement recurrence prevention measures if for no other reason but to ensure that there are other means of communication available in the event of an emergency.

In regards to the period of completion of specialized safety facility construction, the submitted notification of modification of the work plan pertaining to the commercial nuclear reactor installation permit changed the date for Unit 7 from March 2025 to August 2029, and from September 2026 to September 2031 for Unit 6. The scale of this facility construction is vast and will take many years, but it is important that safety be prioritized and steady progress made without just abiding by the schedule for schedule's sake.

The NRMC's findings pertaining to the status of improvements to address the entire situation, "safety culture/safety improvement initiatives" and "communication initiatives" are as follows:

- Entire situation

Although TEPCO HD is making steady progress with nuclear safety reforms, troubles such as human errors, including worker accidents, continue to occur. It is important that upper management show leadership in working as one with contractors to further strengthen initiatives pertaining to safety culture/safety

improvements and voluntarily continue to engage in the nuclear safety reform initiatives implemented to date while ensuring that all TEPCO employees and contractors never forget that nuclear safety is their utmost priority.

○ Safety culture/safety improvement initiatives

Steady progress has been made with safety culture/safety improvements at Fukushima Daiichi, Fukushima Daini, and Kashiwazaki-Kariwa, and troubles that occur at the power stations are shared with other sites.

However, although progress has been made with safety culture initiatives at each site, recent troubles, for example, the series of troubles that occurred at Fukushima Daiichi, were primarily the direct result of human error by contractor workers. That being said, the NRMC would also like TEPCO HD to implement not only personnel-focused measures but also equipment-focused measures to prevent human error. The fact that worker accidents have increased is concerning, and the NRMC would like to see further progress made with initiatives to address labor safety that include contractors.

In particular, the rash of worker accidents that occurred during FY2024 at Kashiwazaki-Kariwa was unfortunate, but the NRMC has confirmed that TEPCO HD has begun analysis of the underlying factors/root causes of these human errors that focuses on the way in which daily tasks are carried out, so we expect these initiatives to be successful.

During the review of Kashiwazaki-Kariwa, no nuclear safety concerns, or issues with power station safety measures/personnel safety awareness were found, and the NRMC has confirmed that safety culture at Kashiwazaki-Kariwa is sound. Accident handling training (simulator training) and emergency response drills for operators has proven effective. Power station personnel have an excellent attitude and morale is high. Even though approximately 40% of the operators at the plant have no experience working at an operational plant, reactor startup/shutdown and accident handling training has been provided to all operators, and operators have been dispatched to operational thermal power plants and nuclear power stations so that the operators with no experience at an operational plant can gain knowledge and experience about plant operations when a station is online. Corporate leaders constantly provide guidance that focuses on complying with rules and regulations, and going forward it is important that any task that does not fulfill expectations be

suspended and that peer checks and 3-way communication¹ be proactively leveraged while also fully ensuring that the appropriate human performance (human error prevention) tools be leveraged during all tasks. Since various events will occur at a power station restarted after long-term shutdown, the NRMC would like to see attention given so that conservative judgments can be made and issues appropriately handled when such events occur.

○ Communication initiatives

As a whole, initiatives to improve communication not only between upper management and power station employees, but also with contractors, have continued and been strengthened, and as a result various measures (encouraging personnel to greet one another, leveraging the Safety Steering Council, publishing materials on human performance tools for power station personnel and contractors) are being implemented.

Under the leadership of upper management, communication with contractors has transcended the boundaries of client/vendor and efforts to have personnel in the field aim to work as “one team” have just begun. In particular, at Fukushima Daiichi a system for implementing fieldwork after having station personnel collaborate with contractors when performing maintenance work in which station personnel have little involvement (working as one team) began in FY2024, and this new system will be put to the test for some ALPS maintenance work to be performed in FY2025. The NRMC believes that working as one with the contractors will contribute to improving safety culture/safety and hopes that the achievements will be widely shared with other sites.

In addition to messages from the Site Superintendent addressed to station personnel and contractors, joint review meetings with contractors, and dialogue between team leaders, Kashiwazaki-Kariwa is also proactively engaging in internal communication activities in unity with contractors, such as “Greetings+” through which personnel are encouraged not only to greet each other but also make to small talk.

Building trust with stakeholders is indispensable for nuclear safety. And, the world is watching the progress that TEPCO HD is making with the discharge of ALPS-

¹ Method of communication by which work implementation details are mutually checked in order to confirm that everyone is on the same page.

treated water and decommissioning tasks, such as fuel debris retrieval. It is important that upper management display leadership and convey a united message of safety in regards to decommissioning and power station operations along with proactively conveying “one message, many voices” to parties both in Japan and overseas so as to build trust with society. In recent years, we have seen more compound disasters caused by natural disasters. The Noto Peninsula Earthquake that occurred at the beginning of 2024 also affected parts of Niigata Prefecture including Kashiwazaki-Kariwa. Reviewing, whether Kashiwazaki-Kariwa and the Head Office were able to quickly convey unambiguous information in an easy-to-understand manner during this emergency will help us to find clues for improvement. Similarly, TEPCO HD must evaluate to what extent it has accurately and quickly conveyed the risks pertaining to the discharge of ALPS-treated water and fuel debris retrieval to interested parties, such as media outlets as well as domestic and international researchers. This self-evaluation will help TEPCO HD to ascertain if the current manner in which information is distributed is adequate, and identify elements for further improvements. Further, TEPCO HD need to ensure that information with regard to decommissioning will be readily prepared in different languages. If a fire occurs at a nuclear power station, quickly identifying the cause, implementing substitute measures, and quickly conveying these facts in an easy-to-understand manner to society when such an accident occurs will alleviate worry.

In light of the rapid diversification of communication mediums, such as SNS and generative AI, etc., it is urgent that we take a multifaceted look at methods for preventing the spread of misinformation and for conveying accurate information about issues of concern to society in a timely manner. When a compound disaster strikes, misconceptions about the health risks of radiation could hinder quickly needed rescue efforts. It is therefore essential that operators develop strong relationships with local municipalities and local communities in times of normalcy, and implement risk communication. After all, operators and local communities share the same objective to keep the region safe. The key to achieving this is to have operators proactively reach out to community leaders, regardless of age, gender or profession, during times of normalcy.

As we enter the 14th year since the Fukushima Daiichi Nuclear Power Station Accident, it is vital to continue to provide education for all employees on the facts and lessons learned from the accident to ensure that each and every employee understands that safety culture directly affects them. The fundamental basis of internal communication is the

creation of an environment in which personnel can quickly share even the slightest apprehension without any mental burden. This is why TEPCO HD has recently started training on topics that focus on “mental safety” and the NRMC expects these initiatives to continue in the future. The number of employees that were not around when the accident occurred is increasing, and more and more veteran employees are retiring, but this cannot be avoided. In this respect, TEPCO HD must continue to formulate training that ensures that the regrets about, and lessons learned from, the accident do not wither away.

Maintaining/improving power station personnel motivation is indispensable for safety culture/safety improvement and the NRMC would like to stress the vital importance of having upper management sufficiently engage with station personnel. TEPCO HD also needs to maintain technical prowess and employ new technologies in order to compensate for the dwindling labor force caused by the decreasing birth rate in Japan. Ceaseless perseverance is also vital to enable [TEPCO HD] to independently address risks that could manifest in the future with imagination.

The NRMC believes that TEPCO HD has made steady progress with nuclear safety reforms in the more than 12 years that have passed, but there is no end to nuclear safety.

TEPCO HD must continually remember the regrets and lessons learned from the Fukushima Daiichi Nuclear Power Station Accident and all TEPCO employees and contractors must not forget that nuclear safety is their utmost priority. The NRMC would like to see TEPCO HD continue to voluntarily engage in the nuclear safety reforms it has implemented to date.

Nuclear Reform Monitoring Committee

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