Nuclear Safety Reform Plan

FY2019Q4 Progress Report

Tokyo Electric Power Company Holdings, Inc.

May 19, 2020

TEPCO

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FOREWORD

We would like to offer my deepest apologies for the inconvenience and concern that the Fukushima Nuclear Accident, and subsequent troubles, have caused the siting community and society as a whole. We will continue to work as one to provide compensation quickly and smoothly, accelerate recovery efforts in Fukushima, move steadily forward with decommissioning, and ensure that nuclear safety is our first priority.

On March 29, 2013, TEPCO announced its Reassessment of the Fukushima Nuclear Accident and Nuclear Safety Reform Plan to implement nuclear safety reforms. Since then we have provided quarterly updates on the progress of these reforms. The following is a report on the progress that we have made during the fourth quarter of FY2019[1] (January~March, 2020)

On April 7, a state of emergency was declared for seven prefectures and administrative districts in Japan in response to the Covid-19 pandemic. On February 16, a government panel of experts determined that Japan was in the early stages of an outbreak, and on the next day TEPCO issued its first countermeasures preparation order for internal personnel as part of thorough measures to prevent infection amongst employees. In addition to requiring all employees to take their temperatures prior to reporting to the office, they were also required to use disinfectants and masks that had been stored for emergency purposes to disinfect their hands when coming to the office, and to wear at all times when at the office. At nuclear power stations, in addition to these measures, access restrictions were put on the main control rooms, and other measures, such as providing operator-only commuter busses, demarcating lines of travel within buildings, and establishing separate toilets and cafeterias, etc., have been thoroughly implemented to prevent infection amongst operators. After Tokyo Governor Koike issued a stay-at-home request for the weekends on March 25, we put harsh restrictions on business trips between Tokyo and power stations, and also on workers returning home on the weekends. Since April we have also increased the number of workers who are allowed to work from home.

However, in light of the fact that an employee working at Kashiwazaki-Kariwa tested positive for Covid-19, we have thoroughly implemented additional countermeasures to prevent further spread of the virus.

1 All dates hereinafter refer to 2019 unless otherwise noted.

1 PROGRESS WITH SAFETY MEASURES AT NUCLEAR POWER STATIONS

1.1 PROGRESS OF REACTOR DECOMMISSIONING

At the fourth meeting of the Cabinet Meeting on Decommissioning and Contaminated Water Countermeasures held on December 27, the Mid/Long-term Roadmap for the Decommissioning of Fukushima Daiichi was revised and how to "optimize the entire decommissioning process" was proposed upon carefully examining the decommissioning schedule.

Furthermore, in order to achieve the objectives put forth in the Mid/Long-Term Roadmap and the Nuclear Regulation Authority's risk map, we have compiled a "Decommissioning Mid/Long-Term Action Plan 2020" for the purpose of stipulating "major work processes for the entire decommissioning process through 2031." According to our underlying principle of "balancing recovery with decommissioning," we shall explain our future outlook for decommissioning work, which we shall move forward with while gaining the understanding of community residents and society as a whole, carefully and in an easy-to-understand manner.

(1) Fuel Debris Removal

◆ Unit 1

In order to secure an access route to the primary containment vessel in preparation for an internal exploration, we bored holes in the X-2 penetration, which is a door-equipped penetration used to enter and exit the primary containment vessel. During the fourth quarter, we were able to complete boring of one of the three holes that will be bored in the door on the inside of the X-2 penetration (February 12). Thereafter, in order to suppress the dispersion of dust, we implemented dust dispersion countermeasures, such as spraying the inside of this first hole with water, and completed boring the second hole in the inner door (hole diameter: Approx. 0.25m) (March 12). Going forward, in order to bore the third hole in the inner door (hole diameter: Approx. 0.33m), cameras will be inserted through the holes that have already been bored in order to perform a preliminary investigation in preparation for cutting away any obstructions inside the primary containment vessel. We will continue to prioritize safety during the construction of this access route with the aim of commencing an internal investigation during the second half of FY2020.

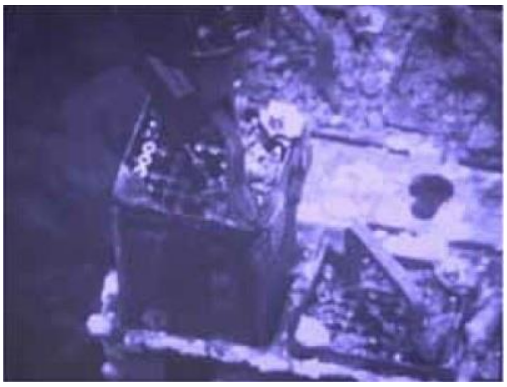
◆ Unit 3

In order to optimize emergency response procedures in the event that cooling water injection into the reactor shuts down, we performed a test where cooling water being injected into the reactor was temporarily shut off (February 3~5). Cooling water injection was suspended for approximately 48 hours and after the test was completed the amount of injected cooling water was gradually brought back to normal. Results of the tests showed that during the time when cooling water injection into the reactor was suspended, temperatures rose approximately 0.6°C at the bottom of the reactor pressure vessel and approximately 0.7°C in the primary containment vessel thereby confirming our predicted

range of temperature fluctuation. No abnormalities were seen in dust concentrations in primary containment vessel gas control equipment, or other parameters. Going forward we shall determine the discrepancies between our predictions and the actual measurements taken as we move forward with deliberations aimed at optimizing emergency response procedures.

(2) Removing fuel from the spent fuel pools

◆ Unit 3


Removing fuel from the spent fuel pools

The Unit 3 spent fuel pool contains 514 spent fuel assemblies and 52 new fuel assemblies (total: 566 assemblies) and the removal of new fuel commenced during the first quarter. During the fourth quarter we completed our examination of the handles on all 566 fuel assemblies in storage and found that the handles on a total of 15 assemblies are deformed, which includes deformed handles that have been discovered in the past. There have been no fluctuations in pool water quality and it has been deemed that there is no impact on the environment. Furthermore, on January 20, we completed removal of 52 new fuel assemblies and began removing spent fuel. On March 24, we engaged in fuel removal for the 17th time and to date have removed a cumulative total of 67 spent fuel assemblies. Thereafter, we conducted legally required inspections of the crane and fuel handling machine, and replaced the rack in the common pool. Fuel removal and rubble removal work has been temporarily suspended and is scheduled to recommence around June. We will continue to monitor dust concentrations in the surrounding environment and move forward with this task while prioritizing safety.

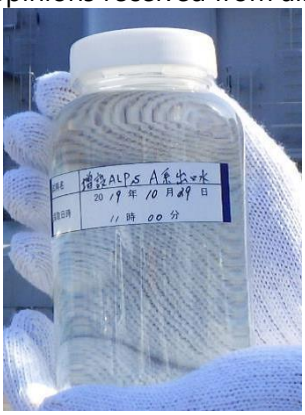
(3) Contaminated water countermeasures

Based on the three basic policies of "removing contamination sources," "isolating water from contamination sources," and "preventing the leakage of contaminated water," TEPCO is implementing preventative and multi-layered countermeasures as we aim to further reduce the amount of contaminated water being generated.

◆ Handling of ALPS-treated water

The report from the Government Subcommittee on the Handling of ALPS-Treated Water proposes two handling methods that are "feasible" and "have been technically proven" (water vapor discharge/oceanic discharge). TEPCO has compiled and publicly released its current concerns regarding these methods in the form of a paper entitled, "TEPCO's Review Draft of the Report from the Government Subcommittee on the Handling of ALPS-Treated Water" in hopes that it will be of some reference for those parties that intend to participate in the government-sponsored opinion exchange, and for the nation as a whole (March 24). In this document, TEPCO states that regardless of what handling method is employed, we shall, of course, abide by all legal requirements, make every effort to prevent damage caused by harmful rumors, and refrain from discharging large amounts of water at once. In regards to the annual amount of tritium water discharged, we shall reference existing

nuclear power facilities and effectively leverage the 30 to 40-year time span that is required to complete decommissioning. In addition to this basic approach to handling ALPS-treated water, the document also puts forth our basic concerns in regards to these two methods (water vapor discharge/oceanic discharge). Furthermore, as a measure to prevent damage caused by harmful rumors, the document also explains communication initiatives that TEPCO has engaged in to date, such as creating a treated water portal site, and also our initiatives aimed at eliminating harmful rumors and promoting distribution, which focuses on increasing sales and securing quantitative sales channels for forest, fishery and agricultural products. Going forward, we shall further examine these issues in light of opinions received from all parties involved.



Treated water

Treated water portal site

◆ Unit 1/2 exhaust stack drain sump pit water level decrease

Suction pipe replacement

The Unit 1/2 exhaust stack drain sump, which was constructed prior to the Fukushima Nuclear Accident, collects rainwater that has fallen inside the Unit 1/2 exhaust stack. When the water level of the sump pit exceeds 400mm, a pump activates and the water is transferred until the water level drops to 330mm. During the third quarter, it was found that ever since Typhoon Hagibis, which made landfall on October 12, 2019, the water level in the aforementioned sump pit was decreasing to a certain water level (approximately 325mm) even when water was not being pumped out. Therefore, the management water level was reset to below 325mm, the point at which water level decrease levels off. Furthermore, during the fourth quarter we replaced suction pipes that will enable water to be transferred at even lower levels. After we have completed dismantling the upper portion of the Unit 1/2 exhaust stack, we shall install a lid on the top of the remaining portion of the exhaust stack and implement measures to prevent the intrusion of rain water into the pit.

(4) Dismantling the Unit 1/2 exhaust stack

Damage and cracks have been found in the steel tower that supports the Unit 1/2 exhaust stack, so the upper portion of the tower (approx. 60m) will be cut into 23 blocks

and removed in order to ensure seismic resistance margins. In cooperation with ABLE Co., Ltd., a local company, dismantling of the upper portion of the stack began in the second quarter using remotely operated dismantling equipment. During the fourth quarter, a legally required inspection of the crane was conducted after dismantling of the first 11 blocks was completed (February 1), after which dismantling recommenced. The work continued smoothly and we were able to dismantle another five blocks (March 22). Dismantling up until the 23rd block was completed on April 29 and on May 1 a lid was installed on top of the remaining portion of the exhaust stack, which rises 59m above the ground, to prevent intrusion from rain water, thereby completing the process.

(5) Our promise to the people of Fukushima as we aim to balance recovery with decommissioning

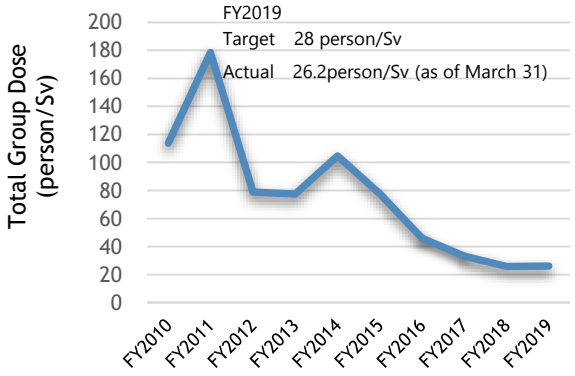
As initiatives to enable residents to return home and help the area to recover progress in the surrounding region, we are prioritizing safety and further risk reductions in accordance with our underlying principle of "balancing recovery with decommissioning" as we move forward with the long-term decommissioning process because moving steadily forward with decommissioning in cooperation with the region is of vital importance. We have therefore formulated a "Promise to the People of Fukushima as we aim to Balance Recovery with Decommissioning" to detail our plans and measures for contributing to recovery in Fukushima through the decommissioning process. We shall sincerely respond to questions and concerns that the regional residents have about decommissioning and further strengthen efforts to carefully disseminate information in order to deepen and evolve communication, improve transparency, gain trust and accomplish our mission to complete decommissioning and promote recovery.

(6) Decommissioning Mid/Long-term Action Plan 2020

The Decommissioning Mid/Long-term Action Plan 2020 was created in order to "detail primary decommissioning work processes through 2031" so that we may achieve the goals put forth in the Mid/Long-term Roadmap and the Nuclear Regulation Authority's risk map. In regards to fuel debris removal, after we have commenced removing fuel from Unit 2 (during 2021), we shall gradually enlarge the scope of removal and move forward with deliberations about removing fuel from Unit 3 after which we will most likely start removing fuel from Unit 1. According to our underlying principle of "balancing recovery with decommissioning," we shall explain our future outlook for decommissioning work, which we shall move forward with while gaining the understanding of community residents and society as a whole, carefully and in an easy-to-understand manner.

(7) Initiatives Aimed at Reducing Exposure Doses

At Fukushima Daiichi, we are striving to reduce exposure doses by predicting work-related exposure doses during the planning stages and deliberating exposure reduction measures from an engineering standpoint upon assessing the increases or decreases in risk based upon the Mid-to Long-Term Roadmap. Furthermore, during the work implementation stage, the number of remote monitoring systems introduced as a management measure was increased in order to enhance our means for managing high-dose work (March 2019). During the fourth quarter, these remote monitoring systems were newly used during inspections of Unit 1/2 outside emergency gas treatment system pipes bringing the total number of tasks that remote monitoring systems are used for to seven when combined with tasks that have been underway since the first quarter. This has enabled us to reduce exposure doses by approximately 10% just like in the past. We will continue to proactively leverage these systems for tasks conducted inside the reactor buildings and in other surrounding high-dose environments.



Trends in total group dose by fiscal year

1.2 Progress of Safety Measures at Kashiwazaki-Kariwa

(1) Progress with safety measures

On December 27, 2017, permission to modify the reactor installation permits for Kashiwazaki-Kariwa Units 6 and 7 was received from the Nuclear Regulation Authority. As a result, a basic design plan has been established and in accordance with this plan, detailed designs for various pieces of equipment, as well as safety measures, are being implemented at mainly Unit 6 and Unit 7 by leveraging the experience and lessons learned from the Fukushima Nuclear Accident.

＜Progress with Safety Measure Renovations＞

Safety Measures (※: Measures independently implemented by TEPCO)		Unit 6	Unit 7
Preparations for tsunami and internal inundation	Tidal wall (seawall) construction	Completed	
	Installation of tidal walls for buildings (including flood barrier panels)	No openings below 15m above sea level	
	Installation of water-tight doors in reactor building, etc.	Completed	Completed
	Installation of tidal walls at switchyards※	Completed	
	Installation of tsunami monitoring cameras	Completed	
	Improving the reliability of flooding prevention measures (interior flooding measures)	Underway	Underway
	Dyke construction	Completed	Completed

	Installation of permanent bilge pumps in rooms housing important equipment	Completed	Completed
Preparations for power loss [Augmenting power sources]	Additional deployment of air-cooled gas turbine power supply cars	Underway	Underway
	Installation of emergency high voltage distribution panels	Completed	
	Laying of permanent cables from emergency high-voltage distribution panels to reactor buildings	Completed	Completed
	Preparation of substitute DC power sources (batteries, etc.)	Completed	Completed
	Reinforcement of transmission tower foundations※ and strengthening of the seismic resistance of switchyard equipment※	Completed	
Preparing for damage to the reactor core or spent fuel [Augmenting heat removal and cooling functions]	Preparation of large volume water pump trucks and installation of substitute seawater heat exchanger equipment	Completed	Completed
	Installation of high-pressure substitute water injection systems	Underway	Underway
	Building of water sources (reservoirs)	Completed	
	Enhancement of the seismic resistance of pure water tanks on the Oominato side※	Completed	
Preparing for damage to the primary containment vessel or the reactor building [Measures to prevent damage to the PCV and hydrogen explosions]	Installation of filtered venting equipment (aboveground)	Underway	Underway
	Installation of filtered venting equipment (below ground)	Underway	Underway
	Installation of substitute circulation cooling system	Underway	Underway
	Installation of equipment for keeping the top of the PCV filled with water※	Completed	Completed
	Installation of H2 control and hydrogen detection equipment in reactor buildings	Completed	Completed
	Installation of top vents in reactor buildings※	Completed	Completed
	Installation of corium shields	Completed	Completed
Preventing the dispersion of radioactive materials	Deployment of large volume water dispersion equipment	Completed	
Preparing for fires [Countermeasures for external and internal fires]	Construction of fire belts	Completed	
	Installation of fire detectors in parking lots on high ground	Completed	
	Installation of fire detectors in buildings	Underway	Underway
	Installation of fixed firefighting systems	Underway	Underway
	Installation of cable wrappings	Underway	Underway
	Construction of fire-resistant barriers	Underway	Underway
Addressing external hazards	Countermeasures for building openings	Underway	Underway
	Removal of objects that could turn into flying debris as a result of a tornado	Underway	Underway
	Installation of spare bug filter for ventilation and air conditioning systems	Completed	Completed
Improvements to Main Control Room environments	Measures to reduce operator exposure in the event of a severe accident	Underway	

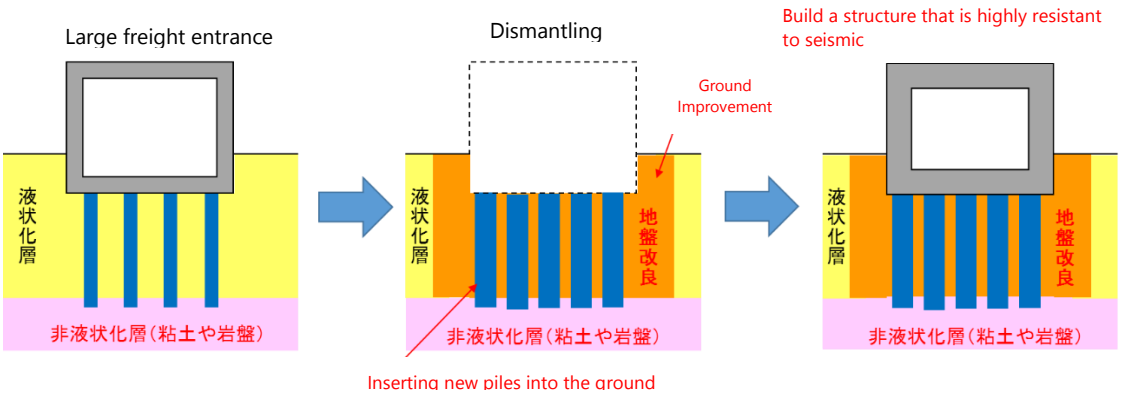
Strengthening emergency response	Construction and reinforcement of multiple access routes	Underway	
	Enhancement of communications equipment (installation of satellite phones, etc.)	Completed	
	Enhancement of environment monitoring equipment/additional deployment of monitoring cars	Completed	
	Construction of emergency materials and equipment warehouse on high ground※	Completed	
	Construction of Emergency Response Center in Unit 5	Underway	
Strengthening seismic resistance (including ground improvement measures to prevent liquefaction)	Seismic resistance assessment/renovations of outside equipment and piping	Underway	Underway
	Seismic resistance assessment/renovations of indoor equipment and piping	Underway	Underway

Safety measure progress that has been made during the fourth quarter is as follows:

◆ Enhancing the seismic resistance of the Unit 7 reactor building large freight entrance

The large freight entrance* at the Unit 7 reactor building constitutes a secondary containment boundary for the reactor building, and as such it must have a level of seismic-resistance safety that fulfills standard seismic motion (Ss) requirements. Since strengthening the seismic resistance of the large freight entrance requires making improvements to the roof and the piles that support the structure, the large freight entrance shall be dismantled and ground improvements made. In addition to inserting new piles into the ground, the walls will be made thicker and the amount of rebar in the walls increased so as to build a structure that is highly resistant to seismic activity.

We obtained permission from the government to dispose of waste generated during the course of dismantling, such as concrete, etc., as recyclable industrial waste in accordance with the Non-Radioactive Waste (NR) System that has been put into place by the government to effectively utilize waste that has not been contaminated by radioactive substances. This was the first time that the NR System has been employed at a TEPCO nuclear power station. Furthermore, reducing the number of personnel needed to spray water during dismantling work, and improving the operation rate of large crushers were subjected to Toyota-type kaizen activities in an attempt to improve worker safety, improve quality, and shorten timelines, and dismantling work was completed in July 2019.



Before　　Ground Improvement　　After

Schematic of seismic resistance enhancement renovations

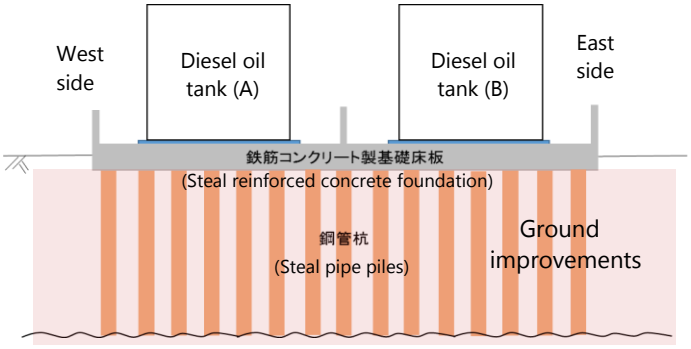
After dismantling was completed, we continued with improvements to the ground directly below the large freight entrance to prevent liquefaction and are in the midst of inserting piles. This work is to be completed around June.

*1: Large freight entrance: Structure used to carry in and out equipment, machinery and materials, etc., required for tasks being done inside the reactor building. (Approx. L24m x W12m x H8m)

Ground improvements for the large freight entrance

◆ Measures to prevent liquefaction of the foundation under the Unit 6 diesel fuel tank

The Unit 6 diesel fuel tank (tank for storing fuel needed for the emergency diesel generators) is supported by a reinforced concrete foundation and steel pipe piles. In September 2019, we began renovations to enhance the seismic resistance of this structure in consideration of potential liquefaction during an earthquake. In particular, we are reducing the risk of liquefaction by solidifying the ground directly under and around the foundation of the diesel fuel tank using cement-based materials to prevent the foundation and steel pipe piles from being damaged. Improvements to the ground surrounding the diesel fuel tank were completed at the end of February, and we are now improving the ground directly under the tank. We aim to complete these renovations during the first half of FY2020 and shall continue the project while prioritizing safety.



Schematic of liquefaction countermeasures

Unit 6 diesel fuel tank

(2) Poor insulation on the Unit 7 emergency diesel generator (C) fuel transfer pump cable

A regular inspection conducted on January 17 of the Unit 7 emergency diesel generator (C) fuel transfer pump (outdoors),[*1] which was not on standby at the time, discovered defects in the insulation on the cable that supplies electricity to the pump thereby increasing the possibility that the cable may be damaged. Since the other Unit 7 emergency diesel generators (A, B) were on standby, functional requirements based on safety regulations (two out of the three pumps need to be operational during plant shutdown) were being satisfied.

An inspection of the conduit revealed damage at the top of the conduit above the location where cable damage was found. No damage was found in any other location other than those mentioned earlier. As for the direct cause of the damage, it is assumed that the cable and aforementioned conduit were damaged when holes were bored in the ground to search for buried obstructions inside the concrete during the construction of the fuel transfer pump area roof, which was implemented in June 2019 as a tornado countermeasure[*2].

After the cable was damaged, the resistance of the insulation decreased as a result of condensation inside the conduit, but it was confirmed through regular testing that fuel transfer function was being maintained. In addition to the condensation, it is also hypothesized that the insulation deteriorated due to close contact between the conduit and the portion of damaged cable as the conduit was forced to vibrate during tornado countermeasure renovations implemented after January.

During and after hole boring, the inside of the holes are now checked using a fiber-optic scope, etc. as a countermeasure to this event. Furthermore, hole boring work near buried objects under the roof has been conducted using a waterjet since June 2019 so as to not damage buried objects. The damaged cable will be completely removed and replaced.

*1: Pump used to transfer diesel, which is the fuel used for emergency diesel generators, inside the reactor building from outdoor diesel fuel tanks.

*2: A hole was bored near the location where the damage was found to the Unit 7 diesel fuel tank fuel transfer pump (A) conduit (event occurred on June 4, 2019 and reported on the company's website on June 10 of the same year) on the same day.

(3) Joint training with the Kashiwazaki City Fire Department

Education and training have been implemented in light of the lessons learned from the vertical shaft fire on the Arahama side that occurred on November 1, 2018. In order to examine the effectiveness of this training, joint training was held with the Kashiwazaki City Fire Department on February 12 under the same conditions that were experienced during the fire (fire occurred during the night shift).

During the fire there was confusion in regards to sharing information because communications equipment signals could not reach firefighters inside the tunnel, so new communications equipment was set up in order to improve the communications environment inside the tunnel. During this training, the effectiveness of these measures was examined and it was confirmed that information on field conditions could be related to relevant parties. Training will be continually implemented to ensure that emergencies can be handled.

Sharing information at the field command center

Checking the scene of the fire inside the tunnel

(4) Submission of the reactor installation modification permit application for Kashiwazaki-Kariwa Nuclear Power Station Units 6 and 7

In order to respond to revisions that were made to the New Regulatory Requirements after they took effect, we submitted an application to modify the reactor installation permit on October 31, 2019 in order to add information on protection from toxic gas to the reactor installation modification permit. In light of issues that were pointed out during the compliance review meeting held thereafter, we submitted a revised application to the Nuclear Regulation Authority on February 21 and obtained permission on May 13.

The primary details of the revised application are as follows:

- Further details were given about toxic gas protection design policies that take into consideration methods for identifying toxic chemical substances during impact assessments, assessment conditions, and decision criteria, in addition to details on the management of transportation routes used for transport containers filled with toxic chemical substances.
- Further details were given in regards to toxic gas protection procedures and response mechanisms, such as clarifying the parties that are to be protected and reporting procedures.

1.3 REFLECTING THE SEVEN PROMISES IN THE NUCLEAR FACILITY SAFETY REGULATIONS

Improving safety through emergency response training (Kashiwazaki-Kariwa)

We have submitted a request to have the "seven promises*," which pertain to the president's responsibilities and resolutions and were submitted to the Nuclear Regulation Authority (NRA) on August 25, 2017, reflected in the nuclear facility safety regulations (March 30). In the request we clearly state that it is our basic stance as a nuclear operator that the president is responsible for balancing the completion of the decommissioning of Fukushima Daiichi with never-ending improvements to nuclear power station safety. As mentioned in our "Nuclear Safety Reforms for the Next Generation," TEPCO shall pass down the regrets and lessons learned from the Fukushima Nuclear Accident, and evolving nuclear reforms while adapting to our changing business environment. By identifying hidden risks for ascertaining actual field conditions/ conditions of actual equipment and repeating perpetual kaizen of individual activities based on the "Nuclear Safety Reforms for the Next Generation," we shall continue to improve the safety of nuclear power stations thereby enabling us to fulfill our seven promises as stated in our answer submitted to the NRA. A summary of the basic stance put forth in our answer will be reflected in the safety regulations, and the full document shall be included as an attachment.

The details of our basic stance are as follows:

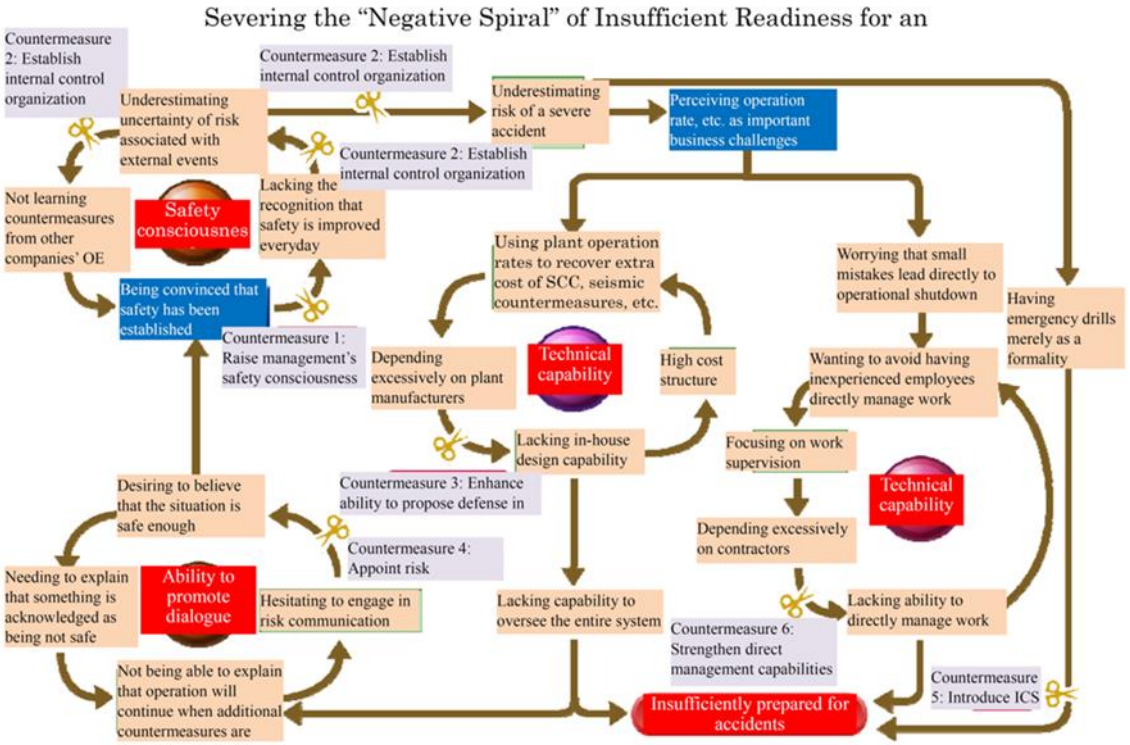
As the party responsible for the Fukushima Nuclear Accident, TEPCO strongly vows to never let such an accident happen again. Under the leadership of the president, TEPCO shall complete the decommissioning of the Fukushima Daiichi Nuclear Power Station while balancing it with never-ending safety improvements to our nuclear power stations. In the course of achieving these goals we shall sincerely respond to requests of local communities and repeatedly engage in dialogue with local residents as we continue to act independently to fulfill our responsibilities without becoming complacent.

1. As we move forward with the decommissioning of the Fukushima Daiichi Nuclear Power Station, we shall obtain the understanding of all stakeholders, such as the local residents, at every step along the way and see decommissioning through to the end.
2. In addition to seeing decommissioning of the Fukushima Daiichi Nuclear Power Station through to the end, we shall also secure the capital necessary to implement safety measures at the Kashiwazaki-Kariwa Nuclear Power Station.
3. We shall not neglect safety in favor of profitability.
4. We shall learn from operating experience and technical advancements made all over the world, and continually strive to reduce risks.

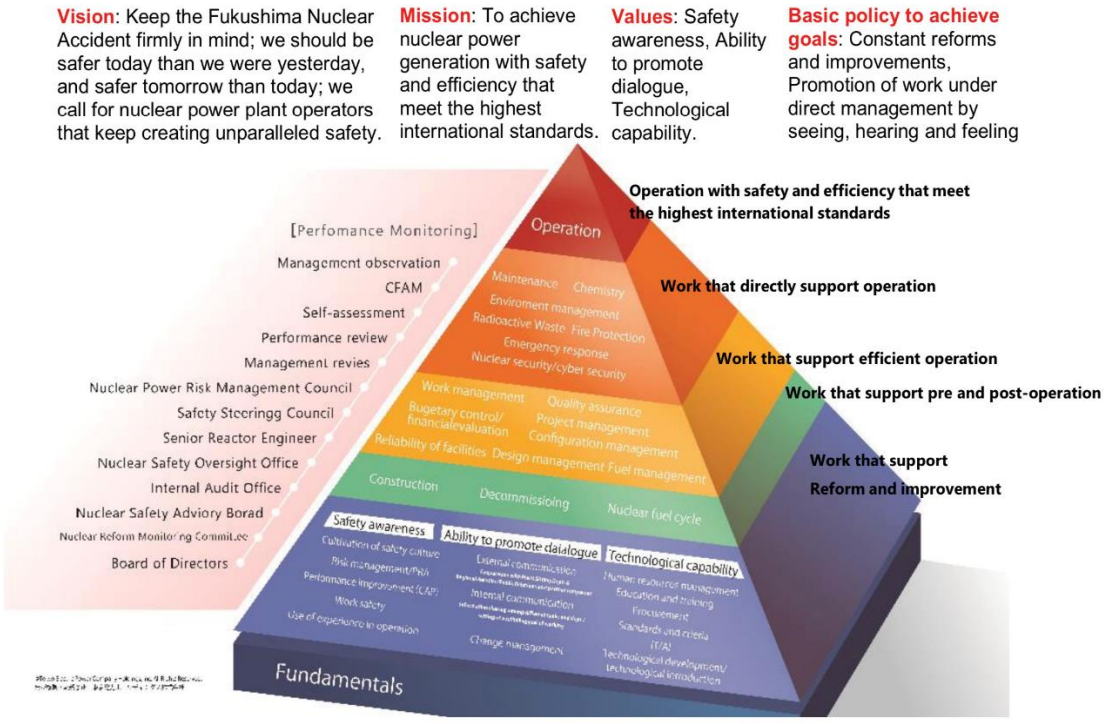
5. In order to improve the safety of our nuclear power stations, we shall continually make improvements by listening to the proposals made by field workers and learning from organizations and companies all over the world.
6. As the leader of the company that has built a nuclear reactor, the president shall bear the responsibility for nuclear safety.
7. Information shall be shared in a unified manner through good interdepartmental communication and communication between the power stations and Headquarter management.

2 PROGRESS WITH THE NUCLEAR SAFETY REFORM PLAN

In addition to the six measures for stopping the "negative spiral" that has exasperated structural issues faced by the Nuclear Power Division implemented based upon the Nuclear Safety Reform Plan announced in March 2013, TEPCO is engaged in initiatives to strengthen governance and develop internal communication after these areas were identified as needing further improvement.



As an initiative to strengthen governance, the FDEC has created a Decommissioning Promotion Strategy (September 2016). And, in the Nuclear Power & Plant Siting Division, all duties are being carried out in accordance with the Nuclear Power Division Management Model, which was created in June 2017. In synchronization with the Promotion Strategy and Management Model, the Nuclear Safety Reform Plan Progress Report gives updates on initiatives that focus on "Better Aligning the Vectors of the Organization (Strengthening Governance)," as well as "safety awareness," "the ability to promote dialogue," and "technological capability," which are the main values of the Decommissioning Promotion Strategy and the Management Model.



Management Model concept diagram

2.1 Activities to Better Align the Vectors of All Divisions

2.1.1 Strengthening Governance

(1) Permeation of the Management Model

A Management Model was created to enable all employees in the Nuclear Power & Plant Siting Division to engage in their duties with a common understanding of the objectives of the division and each other's roles (June 2017). During FY2019 we will continue to engage in activities that aim for excellence upon creating business plans based on the Management Model.

During the fourth quarter each department began hashing out the details of their business plans in accordance with our policy for creating the FY2020 business plan.

◆ Nuclear Power & Plant Siting Division Management Model Revisions

We have decided to revise the Management Model, which stipulates our basic policies for Nuclear Power & Plant Siting Division activities and how to move forward with projects in order to achieve our objectives, in accordance with changing conditions and environmental changes. When making these revisions we shall not make any changes to the motivation for creating the Management Model, which is to reflect the regrets and lessons learned from the Fukushima Nuclear Accident, and also our main objective of pursuing the world's highest levels of safety.

Management Model revisions shall be made according to the following guidelines as we

aim to put the revision into use during the first quarter of FY2020.

① Clarify the relationship between the Nuclear Safety Reform Plan and the Management Model.

② PI shall be revised to be more effective and shall reflect revised World Association of Nuclear Operators Performance Objectives and Criteria (WANO PO&C) and the results of benchmarking.

③ The names of people in leadership positions shall be updated and other wording will be revised.

(2) Starting "Nuclear Safety Reforms for the Next Generation" on Fukushima Nuclear Accident Remembrance Day

Nuclear Safety Reforms for the Next Generation refer to activities to pass down the regrets and lessons learned from the Fukushima Nuclear Accident and evolve nuclear safety reforms in accordance with our changing business environment that were commenced on the ninth Fukushima Nuclear Accident Remembrance Day. As the number of employees that were not at the company during the Fukushima nuclear accident increases, we shall maintain "our resolution" as stated in the Nuclear Safety Reform Plan, and aim to have all daily duties result in nuclear safety reforms that shall make nuclear safety tomorrow better than it is today. This along with continuing our "nuclear safety reforms for the next generation" shall enable us to fulfill our "seven promises."

The main goals of Nuclear Safety Reforms for the Next Generation are as follows:

- Pass on our regrets and the lessons learned from the Fukushima Nuclear Accident, including our resolution, to the next generation
- Continue to implement kaizen for equipment and management safety measures in accordance with the changing environment.
- Use the Management Model and the Decommissioning Promotion Strategy to systemize work mechanisms and ways of proceeding that will be leveraged in the performance of daily tasks.
- Disclose these plans and progress both within and outside of the company to gather criticism and assessment that is reflected in the next plan.

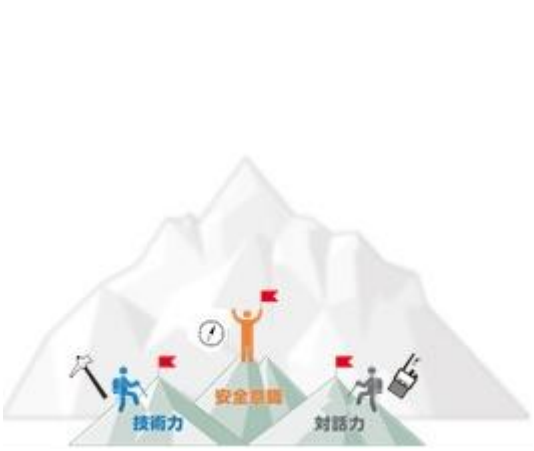


Diagram that depicts the concept of "Think today (left) about how to improve tomorrow (right)," w hich is the tenant of "Nuclear Safety Reforms for the Next Generation"

For example, the objective of our "My Reform Plan" project underway this term is to adapt to changes. Each and every person in the Nuclear Power Division has the desire to improve nuclear safety. And, it's this desire that is the core of nuclear safety reforms. By having every individual own a piece of these reforms and leveraging the knowledge to enable everyone to make their desires come true, we shall adapt to environmental changes. This year we shall begin dialogue in each office to achieve this goal and cooperate together to make our desires come true during FY2020.

◆ Improvement activities by CFAM/SFAM

CFAMs and SFAMs have been assigned to each field of the Management Model to ascertain excellence achieved in other countries, identify key issues to be resolved, and formulate and implement improvements. Progress reports are periodically given to sponsors and the General Manager of the Nuclear Power & Plant Siting Division, and activities are being furthered while receiving advice and guidance from these parties (since April 2015).

During the fourth quarter we commenced activities to assign primary area CFAMs to Kashiwazaki-Kariwa in accordance with the president's policies/instructions to "focus on actual field conditions and actual pieces of equipment" so that they can coordinate with power station personnel and kaizen offices to resolve field issues. The first project being undertaken consists of better managing temporarily installed equipment in the field that has the potential to impact safety in the event of a fire, flood, or earthquake, etc., and also minimize the quantity of temporarily-installed equipment. Going forward we shall create and develop improvement projects to solve various power station field issues.

Furthermore, in order to ascertain gaps between excellence and one's own field, CFAM in each field engaged in gap analysis in order to propose measures for eliminating these gaps and reflect them in activity plans for the next fiscal year. When performing this analysis, CFAM comprehensively examined trends within and outside the company, and areas for improvement, etc., while also reflecting upon the status of development of educational programs in their own fields and the progress with countermeasures. The analysis results will be used to create action plans for reaching the place we want to be in one and three years from now, and to manage FY2020 business plans, and CFAM action plans. Going forward, action plan progress and efficiency shall be reviewed through CFAM activity reports.

During FY2019 all departments are focusing on strengthening risk management, enabling the concept of operational focus to permeate throughout the station, improving corrective action programs (CAP), and activities aimed at reducing human errors as these areas of the Management Model are deemed necessary to achieve excellence. The status of initiatives for this quarter are as follows.

- Enhancing risk management

3.3 (1) Mentioned in Key Self-Assessment【Measure 2】

- Permeation of operational focus (Prioritizing the safe and stable operation of power stations)

In order to support operations, which is the most important functional field of the entire organization, the concept of "operational focus" is being spread while strengthening existing mechanisms to ensure that the requirements of the Operations Division are considered when making operations-related decisions and when setting work priorities.

Since it is expected that workers in the operations field will lead by example and become role models for other functional fields, education that will help the idea of operational focus to permeate continues to be provided.

We've also engaged in activities to help spread the concept of operational focus amongst employees that do not work in the field of operations. During the fourth quarter, power station executives and operations CFAM gave briefings on operational focus and engaged participants in group discussions that explain the relationship between their duties and operational focus.

During the first quarter of FY2020, we shall distribute a questionnaire to assess the level of permeation of concept of operational focus in order to identify areas for further improvement and respond accordingly.

- Improving corrective action programs (CAP)

2.2.2 Noted in the "Performance Improvements (CAP)" section

- Activities to reduce human errors

The Nuclear Power Division is engaged in efforts to minimize human error, such as by deepening understanding of human performance tools (human error prevention tools). During the fourth quarter we continued to make preparations to provide education designed to deepen the knowledge of contractors at Kashiwazaki-Kariwa about human performance (human error prevention) tools. We are creating educational materials to teach team leaders about four tools, such as self-checks and peer checks, which are highly effective, and begin this education for team leaders during FY2020.

(3) Permeation of the Decommissioning Promotion Strategy

The Fukushima Daiichi Decontamination & Decommissioning (D&D) Engineering Company (FDEC) is carrying out its responsibilities based on the Decommissioning Promotion Strategy (initial version issued in September 2016) that stipulates the general direction and basic policies needed to move quickly forward with decommissioning in a safe and steady manner. The content of this Decommissioning Strategy is being continually revised. In the February 2020 revision, we created a Management Model for decommissioning (Decommissioning Management Model) that is based on the Management Model (which is being used as a department management governance mechanism aimed at achieving excellence in the Nuclear Power & Plant Siting Division) with the intent of strengthening not only decommissioning-related strategies, but also management, and incorporated it into the Decommissioning Promotion Strategy. Furthermore, in March we optimized the content of the Fundamentals in accordance with decommissioning tasks and created a version of the fundamentals for decommissioning.

After revisions were made to the Strategy in February, in-house Decommissioning

Strategy Forums were held three times during February and March. At the forums, company management explained the major revisions that had been made to employees and exchanged opinions directly with them. According to a questionnaire distributed after the forums, many respondents were happy for the opportunity to directly hear from company management and engage in direct dialogue. In regards to the impact of the forums, many employees gave favorable responses saying that they have a better understanding of new company policies, and discovered clues about how to utilize the Strategy. We will continue to implement forums and small-scale briefings based on these opinions as we continually promote the Strategy and the Management Model, and help them to permeate throughout the organization.

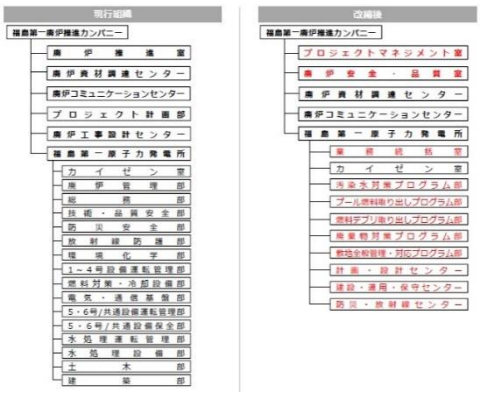
Decommissioning Strategy Forum
(Fukushima Daiichi)

Decommissioning Strategy Forum
(Headquarters)

(4) Strengthening project management and securing human resources

The Fukushima Daiichi Decontamination & Decommissioning Engineering Company has been engaged in reorganization since April 2020 in order to further strengthen project management functions and improve safety/quality. Before making these changes, a modification permit was sought from the Nuclear Regulation Authority on September 26, 2019, and permission was received on February 19.

Up until now we have maintained department structures that conform to conventional power station management, and designated response personnel across departments as needed when forming projects to handle issues. However, with the manifestation of virtual department issues, such as insufficiencies with overall processes and risk management, we have made the decision to reorganize departments in a way that is suitable for project management, including the management of exclusive projects, and will make every effort to promote decommissioning tasks.



FDEC Organization Chart
(current: left; after reorganization: right)

Going forward we shall continue with the decommissioning process while prioritizing safety and further risk reduction as we aim to “balance recovery with decommissioning.”

(5) Nuclear Power Division initiatives to handle risk

The Nuclear Power Division is continuously engaged in initiatives to handle various risks that have manifested over recent years.

TEPCO has continued to stipulate action plans and implement countermeasures to deal with risks related to business continuity and ensuring safety. In order to respond to risks associated with the recent Covid-19 pandemic, all group companies have been enhancing initiatives since February 17 based upon our conventional action plan for responding to new strains of influenza.

In the Nuclear Power Division, extraordinary risk management meetings are held every time conditions change and nuclear leaders are thoroughly engaged in revising policies in accordance with changing circumstances upon examining and debating individual countermeasures.

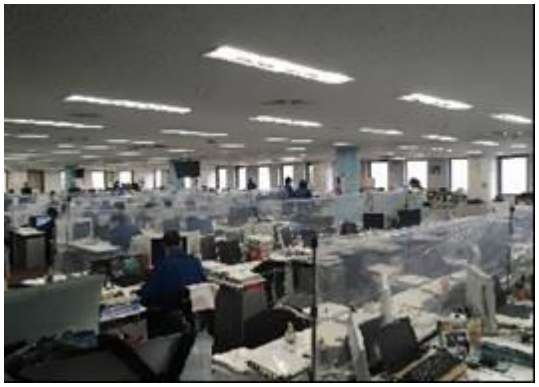
For example, in addition to requiring all employees to frequently wash and disinfect their hands, record and report body temperatures prior to coming to the office, and wear masks at all times, which has been ordered by all Group companies since February, the Nuclear Power Division is engaging in additional initiatives that focus on preventing nuclear power station operators from becoming infected due to the vital role that they play in ensuring nuclear safety, in particular. For example, access to the main control rooms has been restricted to operators only, and operators are required to take their temperature and sterilize their hands prior to entering. In addition to these countermeasures, operators-only commuter busses have been provided, lines of travel within buildings have been demarcated, and some toilets/cafeterias have been designated for operator use only. Furthermore, teleconferencing systems are used for meetings to be attended by shift supervisors, all in an effort to prevent spread of the virus.

Furthermore, since the end of March when the number of infected persons was quickly increasing in the Tokyo Metropolitan area, and prior to the declaration of a state of emergency, TEPCO took measures to prevent employees from traveling between the power stations and Tokyo by restricting business trips, and asking employees that live at the power station to refrain from going home on the weekends in order to prevent Covid-19 from being brought to the power stations from the Tokyo Metropolitan region. In conjunction with this, voluntary initiatives were taken to erect plastic partitions between opposing office desks in order to prevent infection from droplets, the new employee welcoming ceremony and retreats were canceled, and the offices and living quarters for new employees assigned to power stations and personal transferred from the Tokyo Metropolitan area have been separated from those people already working at the power station.

In April, several TEPCO employees working at the main administration building at the Kashiwazaki-Kariwa Nuclear Power Station and several TEPCO employees working at offices in Kashiwazaki City/Niigata Prefecture tested positive for Covid-19. In light of this, the mayor of Kashiwazaki City requested that TEPCO further strengthen its preventive measures. We would like to sincerely apologize for the concern that we caused the people of the region and for the additional burden that we placed on healthcare workers.

As additional countermeasures we have asked employees at Kashiwazaki-Kariwa and Niigata Headquarters to keep record of their activities/travels, and have strongly requested that they refrain from travel into other prefectures. We have similarly asked partners and contractors to restrict their activities/movements to the same degree that TEPCO is doing. Furthermore, in order to reduce contact between workers at the power stations, we have suspended fixed schedule work and have reduced the number of workers active on these projects by approximately 80%. TEPCO employees will work as one with partners and contractors to thoroughly implement Covid-19 prevention measures in order to eliminate any concerns that local residents may have.

Body temperatures taken using thermographic camera (Fukushima Daiichi)



Plastic partitions erected between opposing desks (Kashiwazaki-Kariwa)

Furthermore, in regards to initiatives to enhance security during large-scale events planned for the summer, we have engaged in initiatives to improve our response to cyber-attacks and suspicious persons, closely share information with external parties, and respond to the risk of troubles stemming from fieldwork. Although these events have been postponed, we shall leverage the knowledge we have obtained in the course of our preparations to improve work quality as we continually seek to improve our response to changing circumstances.

2.1.2 Internal Communication

(1) Communication through dialogue

◆ Promoting internal communication

At Headquarters, internal information sharing meetings are held to learn about information pertinent to the Nuclear Power Division in order to transcend departmental boundaries and help convey important information in a timely manner. Topics are selected based upon importance and the level of interest, and in February, and internal information sharing meeting was held on the WANO corporate review that was conducted in September 2019. A post-meeting questionnaire indicated that participants deepened their understanding of these issues with 96% of respondents saying that they, “understood” or, “understood for the most part” the issues discussed. Many wish to continue these meetings, so we shall continue to transcend departmental boundaries and hold internal information sharing meetings based on important and current topics.

Furthermore, at Headquarters, interviews with Nuclear Power & Plant Siting Division Executives were posted on the company intranet as “New Year Interviews” to convey their

personalities and thoughts in easy-to-understand and friendly messages.

Internal information sharing meeting (Feb. 17)
"WANO corporate peer review"

New Year Interviews
(Nuclear Power & Plant Siting Division General Manager)

At the FDEC we have started the "sunflower project" as an initiative that aims to improve motivation and create a sense of "one team" between management and general workers. This project does not discriminate between veterans, new employees, men, or women, etc., when recruiting participants. The first activity engaged in was create a "story" that clarifies the significance of being a decommissioning worker through interviews with management and group interviews. By doing this we aim to get each and every person working at the FDEC to come together for a common cause and change everyone's mindset from focusing on operation, to focusing on decommissioning. In conjunction with this, we shall also contemplate proposing and implementing various measures to improve Fukushima Daiichi as a work place.

A marathon relay around the Tomioka Town General Sports Center was held to foster teamwork amongst TEPCO employees and contractors in order to engage in work safely at Fukushima Daiichi (February 18). Participants commented that they were, "grateful for the opportunity to be able to run in the town," and "participating in an athletic event such as this really helps to foster unity with contractors and motivation to get the job done."

Marathon relay

At Fukushima Daini, briefings have been provided at each step of the way in the creation of our FY2020 business plan so as to share the vision for the power station with each and every power station employee and elicit their participation. The Site Superintendent receives explanations about key issues from the Nuclear Power & Plant Siting Division and

in turn directly conveys the objectives for the power station and his/her own thoughts on the matter to executives and station personnel. Executives then give more detailed explanations to station personnel in the form of "individual roles and objectives, the basis for determining these roles and objectives, and expectations." It is in this way that we are getting everyone to participate in the formulation of the business plan. Going forward, we shall strive to further improve on-site communication by establishing opportunities for power station executives to directly convey their thoughts about operations in their own words.

At Kashiwazaki-Kariwa, 14 site personnel, including the Site Superintendent, attended the TEPCO Power Grid Shinano River Festival on February 6, which was sponsored by the TEPCO Power Grid, Inc. Shinano Power Station, and engaged in a technical exchange. This festival is held every year for the purpose of fostering work reforms that add value through the use of digital technology, improving safety awareness and achieving a good work-life balance. This year, as like every year, the festival drew many participants from both within and outside of the company. Personnel that participated commented that, "I was able to expand my knowledge about the latest digital technologies. It was a viable opportunity to exchange information on technical issues." Going forward we shall continue to seize various opportunities to exchange knowledge.

Kashiwazaki-Kariwa Shinano Festival (Feb. 6)

At the Aomori office and Higashidori, we have learned from the initiatives underway at Fukushima Daini and established a "Compliment Corner" site on the company's intranet. The site is basically a bulletin board on which personnel can post comments about good behaviors they have noticed or things they are grateful for in regards to daily activities (41 posts made during January~March). By continuing these activities and helping them to permeate throughout the organization, we aim to create a workplace that enables good communication. Furthermore, in light of the facts that it's been a quarter of a century since Kashiwazaki-Kariwa Unit 7 was constructed and the number of employees that have not experienced such construction firsthand is increasing, we have provided opportunities for engineering and office personnel to watch the video history of the construction of an improved boiling water reactor so as to deepen understanding, and improve the technical and communication skills required when constructing a plant (held a total of four times). Lively question and answer sessions were held after viewing the video thereby creating a valuable opportunity to improve the skills of personnel in the entire organization. We will continue to improve organizational capability through this type of learning in the future.

(2) Reflecting upon the Fukushima Nuclear Accident (March 11)

On March 11 of every year, TEPCO employees offer their condolences for the people who lost their lives during the disaster. This day is used to remember the great inconvenience and concern that we have caused the people of Fukushima, and society as a whole. On this past March 11, the ninth anniversary of the disaster, all Group companies engaged in reflection in accordance with our policy of, "never forgetting 3.11, reflecting upon the regrets and lessons learned from the Fukushima Nuclear Accident and continuing to take action with responsibility so as to fulfill our responsibilities to Fukushima" in order to etch into our minds our regrets and the lessons we've learned.

On March 11, President Kobayakawa visited Fukushima Daiichi and joined personnel as a moment of silence was offered at 2:46 PM. President Kobayakawa also addressed all employees and reaffirmed that, "We shall not let the regrets and lessons learned from the Fukushima nuclear accident be forgotten," "The beginnings of TEPCO lie in Fukushima," and "There is no end to safety." Going forward, we shall not forget "our resolution" and shall continue to implement nuclear safety reforms in order to ensure the world's highest levels of safety.

President addressed at Fukushima Daiichi

At Fukushima Daiichi, the president held an informal discussion with power station team leaders and group managers about "how should we leverage kaizen activities to improve safety supervision in the field," and directly listened to the opinions of workers in the field. Workers commented that, "being able to talk directly with the president was very motivation," and "I think we got him to understand just how difficult things are in the field."

In the Nuclear Power Division, we have always had other directors and nuclear leaders make visits to Headquarters, the power stations and construction sites to directly engage personnel at assemblies. However, in light of the Covid-19 pandemic the intended address was conveyed via the company's intranet on March 11 in order to prevent spread of the virus. Furthermore, planned lectures for engineering-related management personnel on the Fukushima Nuclear Accident have been postponed and will be implemented after the Covid-19 crisis has ended.

(3) Using in-house media to share information

In-house media is being used as follows to share information within TEPCO HD and between TEPCO HD, core company employees and the Nuclear Power Division.

- Company intranet videos
  - "The year in review No Disasters, No Accidents ~Fukushima Daiichi Safety Assembly" (January 17)
  - "Preparing for work place dialogue on 3.11 (All-company event)" (January 29)
  - "8th Kaizen Grand-Prix Nuclear Power Division Preliminaries ~Kashiwazaki-Kariwa has won the Grand-Prix~" (January 30)

- "The Fukushima Daiichi Nuclear Power Station Today ~From that day into the future (ver.2020.01)" (January 31)
- "Rooting for Fukushima Daiichi as it aims to be the healthiest and best-managed workplace!" (February 14)
- "Mini-workshop on Chernobyl fuel debris at Fukushima Daiichi (February 18)
- "Passing down the story of 3/11" Miura, Customer Service Group, Kawagoe Branch Office (February 20)
- "Passing down the story of 3/11" Yokoyama, Treated Water and Accumulated Water Instrument Group, Electric and Communications Infrastructure Department, Fukushima Daiichi (February 25)
- "Kaizen Guidance Session by Special Advisor Uchikawa ~Good discussion and good day at Kashiwazaki-Kariwa~" (February 27)
- "Passing down the story of 3/11" Hirose, Rates Group, Musashino Branch Office, Tama Branch (March 3)
- "Fukushima Daiichi Marathon Relay ~Cultivating team work with contractors~" (March 12)
- "President's address given at Fukushima Daiichi Nuclear Power Station on March 11, 2020" (March 11)
- "Fukushima Revitalization Headquarters' President's address given at Fukushima Daiichi Nuclear Power Station on March 11, 2020" (March 11)
- "Signing ceremony with Tohoku University on agreement of industry-academic cooperation" (March 26)

◆ TEPCO Group News Letter
- Decommissioning Project Report #17 How is fuel to be removed from the spent fuel pools at Fukushima Daiichi Nuclear Power Station Units 1/2? (Published in January)
- Decommissioning Project Report #18 It's embarrassing to ask, but what does "decommissioning" mean? (Published in March)
- Helping Fukushima to Recover The history of Fukushima Daiichi Nuclear Power Station Decommissioning (Published in March)

◆ "Messages from Management" sent via the intranet
- "Speaking about Fukushima in Europe" from the Deputy Chairman (February 10)
- "As we approach March 11" from the TEPCO HD President (February 11)
- "As we approach March 11" from the Fukushima Revitalization Headquarters' President (February 11)
- "As we approach March 11" from the TEPCO Fuel & Power President (February 11)
- "As we approach March 11" from the TEPCO Power Grid President (February 11)
- "As we approach March 11" from the TEPCO Energy Partner President (February 11)
- "March 11, 2020 address" from the TEPCO HD President (March 11)
- "March 11, 2020 address" from the Fukushima Revitalization Headquarters' President (March 11)

Going forward we will disseminate information that fulfills the desires of employees and leverages the advantages of different types of in-house media, such as videos and the group newsletter, in order to share information through an effective media mix.

Videos posted to the company's intranet (Nuclear Reform Monitoring Committee)

TEPCO Group News Letter (Fukushima Daiichi)

(4) Sharing information on important tasks

Since July 2016, Site Superintendents and Headquarter general managers have been sending e-mails to all members of the Nuclear Power Division about important work issues in order to share information on these matters. During the fourth quarter, we continued to disseminate information while also addressing work issues brought up by readers as part of initiatives that began in FY2018.

Examples of information conveyed during the fourth quarter:

- Initiatives at Fukushima Daiichi to suppress the amount of contaminated water generated (Project Planning Department GM)
- Thanks for participating in the visits to all homes during FY2019 and the response from local residents (Kashiwazaki-Kariwa Site Superintendent)
- Conditions at Fukushima Daini now that the decision to decommission has been made (Fukushima Daini Site Superintendent)

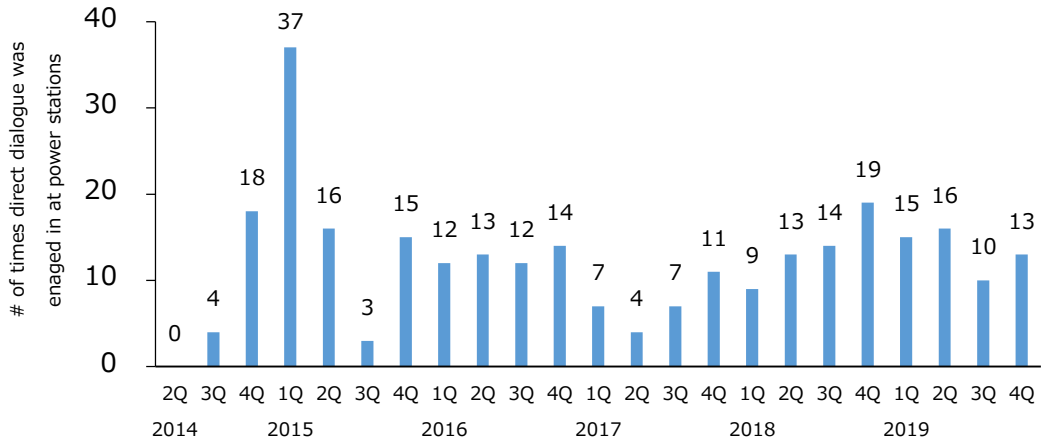
2.2 SAFETY AWARENESS IMPROVEMENTS

2.2.1 Cultivating Nuclear Safety Culture

(1) Improving Safety Awareness【Measure 1】

◆ Direct Dialogue between Nuclear Leaders

Since the fourth quarter of FY2015, nuclear leaders at Headquarters (General Manager of the Nuclear Power & Plant Siting Division and other Headquarter general managers) have been visiting power stations to engage in direct dialogue with power station executives (Site Superintendent, unit superintendents, Nuclear Safety Center Director, power station general managers) in order to improve the safety awareness of the entire organization. During the fourth quarter, we discussed issues in preparation for the full-scale launch of the new inspection system, directly engaged in dialogue with residents of Higashidori region and discussed mutual prosperity with the region. (Kashiwazaki-Kariwa: February 20, Higashidori: March 2)

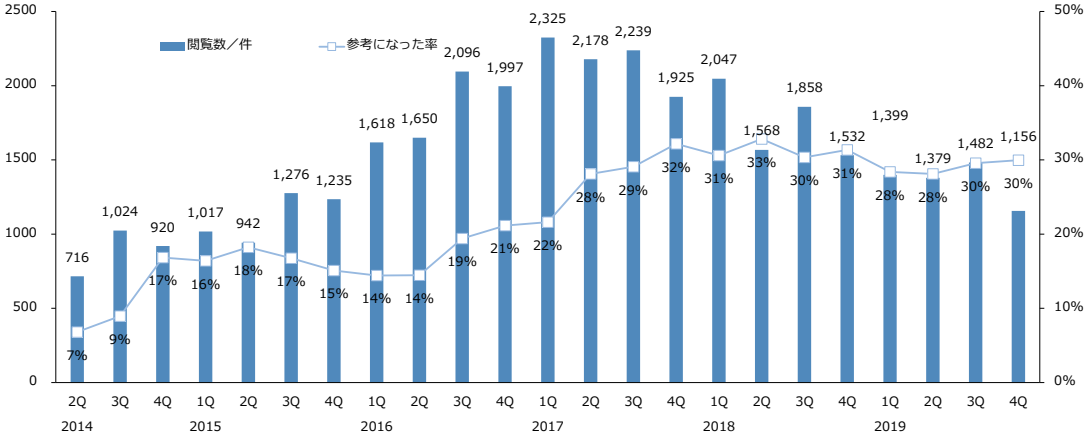


Number of times the Nuclear Power & Plant Siting Division GM engaged in direct dialogue with each department

◆ Messages from Nuclear Leaders

In order to promote nuclear safety reforms, nuclear leaders must accurately convey their expectations, and the reasons for those expectations, so that they permeate throughout the entire organization. In order to do this, nuclear leaders are leveraging video messages, intranet messages, email, meetings and morning briefings as opportunities to convey their expectations. The following are examples of messages sent by nuclear leaders via the intranet.

- "Industry-academic cooperation and regional symbiosis" from the Decommissioning Promotion Office GM (January 20)
- "This is working as ONE TEAM! Unit 2 operating floor investigation" from the Fukushima Daiichi Decontamination & Decommissioning Engineering Company (February 6)
- "Let's try to improve technological capability!" from the Higashidori Nuclear Power Plant Construction Site Superintendent (March 2)
- "March 2020 Site Superintendent Expectation 'Passing down information to the next generation' " (March 26)



Number of views per message sent via the intranet/"Helpful" assessment rate
(The last quarter does not include results for the last month of the quarter, which was shorter

than the viewing period of one month)

◆ Commendations given by the General Manager of the Nuclear Power & Plant Siting Division and the President of the Fukushima Daiichi Decontamination & Decommissioning Engineering Company

Since FY2015, the General Manager of the Nuclear Power & Plant Siting Division and the President of the Fukushima Daiichi Decontamination & Decommissioning Engineering Company have given awards to those people that have led the way and taken on great challenges, and people who have achieved high objectives in regards to the Nuclear Safety Reform Plan and other missions. The following chart shows the number of commendations that were given.

Commendations given by the General Manager of the Nuclear Power & Plant Siting Division and the President of the Fukushima Daiichi Decontamination & Decommissioning Engineering Company

Numbers in ( ) indicate the number for Higashidori from the total

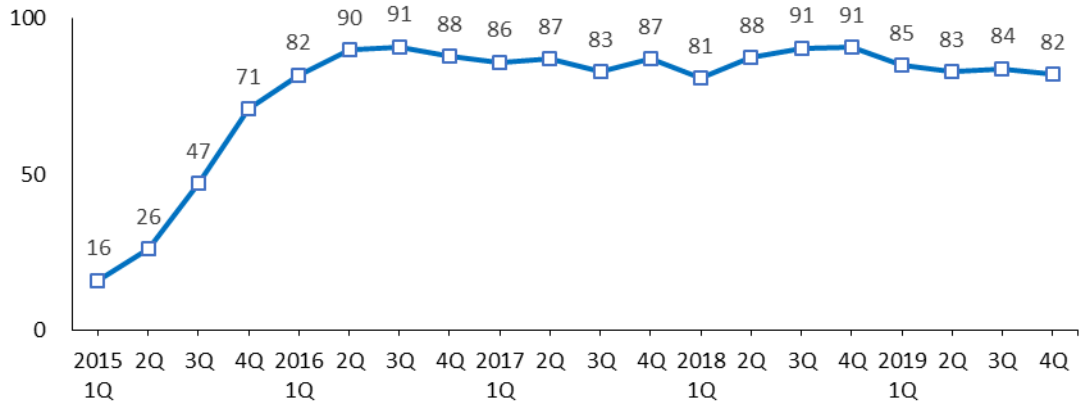
Period	HQ	1F	2F	KK
FY2015	24(2)	47	19	24
FY2016	25(1)	19	14	25
FY2017	21(2)	5	15	22
FY2018	16(2)	13	16	15
FY2019				
Q1	8(1)	8	3	5
Q2	1	12	3	4
Q3	4	9	2	3
Q4	3(1)	4	2	2

(2) Enabling the permeation of nuclear safety culture【Measure 1】

◆ Reflecting on the Traits【Measure 1】

In the Nuclear Power Division all personnel use the intranet system to reflect on whether or not they are embodying the Traits so that the act of reflecting upon the 10 traits and 40 behaviors (10 Traits) for robust nuclear safety culture will become second nature. Group discussions are held once every two weeks to discuss these results and recent performance information in order to deliberate and implement improvement actions as we continually strive to fill in the gaps between the Traits and our own behavior.

During the fourth quarter, a questionnaire was distributed to Headquarter upper management about activities to look back on FY2019 in order to deliberate future policies on implementation methods. Questionnaire results showed that many feel that the intention of daily reflection is being understood and becoming commonplace, and that fewer and fewer people feel that such activities are a burden. Going forward, policies will be determined by the Safety Steering Council and reflected in the FY2020 action plan.



Group discussion implementation rate

◆ Safety Steering Council

In order to ascertain the state of safety culture of the entire organization and make improvements, general managers of each department assess the state of safety culture in their respective departments and bring the results to the Safety Steering Council, which uses those results to assess the state of safety culture throughout the entire organization (safety culture management review). During the fourth quarter, the Headquarters Safety Steering Council conducted a safety culture management review (March 4). Although the assessment results presented by each general manager identified common weaknesses and common strengths, a comparison with objective data is not provided thereby resulting in subjective assessments. In light of this, further assessments shall be conducted upon providing objective data.

◆ Determining the "ideal state" of safety culture for the entire organization

In order to root the importance of safety throughout the entire organization, nuclear leaders must show leadership. One method for doing this is to clarify the ideal state of robust safety culture that the organization seeks to achieve, and to enable this idea to permeate throughout the organization. During the fourth quarter, we determined the "ideal state" of safety culture by identifying the relationships between "our resolution," "the attributes of individuals, leaders, and organizations that embody robust nuclear safety culture," and "quality assurance policies," which were ushered in by the regrets and lessons learned from the Fukushima Nuclear Accident. Our "ideal state" of safety culture refers to, "keeping the Fukushima Nuclear Accident firmly in mind; we should be safer today than we were yesterday, and safer tomorrow than today, and achieve unparalleled levels of safety." Furthermore, defining an "ideal state" of robust safety culture that the organization is aiming for will be considered when the Nuclear Regulation Authority reviews operator activities related to cultivating and maintaining safety culture.

2.2.2 Performance Improvements (CAP)

(1) Promoting improvement through CAP【Measure 3】

We aim to make efficient and effective improvements by using CAP to completely manage not only nonconformance and OE information, but also information useful for improving nuclear safety performance (such as management observation (MO) results,

benchmarking results, third-party assessment results, near-miss information, etc.), and formulate even more fundamental countermeasures.

During the fourth quarter, we continued quarterly performance assessments of activities to identify common weaknesses and make corrections by analyzing/assessing information entered into CAP for major areas at Kashiwazaki-Kariwa and Fukushima Daini. Furthermore, when classifying nonconformance information by importance level, in addition to managing nonconformances as usual, we are deliberating classifying this information while focusing on nuclear safety and plan to put this process into full use at Kashiwazaki-Kariwa during FY2020 as soon as preparations have been completed.

(2) Improvements through Management Observation【Measure 2】

In order to promote nuclear safety reforms and improve nuclear safety, TEPCO engages in management observation (MO), which is proactively employed by the best nuclear operators overseas. Through MO, managers can observe actual conditions in the field and accurately identify problems.

Issues pointed out during MO at Fukushima Daini and Kashiwazaki-Kariwa have been inputted into CAP in order to create condition reports and make improvements to the problem, and this data analysis is being continued. MO results for the fourth quarter are as follows:

	1F	2F	KK
# of times implemented	940	672	991
# of times per month per manager	3.3 times/person/month	4.0 times/person/month	3.1 times/person/month
Good MO rate＊	–	75%	73%

＊Good MO rate: Percentage of MO that PICO (performance improvement coordinator) have deemed to be good practices. However, this was not done at Fukushima Daiichi.

Furthermore, newly appointed group managers in TEPCO's maintenance division at Fukushima Daini and Kashiwazaki-Kariwa are continually being given guidance on MO by overseas experts, and this guidance is also being provided to some contracting company managers.

2.2.3 Leveraging Operating Experience【Measure 3】

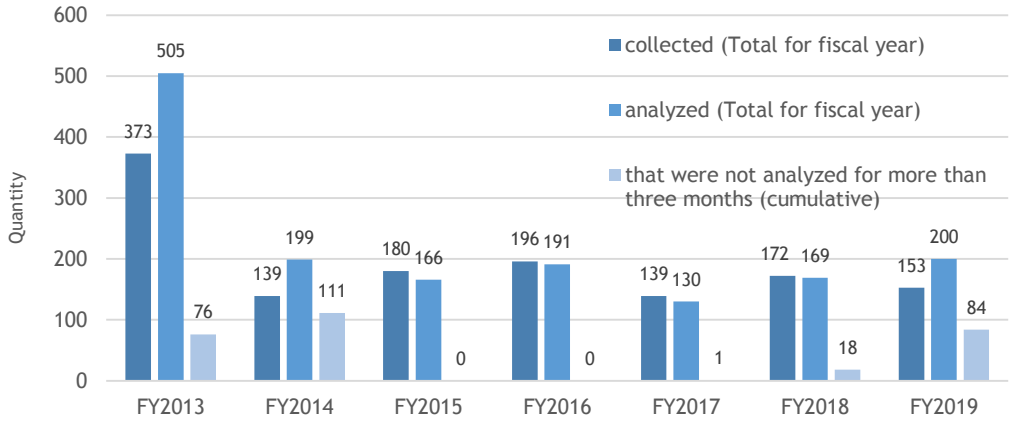
The insufficiencies with preventive measures at Headquarters identified at the Fukushima Daini Nuclear Power Station during the third safety inspection of FY2018 that were deemed a safety regulation infraction are being subjected to root cause analysis and countermeasures, such as leveraging IT tools for monitoring, etc., are being proposed and implemented along with recurrence prevention measures.

(1) Gathering and sharing OE information

One of the lessons learned from the Fukushima Nuclear Accident is that we must "learn from the failures of others." Lessons to be learned are being identified and countermeasures deliberated/implemented under the premise that something that has occurred somewhere else in the world can also occur at TEPCO power stations. Prior to the Fukushima Nuclear Accident, the gathering of operating experience from within and

outside of Japan, and the deliberation of countermeasures, were put off. Therefore, efforts are being made to promptly engage in these activities and enable everyone in the Nuclear Power Division to leverage this information. During FY2019, 153 pieces of new OE information were gathered and a total of 200 pieces of OE information, including those from the previous fiscal year, were analyzed.

Going forward, we shall make further improvements to information gathering and analysis processes as we aim to increase the speed and clarity of operating experience (OE) information analysis.



OE data gathering and analysis performance trends

(Note: The reason why there were so much data gathered in FY2013 is because OE data from prior to the Fukushima Nuclear Accident was analyzed)

(2) SOER and severe accident study sessions

All Nuclear Power Division employees, including general workers, attend intensive study sessions on World Association of Nuclear Operators (WANO) significant operating experience reports (SOER) and important operating experience, such as the Browns Ferry Nuclear Power Plant fire, which has been selected as an example of "severe accidents that have occurred within and outside of Japan," to enable them to learn about these accidents, get an overview of the troubles that occurred, and understand the lessons that have been learned.

During the fourth quarter, we had planned to hold a study session on the KEPCO Mihama accident, but the study session has been postponed in light of the Covid-19 pandemic. This study session will be held after the Covid-19 crisis is over.

2.2.4 Improving the Ability to Propose Defence-in-Depth Measures (Risk Management)

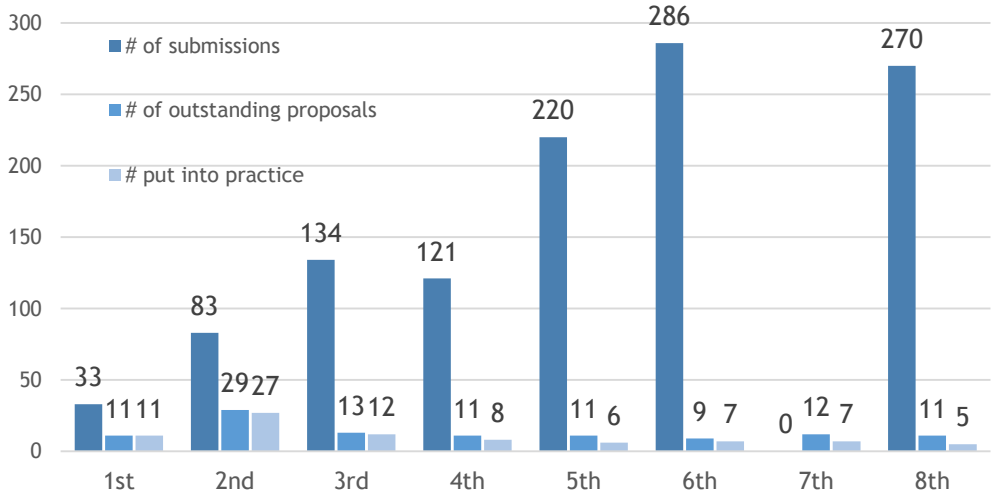
(1) Competitions to Enhance the Ability to Propose Safety Improvement Measures 【Measure 3】

◆ The status of competition initiatives

TEPCO has been holding Safety Improvement Proposal Competitions so that personnel may, in addition to conducting multi-faceted reviews from the perspective of defence-in-depth, acquire the technical ability to propose cost-effective safety measures and have

these proposals put promptly into practice. During the third quarter, we began accepting proposal submissions for the 9th safety improvement measure competition. Proposals will be accepted until the end of the fiscal year and submitted for judging.

The following chart shows the number of proposals that were submitted and put into practice as of the 8th competition.



Number of submissions to the Safety Improvement Proposal Competitions/Number of outstanding proposals/Number of proposals put into practice

(Note 1: During the 7th competition we conducted a repechage for unselected proposals so the number of new proposals submitted was 0.)

◆ Outstanding proposals that have been put into practice

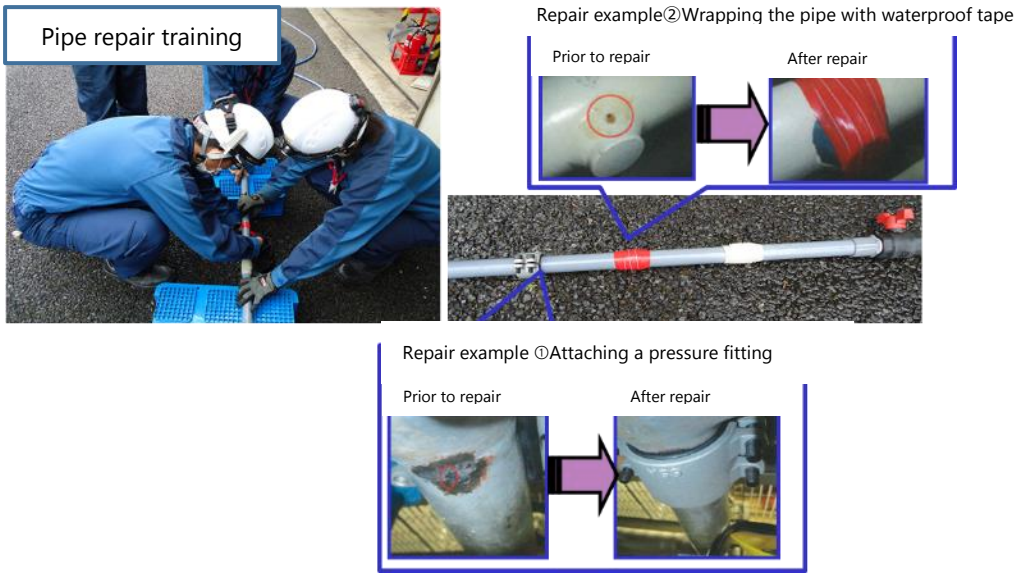
During the fourth quarter, two outstanding proposals to improve safety from the 8th competition were put into practice as noted below.

- Improving the ability to repair pipe leaks (Fukushima Daini)

TEPCO work foremen are periodically subjected to pipe repair training in order to reduce the volume of the leak through quick repairs in the event of a pipe leak. During the fourth quarter, simulated training to establish pipe repair method procedures was completed, and training implementation preparations to periodically conduct pipe repair training starting next fiscal year were completed.

- Improving technological capabilities for environmental monitoring during an emergency (Fukushima Daini)

During emergency environmental monitoring conducted in the event of an incident that may involve the discharge of radioactive substances, it is necessary to take environmental samples, such as soil and seawater samples, etc., and measure radioactivity concentration. This proposal seeks to improve the skills of the emergency response personnel by having them perform in-house environmental monitoring during times of non-emergency in order to enable emergency environmental monitoring to be carried out quickly and accurately. During the fourth quarter, equipment and materials required to perform in-house environmental monitoring, and implementation procedures, were prepared/completed.



Improving the technological capability to repair pipe leaks (Fukushima Daini)

(2) Using hazard analysis to construct improvement processes【Measure 3】

We have created approaches to, and mechanisms for, accidents and hazards for which the frequency of occurrence is largely uncertain and that have the potential to create a calamitous situation as the result of simultaneous and wide-scale loss of function caused by common factors when large enough loads are added, and we are engaged in proposing and implementing countermeasures under the assumption that these accidents will occur.

During the fourth quarter, we continued to discuss safety margins for hazards that exceed design standards and our ability to respond to these hazards, and continued constructing a mechanism (creating a mechanism for examining the suitability of current countermeasures and deliberating additional countermeasures when obtaining [new] knowledge about hazards) for continual improvement.

(3) Risk Informed Decision Making (RIDM)

It is important to identify plant vulnerabilities using risk information, such as knowledge obtained through probabilistic risk assessments (PRA) and maintain/improve plant safety by implementing security measures to make up for these vulnerabilities.

The Risk Informed Decision-Making (RIDM) process is extremely effective for managing power station risk and entails making decisions related to plant renovations and operation based on knowledge from conventional deterministic evaluation mixed with the knowledge obtained from probabilistic risk assessments.

During the first quarter, an action plan (state we aim to achieve by leveraging risk information) was formulated in order to leverage risk information. Since the second quarter we continue to compile a basic plan for employing RIDM that explains how to use the RIDM process and how it will contribute to maintaining and improving the safety of plant operation in preparation for the in-house implementation of activities to bring the aforementioned action plan to fruition.

Furthermore, during the fourth quarter we deliberated the following detailed action plans to ensure that risk information used matches actual conditions in the field.

- Using the results of probabilistic risk assessments (PRA) to identify equipment and operations that are important for nuclear safety, and informing the Operations and Maintenance Divisions of this, will aid in improving technological capability.
- Improving the reliability of operations by reflecting important operational information in plant operating procedures.
- Leverage the latest risk information during equipment maintenance in order to focus maintenance on important pieces of equipment.
- Contribute to improving effective emergency response capability during emergency response training by considering information obtained from PRA during emergency response training scenario creation. Going forward we will continue to deliberate how to leverage scenarios created during the third quarter from newly obtained PRA results that consider accidents that have a large impact on the frequency of core damage, during actual emergency response training.

2.3 Improving the Ability to Promote Dialogue

2.3.1 Communication with the Siting Community【Measure 4】

Since the end of February, power station tours have been canceled and the TEPCO Decommissioning Archives and PR Hall have been closed in order to prevent the spread of Covid-19.

(1) Activities in the Fukushima region

◆ Providing information that is easily understood

- Updating the online content "INSIDE FUKUSHIMA A Virtual Tour of the Decommissioning Site"

The web content "INSIDE FUKUSHIMA A Virtual Tour of the Decommissioning Site," which shows you the decommissioning work underway at Fukushima Daiichi in a way that makes you feel like you are actually there, has been updated. The number of locations that can be visited on the tour has been increased from 10 to 23, thereby improving the extent to which the site can be seen and the information conveyed. Additionally, we have created a guide map page that makes it easier for viewers to access the locations they wish to see in an effort to improve usability. As decommissioning progresses, we will continue to communicate information in an easy-to-understand manner.

Updated virtual tour

Guide map

- Disseminating information about the decommissioning of Fukushima Daini

Ever since the decision was made on July 31, 2019 to decommission all reactors (Units 1~4) at Fukushima Daini we have provided briefings for local government officials and opinion leaders about the progress of decommissioning and the disclosed information on our website in an effort to continually convey information to regional residents and society as a whole. Local government officials and opinion leaders have commented that, "You should go on the offense to combat harmful rumors about the nuclear accident and proactively convey information to the world about various decommissioning technologies being used at Fukushima Daiichi and Fukushima Daini," "We are grateful for your efforts to procure goods from local companies. We would like you to continue to share information and take advantage of local companies and stores," and "Even though the decommissioning process will take 40 years, when it's completed there will be no place for young people to work since there is no industry to replace nuclear power." We shall continue to disseminate accurate information and safely and steadily move forward with decommissioning in a manner that brings peace of mind to the regional community while also contributing to regional recovery.

◆ Communication with stakeholders

- Fukushima Daiichi tours

At Fukushima Daiichi many visitors, such as decommissioning engineers, government officials and members of the press, as well as visitors from the siting community, educational institutions and overseas have been able to deepen their understanding of the decommissioning process, fuel debris, and the work environment through tours of the site. Even though site tours were suspended due to the typhoons, and now because of the Covid-19 pandemic, many people toured the site in FY2019 with the number of visitors reaching approximately 18,000.

On February 19, author, Go Egami, was given a tour of Fukushima Daiichi. Prior to the tour, Mr. Egami visited Jay Village and a banana farm owned by the Hirono Town Industrial Development Company, Inc., and took notice of recovery in the region surrounding Hamadori. At Fukushima Daiichi, he was given a bird's eye view of Units 1~4 from high ground, and intriguingly watched the device used to dismantle the exhaust stack being hoisted into the air. After visiting the TEPCO Decommissioning Archives and Fukushima Daiichi, Mr. Egami commented that, "Having actually visited the site I can now see that the frozen soil impermeable wall is having an effect, and how facing ground surfaces is being employed to suppress the dispersion of radioactive substances. And, it is obvious that TEPCO put a lot of energy and thought into the creation of the TEPCO Decommissioning Archives." At current time all the power station tours have been suspended in order to prevent the spread of Covid-19, and the TEPCO Decommissioning Archives and PR Hall have been closed, but after the crisis has ended tours will begin again and we shall continue our activities to promote understanding.

Visit to banana farm greenhouse owned by Hirono Town

Visit to the TEPCO Decommissioning Archives by Mr. Go Egami

◆ Published Info Magazines

	Hairomichi	Announcement from Fukushima Daini
		
Date of issue	February 10	February 3
Circulation	Approx. 40,000 copies	Approx. 14,000 copies
Overview	・Current conditions at Units 1~4 and removing fuel from the spent fuel pools ・Interviews with employees hired after the disaster	・Signing of safety agreement related to decommissioning ・Fuel storage and cooling conditions ・Firefighting training conducted to foster cooperation

(2) Activities in the Niigata area

◆ Providing information that is easily understood

- Online content “Emily & Ecoron Let’s Mix” posted to website

The Niigata Headquarters is using various types of media as it engages in corporate communications in order to get as many people as possible to learn about TEPCO initiatives. At communication booths located at different areas in Niigata Prefecture, many people have commented that, “We’d like you to proactively convey information about Japan’s energy situation.” Therefore, on January 6 we started a new online series on the TEPCO website entitled, “Emily & Ecoron Let’s Mix.” The series is a parody of cooking shows, with which everyone is familiar, during which viewers can learn about Japan’s energy situation and the importance of an energy mix along with freelance announcer Emily

“Emily and Ecoron Let’s Mix”

Tanaka and Ecoron, Kashiwazaki-Kariwa’s official mascot. Going forward, we shall strive to

convey information in an easy-to-understand manner while listening to the opinions of regional residents.

◆ Communication with stakeholders

- Activities to promote understanding amongst the younger generation who will be the next generation responsible for Kashiwazaki-Kariwa

Although Kashiwazaki-Kariwa has voluntarily refrained from proactively engaging in activities to promote understanding about energy amongst the younger generation that is now being educated since the Fukushima Nuclear Accident, it has maintained its connection to the area by lending simple radiation meters to junior high schools in Kashiwazaki City as part of its radiation education initiatives. And, on January 27, company representatives gave a lecture on energy at a junior high school outside of Kashiwazaki City in response to a request from a teacher who had been transferred there.

On the day of the lecture, 180 3rd year students attended a special class that lasted 45 minutes during which they were shown how to use a radiation meter, learned about the internal workings of a nuclear power station using a power generator model, and were given an overview of the safety measures underway at Kashiwazaki-Kariwa in light of the Fukushima Nuclear Accident. All students fervently took notes about using the radiation meters, their observations, and the mechanism of nuclear power generation, and each individual appeared to take the class very seriously. During reflection upon the special class, students commented that, "I learned that Kashiwazaki-Kariwa has learned from the Fukushima and has thoroughly implemented tsunami and power loss countermeasures, along with countermeasures to prevent the discharge of radioactive substances," and "When it comes to energy issues, it's important to acquire correct knowledge and think for yourself." The teacher that requested the lecture conveyed words of appreciation saying, "It's commendable that you talk so candidly about this issue without ignoring the fact that your company is responsible," and "I'm very thankful for you providing this opportunity for students to learn directly about electricity and energy from people working at an actual power station."

Going forward we will take advantage of this opportunity to give an energy lecture and continue to engage in activities to promote understanding amongst the younger generation.

Energy lecture

Using radiation meters

◆ Info Magazine Stats

	News Atom	TEPCO Times
		
Date of Issue	January 5, February 2, March 1	February 29
Circulation	Approx. 31,000 copies	Approx. 650,000 copies
Overview	・New Year's greetings from the Site Superintendent ・This month's power station news ・Results of visits to community residents ・Interviews with power station personnel	・Signing of comprehensive agreement of cooperation with the Nagaoka University of Technology ・Start of "Emily & Ecoron Let's Mix!"

(3) Activities in the Aomori region

◆ Communication with stakeholders

- Giving energy lectures

The Aomori office gave lectures to technical high schools in the prefecture on electricity and energy (January 21: Towada Technical High School, February 25: Mutsu Technical High School). During the lecture, explanations were given of nuclear, thermal, and hydropower mechanisms, and also about the merits and demerits of each. Participants were able to deepen their understanding about the importance of a balanced energy mix in a country such as Japan with few natural resources. In addition, easy-to-understand videos were used to explain initiatives in recent years to help spread the use of renewable energies, decommissioning in the wake of the Fukushima Daiichi accident, and how recovery is being promoted. Since students at these schools learn about electricity, machinery, and energy on a daily basis, they were eager to participate in the lecture and showed strong interest in decommissioning robots that are used under conditions that make work by humans difficult. A questionnaire distributed after the lecture elicited comments about the need to switch to an energy mix that centers on renewable energies from the current thermal-based energy policy due to more fervent calls to reduce greenhouse gasses, and also questions about the skills that are required of people that wish to work on electricity companies in the future. Furthermore, workshops on energy where fourth and fifth graders can have fun while learning about energy were given at Higashidori Elementary School in Higashidori Village. We will continue to engage in initiatives such as these in the future so as to promote understanding about TEPCO initiatives and energy in general.

- Higashidori Village Nuclear Power Station Safety Measure Committee

In Higashidori Village, a Higashidori Village Nuclear Power Station Safety Measure Committee has been created to ensure the safety of residents living in the vicinity of the Higashidori Nuclear Power Station, review environmental conservation efforts, and spread knowledge about nuclear power. The FY2019 meeting of this committee was held on March 17. The mayor of Higashidori Village serves as the committee chairman, and the committee is comprised of members from various fields such as politicians, teachers, primary industry workers, and healthcare workers. The committee engaged in lively debate about such things as safety treaties, the state of nuclear preparedness, and the status of nuclear operator initiatives in the village. Representatives from TEPCO explained the positioning of the Higashidori Nuclear Power Station and how it shall be a main focus of the company's business in the future, as well as initiatives to cooperate with other industries. An explanation was also given of the status of initiatives implemented in accordance with the Aomori Action Plan that was created in March 2019. It was also explained that having headquarter functions moved locally with the creation of the Aomori Office will accelerate the speed at which construction-related decisions are made, and also help to strengthen initiatives aimed at regional symbiosis. Committee members posed questions about the status of deliberations on joint enterprises and all that attended were able to deepen mutual understanding.

We will continue to engage in activities to promote dialogue through various opportunities and develop our activities to communicate better with regional residents and disseminate information. By further developing these activities we will strive to maintain and improve trust.

Students listening to the lecture

FY2019 Higashidori Village Nuclear Power Station Safety Measure Committee meeting

2.3.2 Communicating with overseas parties【Measure 4】

(1) Communication activities by management

The Deputy Chairman gives lectures about the current conditions in Fukushima and the lessons learned from the nuclear accident. During the fourth quarter, lectures were given to a total of approximately 260 students and researchers at three universities in Italy, and to about approximately 50 workers from research institutions and international agencies in Paris (February 3~6). Not only did all attendees listen intently to the lectures, but there was quite a positive response and lively question and answer sessions on a variety of topics. Going forward we will continue to convey information about the current conditions at

Fukushima Daiichi while being innovative and incorporating the concerns and interests of the audience and the nations and regions in which these lectures are given.

Lecture at the Institute for Radiological Protection and Nuclear Safety (ISRN) (France)

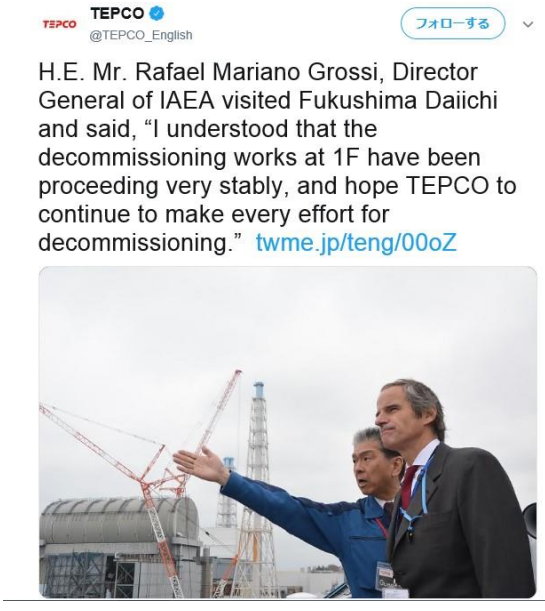
Lecture at University of Rome's Department of Engineering

(2) Disseminating information overseas

◆ Conveying information that is easily-understood

- Disseminating information through press releases, and social networking services (SNS)

In an effort to proactively disseminate information we continue to convey information through English press releases, social media platforms, such as Facebook and Twitter, etc., and email magazines are being sent to overseas media outlets and intellectuals. During the fourth quarter, 11 press releases and three email magazines were issued, six posts were made to Facebook, and six tweets were made on Twitter. We will continue to disseminate information at appropriate times while paying attention to the concerns of overseas media outlets and trends in the overseas media coverage of TEPCO.



Twitter tweet example
(Tour of Fukushima Daiichi by overseas VIP)

Facebook post example
(Videos showing the progress of decommissioning at Fukushima Daiichi)

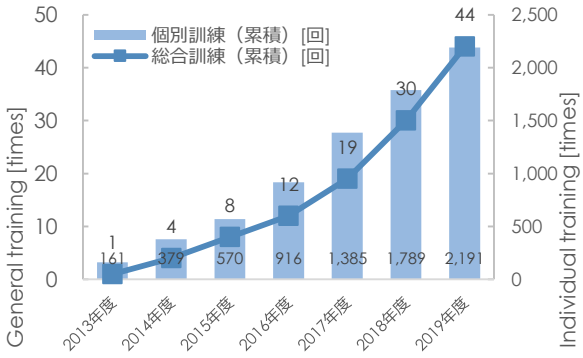
2.4 IMPROVING TECHNOLOGICAL CAPABILITY

Although initiatives are underway to improve technological capability, individuals still do not have enough technological capability to check the quality of current equipment and work processes, and make improvements on their own. Therefore, we have started various training and kaizen initiatives.

2.4.1 Strengthening Technological Capability (during times of emergency)

(1) Enhancement of Power Station and Headquarter Emergency Response (Organizational) Capabilities【Measure 5】

Training was performed at each power station as follows:



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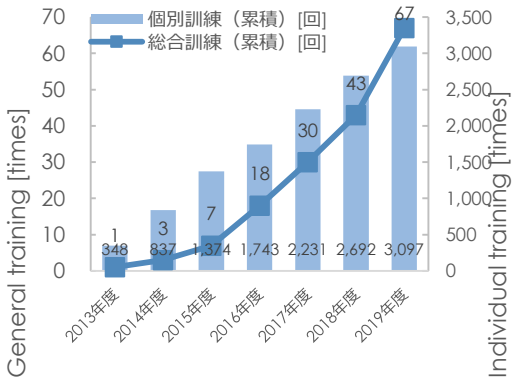

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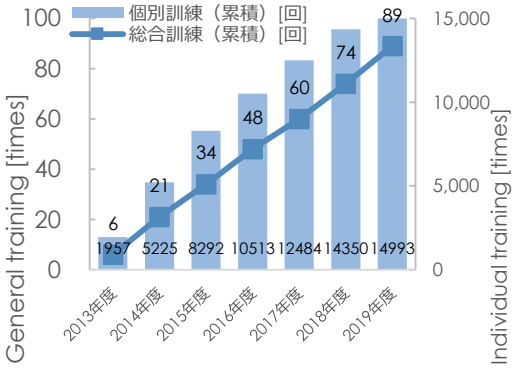


<Kashiwazaki-Kariwa>

- Fourth Quarter General training at Fukushima Daiichi: January 8, January 15, January 24, February 26
- Fourth Quarter General training at Fukushima Daini: January 8, January 15, January 22, January 24, February 5, February 12, February 18, February 20

During general emergency response training held on January 24, joint training was held between Fukushima Daiichi and Fukushima Daini on responding to a simulated large earthquake with an epicenter at Hamadori, Fukushima Prefecture. During joint training, simultaneous fires at both the Fukushima Daiichi and Fukushima Daini were simulated and even though it was expected that there was to be some confusion, training was conducted

with a focus on having the power stations accurately convey information which enables Headquarters to receive information without any confusion. According to the training simulation, a large earthquake caused a loss of external power after which the water levels in the spent fuel pools at Fukushima Daini decreased thereby exposing spent fuel and causing an increase in radiation levels both inside and outside the building thereby conforming to a scenario stipulated by Clauses 10 and 15 of the Act on Special Measures Concerning Nuclear Emergency Preparedness. Before conducting emergency response exercises, it was decided how information about disaster conditions at Fukushima Daiichi and Fukushima Daini were to be shared, and improvements were made to how information sharing tools at Fukushima Daiichi and Fukushima Daini were to be differentiated, and to how the emergency action level (EAL) was to be determined. Furthermore, a nuclear preparedness team was made up of mainly personnel that had not taken part in emergency response exercises last fiscal year and subjected to repetitive training thereby improving the skill of personnel. As a result, even though simulated simultaneous fires occurred, the response to the emergency was smooth. However, there were areas for improvement in regards to the methods for writing dispatches and filling out Clause 25 reports, so kaizen shall be implemented going forward.

Joint training (Fukushima Daiichi)

Joint training (Fukushima Daini)

◆ Fourth Quarter General training at Kashiwazaki-Kariwa: January 30, February 14

During general training held on January 30 and February 14, nuclear preparedness training amidst the current shutdown of all reactors (Units 1~7, reactors that have yet to conform to the new regulatory requirements) was implemented. During this training the key issues that were examined were the ability of the ERC commander and acting commanders to accurately determine the emergency action level (EAL) for spent fuel pools, which can be complicated, and also the ability of the Emergency Response Center (ERC) to propose and determine objectives for repair plans in accordance with the current condition of equipment. According to the training simulation, a large earthquake caused a loss of external power after which the water level in the Unit 7 spent fuel pool decreased thereby exposing spent fuel and causing an increase in radiation levels both inside and outside the building thereby conforming to a scenario stipulated by Clauses 10 and 15 of the Act on Special Measures Concerning Nuclear Emergency Preparedness. As an information sharing tool, spent fuel pool serious condition sheets were used to visualize water level decreases and predict radiation level increases, and common operational picture's (COP) revised for use on reactors in shutdown were leveraged to develop spent fuel pool water cut off and coolant injection strategies. Efforts were made to improve accident response skills amidst

current conditions where all reactors are in shutdown. In regards to determining emergency action level (EAL), which was a key issue to be examined, the emergency action level (EAL) for spent fuel pools, which can be complicated, was accurately determined and reported. Going forward, parties subject to training shall be rotated in order to construct mechanisms that enable an emergency response of equal effectiveness, and preparedness training shall be continually implemented.

Emergency response training (Kashiwazaki-Kariwa)

◆ Headquarters

During joint training held between Fukushima Daiichi and Fukushima Daini, in the Headquarters Emergency Response Center it was at times difficult to identify which sites were talking, so transceivers for receiving audio signals from each site were distributed to each function team as an innovative measure to enable audio to be heard from each power station. As a result, information from each site was able to be accurately processed and the exercises were completed with success. Furthermore, this training was implemented with different members then emergency response exercises conducted last fiscal year, thereby contributing to improving the skills of members other than those people on experienced teams, which was an issue that needed to be addressed. However, explanations on future repair strategies and recovery predictions given at the Clause 10 Event Confirmation Meeting and Clause 15 Event Determination Meeting were insufficient. Going forward, we shall enable explanations of repair strategies and recovery predictions to be given quickly by implementing countermeasures, such as creating detailed examples of language used to explain repair strategies and give recovery predictions.

(2) Improving the in-house technological capability of power stations (operations) 【Measure 6】

◆ Fukushima Daiichi

Since FY2014, Unit 5/6 operators have been trained on the use of fire trucks and power supply trucks. As of the end of March, 40 people had been trained on fire trucks thereby fulfilling our goal of 33 certified personnel (80% of field personnel (41 workers) (no change over quarter three)), and 39 people had been certified on the use of power supply trucks (see the chart below for details). Acquiring skills needed to manage the operation of reactor cooling water injection equipment and contaminated water treatment equipment has been prioritized for Unit 1~4 equipment operators and water treatment equipment operators.

◆ Fukushima Daini

Fire engine and power supply car operation training commenced during FY2014. As of the end of March, 32 operators have been certified on the operation of fire engines thereby exceeding our 29-operator goal (90% of the 32 operators in the field (decrease of one operator since the third quarter)), and 32 operators had been certified on the operation of power supply cars (see the chart below for details).

◆ Kashiwazaki-Kariwa

Fire engine and power supply car operation training commenced during FY2013. As of the end of March, 107 operators have been certified on the operation of fire engines thereby exceeding our 86-operator goal (80% of the 107 operators in the field (decrease of two operators since the third quarter)), and 91 operators had been certified on the operation of power supply cars (see the chart below for details). As of the end of March, the number of instructors in shift departments was 141 (increase of four since the third quarter) thereby achieving fourth quarter goals.

Power Station	Fire Engines		Power Supply Trucks	
	No. of certifications (comparison with last quarter)	Fill rate	No. of certifications (comparison with last quarter)	Fill rate
1F	40 (+3)	121%	39 (+4)	118%
2F	32 (+4)	110%	32 (+2)	110%
KK	107 (-2)	124%	91 (-1)	105%

Initiatives to improve the in-house technological capability of operators (no. of certifications)

(3) Status of initiatives to improve the in-house technological capability of power stations (maintenance)【Measure 6】

◆ Fukushima Daiichi

We are continually implementing training on responding to a loss of on-site power (cooling water injection equipment operation training, such as training on the operation of power supply cars, emergency generator operation training, and concrete pump truck operation training) in order to improve the ability to respond to emergencies. During the fourth quarter, field training (power supply truck operation/connection training) performed in cooperation with the emergency response center in accordance with accident scenarios was conducted under the observation of assessors from the Nuclear Regulation Authority and other nuclear power offices. Assessors from the Nuclear Regulation Authority and other nuclear power offices pointed out various good practices, such as thoroughly implementing basic operations while prioritizing safety, and clarifying work objectives by sharing information on plant conditions and instructions from the emergency response center. However, in regards to sharing responsibilities between field commanders and personnel, it was pointed out that, "Field commanders need to drive home instructions and safety management," so improvements will be made in the course of future repetitive training.

In light of the risks envisioned at Fukushima Daiichi, during this fiscal year a focus was put on training to respond to reactor coolant injection and spent fuel pool abnormalities, and efforts were made to improve familiarity with the operation of equipment used to handle

abnormalities, such as fire trucks. During the next fiscal year, we shall maintain skill level by continuing repetitive training and strive to improve skills and the accuracy of training by improving the work environment and expanding the scope of personnel subjected to training.

Cable conductivity check (power supply truck operation/connection training)

Fire truck operation (Reactor coolant injection equipment abnormality response training)

◆ Fukushima Daini

In order to improve the ability to respond to emergencies we are conducting repetitive training drills with four teams (① rubble removal/road repair, ② generator replacement, ③ temporary cable connecting, ④ coolant pump repair). In the maintenance division, training on the operation of drones in order to quickly ascertain damage from the air in the event of an emergency, was implemented as part of training to improve in-house technological capability. During the fourth quarter, joint protection training was implemented at Fukushima Daini in coordination with the Fukushima Prefecture police based on a scenario that required the use of drone technology. We will continue to implement various training as we aim to maintain and improve in-house technological capability.

During this fiscal year the number of newly assigned personnel increased in conjunction with large-scale personnel transfers. Therefore, focus was put on filling in the gap in skill that exists between veterans and new members by focusing on the fundamentals, clarifying training objectives, and thoroughly implementing basic training. During next fiscal year, we shall urge new personnel to participate in training upon understanding the training objectives and construct measures that enables veterans to improve their technical skill by training new personnel.

Drone used during joint protection training

Electric motor replacement training

◆ Kashiwazaki-Kariwa

In order to improve in-house technological capability so that we can prevent severe accidents from happening, we are implementing various types of training such as training on the operation of forklifts, cable terminal preparation/connection training, bucket truck operation training, scaffolding assembly/disassembly training, and training on welding, torch cutting, and grinding. During the fourth quarter, we repeatedly implemented such training in an effort to maintain skill. We will continue such repetitive training as we aim to maintain and improve in-house technological capability.

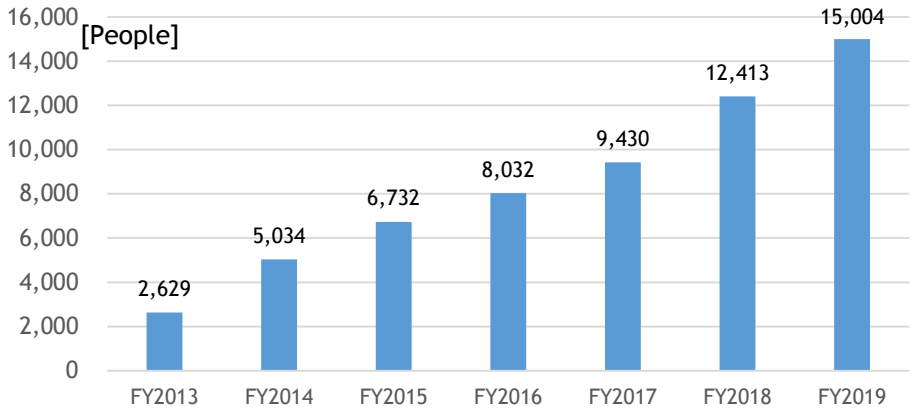
During this fiscal year training began on repairing engine malfunctions on gas turbine generator trucks (replacing engines, and auxiliary components, such as sensors, etc.), which is an on-site emergency vehicle, as part of new training to improve the emergency response capability. During the next fiscal year, efforts will be made to improve skills through this training so as to enable some regular inspections of gas turbine generator trucks to be done in-house.

Forklift operation training

Welding, cutting and grinding training

Scaffolding assembly training

Cable terminal preparation/connection training



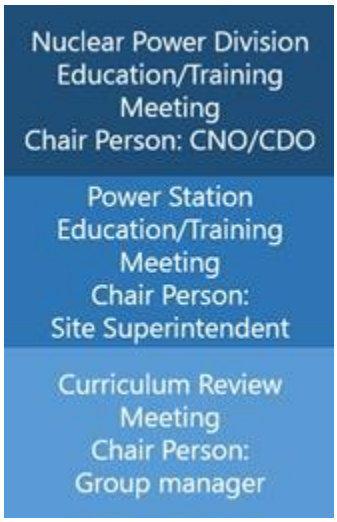
Trends in the number of maintenance personnel that have undergone in-house training (totals for Fukushima Daiichi, Fukushima Daini and Kashiwazaki Kariwa)

2.4.2 Strengthening Technological Capability (during times of non-emergency)

(1) Improving education and training programs based on SAT【Measure 6】

◆ Reconstructing education and training programs based on the Systematic Approach to Training (SAT)

The Nuclear Education and Training Center has adopted the Systematic Approach to Training (SAT), which is recognized internationally as a best practice, and is providing education and training programs necessary for personnel development throughout the entire Nuclear Power Division. In order to continually improve education and training we have created three tiers of review bodies consisting of the Nuclear Power Division Education and Training Committee, Power Station Education and Training Committee, and Curriculum Review Meeting. These three bodies effectively put education and training programs through the PDCA cycle based upon SAT.



Multi-tiered review body

In the maintenance field we created e-learning classes (18 common maintenance Class A classes, 10 Class B classes (total: 28 classes)) as part of the in-house operational technology/skills certification (Class A and B) training curriculum in order to create opportunities to learn about common maintenance processes. During the fourth quarter, those people aiming to take the operational technology/skills certification (Class A and B) tests this fiscal year (Class A: 15 people, Class B: 39 people) completed the e-learning classes. By providing e-learning opportunities we have created an environment in which anyone can repeatedly study maintenance processes at any time regardless of whether or not they are maintenance personnel.

＜技能認定　A級＞	
信頼-01	**点検計画**
信頼-02	**As-Found（点検手入れ前状態データ採取・評価）**
信頼-03	**重要度分類・保全方式策定（SRCM）**
信頼-04	**保全の有効性評価**
信頼-05	**保全活動管理指標（PC）**
高経-01	**耐環境仕様（EQ）**
業務-04	**構成管理**

＜技能認定　B級＞	
業務-01	**業務概要**
業務-02	**図書の扱い**
業務-03	**不適合管理**
監理-01	**工事仕様**
監理-02	**工事監理**
監理-03	**危険物等の管理**
安全-01	**安全管理**

Training curriculum on maintenance work processes for which e-learning classes have been created (excerpt)

◆ Team Leader training

Nuclear Power Division team leaders were subjected to "soft skill training for team leaders" designed to provide them with the soft skills, such as leadership and communication, etc., required to identify issues in the workplace and resolve problems with a heightened sense of responsibility and awareness of their role as a leader. In past years, group training has been held at Headquarters, however this fiscal year separate training was held at each site in order to improve teamwork between Headquarter and power station team leaders, and with the intention of confronting issues unique to each location. This training was held at Fukushima Daiichi and Fukushima Daini in February and was participated in by a total of 43 team leaders. A total of 56 team leaders were scheduled to participate in training at Kashiwazaki-Kariwa and Headquarters in March, but this training has been postponed until FY2020.

Team leader training (Fukushima Daiichi)
Left: Group discussion on choosing topics to discuss; Right: Listening practice "Talking about concerns in the workplace"

◆ New employee training

An efficacy assessment was performed of the Nuclear Power Division new employee training that was completed during the third quarter. During the assessment, the results of comprehension level confirmation tests and questionnaires were aggregated and trends analyzed. It was found that participants acquired common knowledge and skills related to power station operation that they needed to have prior to being posted at a power station, and that achievement level objectives were achieved. Furthermore, both instructors and trainees highly rated shift training, which will be continued in FY2020. In addition, training on basic knowledge required to engage in duties after being assigned, such as "training to

learn how to use equipment schematics frequently used on the job, such as exploded connection diagrams and pipe instrument wiring diagrams," and training unique to power stations, such as "training on the decommissioning of Fukushima Daiichi, transitioning to the decommissioning of Fukushima Daini, and safety measures at Kashiwazaki-Kariwa," will be further developed.

◆ Initiatives aimed at acquiring advanced expertise

Pre-exam group training and group study sessions are held to support those looking to pass the licensed reactor engineer exam. 62 people took the written portion of the licensed reactor engineer exam in March. Furthermore, group study sessions have been continually held since FY2017 for those seeking to become licensed electrical engineers and during FY2019 four young employees in their twenties past the Class 1 licensed electrical engineer exam.

(2) Cultivating and certifying system engineers【Measure 6】

In order to promptly and safely stabilize a reactor when there is an emergency, personnel need to quickly ascertain the circumstances of the accident and make accurate decisions. Therefore, engineers are being trained to be proficient in design, laws and regulations, standards, operation, maintenance and other areas pertaining to facilities important for safety. System engineers formulate system monitoring programs, which stipulate monitoring targets and standards for monitoring system performance degradation, in order to monitor whether or not primary plant systems are fulfilling design requirements in the short term and make suggestions about requirements for maintaining system reliability. Furthermore, system engineers are also expected to identify areas for improvement to system reliability over the long term, and make such improvements.

There are currently seven system engineers at Kashiwazaki-Kariwa that monitor 29 systems at both Units 6 and 7. There have been no abnormalities with system performance, and it has been reported that additional measures are unnecessary. During the fourth quarter, monitoring of three new systems began. We will continue to increase the number of systems to be monitored and train personnel with the objective of having five system engineers for each operational plant.

Currently at Fukushima Daini four system engineers continuously monitor six systems at each of reactor units 1~4. There have been no abnormalities with performance, and it has been reported that additional measures are unnecessary.

(3) Enhancing configuration management【Measure 6】

Configuration management is a process for maintaining the safety of the plant and ensuring that power station equipment has been manufactured, installed, and is being operated as designed. Deliberations continue on measures required for maintaining and managing a state in which design requirements, actual equipment, and equipment schematics all match.

In order to improve accessibility to information on design requirements and design basis, we are compiling this information into design standard documents. We have finished

creating design standard documents for systems required to maintain plant shutdown (residual heat removal system, spent fuel pools, emergency AC power systems, etc.) and during this quarter we completed similar documents for other systems vital for safety (systems with high safety importance level) at Kashiwazaki-Kariwa Unit 7.

In regards to the configuration management process (design change management process), we continue to make revisions based upon benchmarking information from US operators, and during the fourth quarter, we held briefings on revising in-house manuals that stipulate processes and gathered opinions on such revisions. Manuals were put into use in April to thoroughly manage changes to actual equipment and equipment schematics in conjunction with design changes. Systems that support process use were revised so that designs match the content of the revised manuals. The system will be put into use in the field starting in April while monitoring process (revised manual) the comprehension and the degree to which these processes have taken root.

In regards to human resource training (education), training consisting of lectures and group discussions was held at Kashiwazaki-Kariwa in order to enable each individual to understand the role that they play in achieving configuration management (February 6). Furthermore, training consisting of lectures and field training was conducted at Fukushima Daini and Kashiwazaki-Kariwa in order to enable workers to become aware of situations that could hinder equipment functions in the field. Contractors also participated in this training that was held at Kashiwazaki-Kariwa from January 28~31, and at Fukushima Daini from February 17~21.

Fukushima Daini (Lecture)

Kashiwazaki-Kariwa (Group discussion)

(4) Improving project management skills

We have created projects for resolving problems that exist across all departments involved in decommissioning at Fukushima Daiichi and safety measure implementation at Kashiwazaki-Kariwa, and are striving to resolve trans-departmental issues. In continuation from the third quarter, during the fourth quarter we promoted the understanding of project management and started offering an e-learning course on project management basics that both personnel from the FDEC and Nuclear Power & Plant Siting Division may take.

Furthermore, at Fukushima Daiichi we reorganize departments on April 1 and established a Project Management Office for supervising and providing support to programs, such as contaminated water countermeasures, pool fuel removal, and fuel debris removal, etc. This will enable us to transition to a project-oriented organization and enhance our ability to promote decommissioning projects.

(Please refer to 2.1.1 (4) Strengthening Project Management and Securing Human Resources for more information on Department reorganization at Fukushima Daiichi)

(5) Improving nuclear safety and productivity through Toyota-type kaizen

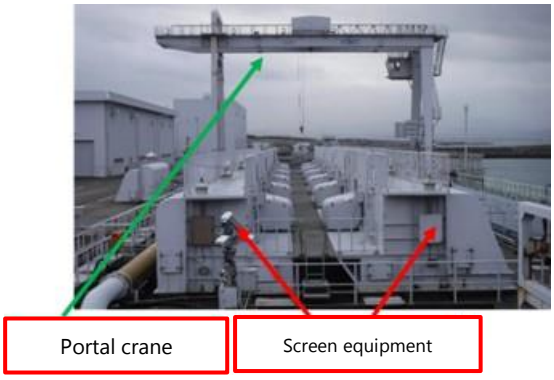
The basic flow of kaizen in the Nuclear Power Division is as follows. Firstly, the objective of the task is understood by all parties involved, and what needs to be done to achieve that objective is identified. Next, the gaps between what is being done currently, and what needs to be done, are put into visual form. Then, what is currently being done is dismissed in order to return to a clean slate and identify what needs to be done to fill in these gaps. Upon doing this, kaizen measures are formulated while also incorporating measures to improve safety and quality through creative vision.

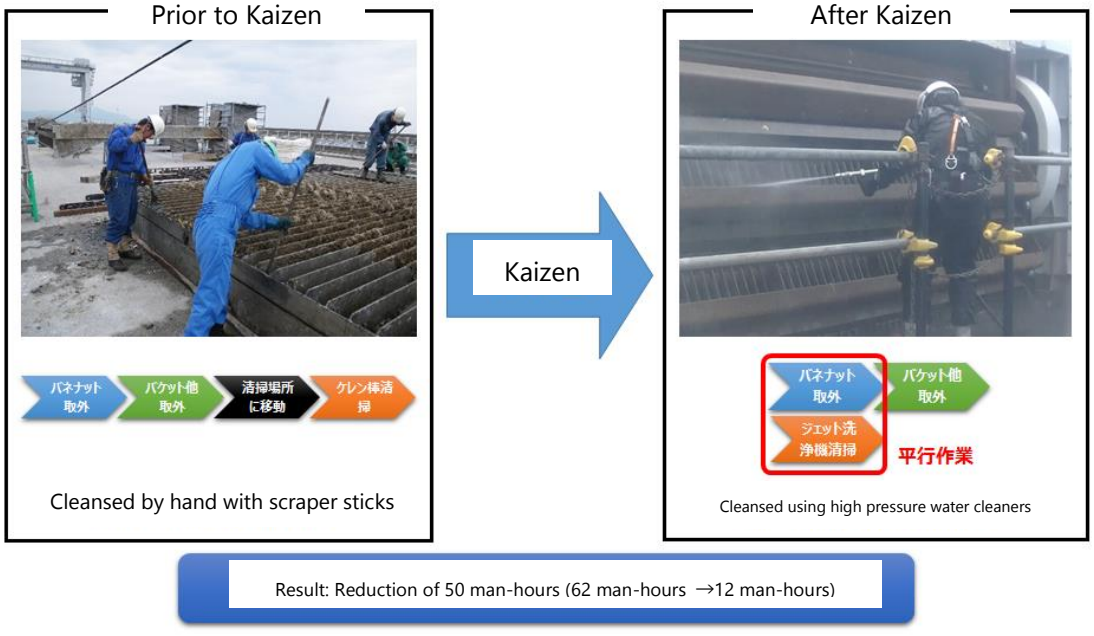
The most recent activities that have been engaged are introduced below.

◆ Examples of kaizen activities at Kashiwazaki-Kariwa

At Kashiwazaki-Kariwa, we have commenced kaizen that focus not only on TEPCO but also contractors. TEPCO Power Technology, Inc., which is a 100% subsidiary of TEPCO, performs maintenance on devices used to remove trash from sea water inlets (screens) through which seawater is obtained to cool the power station. By performing a detailed investigation of the actual work that is performed (quality), putting it into visual form and reducing wasteful actions that do not produce added value, we were able to reduce the time required for this maintenance work from 290 man-hours to 151 man-hours. Furthermore, scraper sticks were replaced by high pressure water cleaners as a means for cleaning the screens, and heavy objects that require moving are now moved as little as possible thereby improving safety.

Furthermore, since this work is contracted, the focus has been on to what extent the contractors can follow TEPCO specifications and produce desired results. However, now that contractors have themselves implemented kaizen activities, each and every worker now engages in their daily duties with an understanding of why this work is necessary (what needs to be done, and what must never be done). This has led to improvements and work safety and human error prevention. These activities have been deemed best practices, and shall be conveyed to Group companies outside of TEPCO Power Technology Inc.

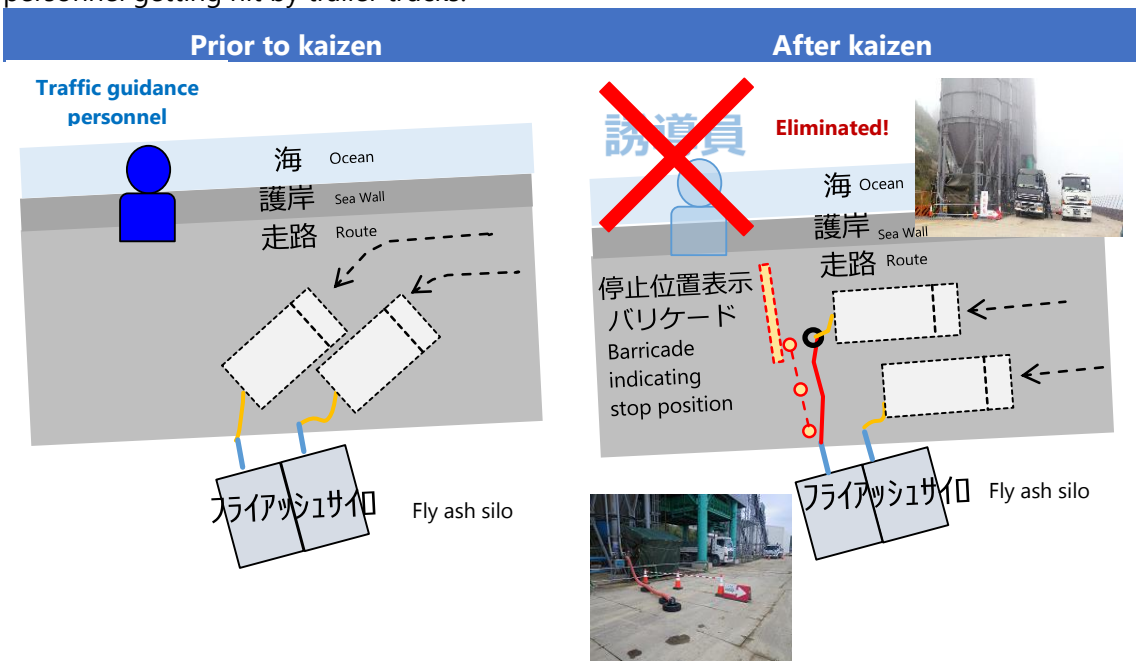




Screen equipment maintenance kaizen (Kashiwazaki-Kariwa)

◆ Examples of kaizen activities at Fukushima Daiichi

At Fukushima Daiichi, kaizen were implemented for the manufacturing of materials needed to relocate and anchor the mega float, which was done in order to reduce risks associated with tsunamis. The decision was made to utilize waste material generated by the Hirono Thermal Power Station (fly ash) as mounting material to sink the mega float to the bottom of the sea floor. This mounting material (ash-crete) was manufactured at the power station site and transported to the mega float where it was used to fill the inside of the mega float after it had been sunk. In addition to effectively leveraging this fly ash, which is waste, we were able to refine the long transportation process (which was longer than the accumulation/refining process) by fine-tuning tasks thereby enabling us to perform this task in conjunction with the progress of the entire project. Furthermore, when silos were filled with fly ash, traffic control personnel would guide trailers to their unloading points. However, by modifying these unloading locations so that fly ash could be unloaded into the silos even if traffic personnel were not present, we were able to reduce the risk of traffic personnel getting hit by trailer trucks.



- Fly ash truck: Turns while reversing and stops
- Traffic guidance personnel positioned due to poor visibility
- Traffic guidance personnel hooks up hoses

- Longer hoses used and truck route revised thereby making conditions better
- Procedures revised so that drivers connect hoses (Safety improved through the reduction of traffic guidance personnel)

3 PROGRESS ASSESSMENT

3.1 17TH NUCLEAR REFORM MONITORING COMMITTEE MEETING

At the 17th meeting of the Nuclear Reform Monitoring Committee (NRMC), which was held on February 4, TEPCO reported on the strengthening of self-assessments, improvements made to safety and quality, and quality improvements made to communication, which are initiatives that are being engaged in to address key issues in light of the suggestions that were made at the previous meeting (January 29, 2019). After reviewing this report, the NRMC made the following suggestions to the directors.

In regards to monitoring the progress of the Nuclear Safety Reform Plan:

~Report given to TEPCO HD Board of Directors by the Nuclear Reform Monitoring Committee~

At the 17th meeting of the Nuclear Reform Monitoring Committee held today, the Nuclear Reform Monitoring Committee (hereinafter referred to as, "NRMC") received a report from TEPCO HD in regards to progress with nuclear safety reforms, the status of implementation of self-assessments by executive departments, and the status of improvements made to address key issues through self-assessments. The NRMC offers the following opinions and suggestions in light of this report.

- "Since the last meeting we have seen great progress as a result of strengthening corporate governance through more stringent self-assessments. In particular, we would like to commend management for identifying weaknesses and formulating action plans to fill in gaps and correcting these weaknesses. We would like to see management show leadership when engaging in these activities and have internal oversight departments continue to monitor them."
- "In regards to communication, we would like to see further efforts to have power stations and the entire decommissioning division transition from 'conveying information' to 'conveying information that is easily understood'."
- "Recurrence prevention training is being repeatedly implemented in light of certain incidents, such as the error made on the notification form at Kashiwazaki-Kariwa. We would like to see you seek third-party opinions about these activities so that they do not become self-centered."
- "In regards to improving technological capability, TEPCO is creating and implementing education and training programs so as to prevent any impact on the environment. We expect that further technical skill will be acquired for the repeated implementation of these programs."
- "In regards to cultivating nuclear safety culture, employees assigned to important positions at power stations that were present when the Fukushima Nuclear Accident occurred are making efforts to leverage the lessons they learned. All employees are being subjected to training that focuses on the regrets and lessons learned from the

Fukushima Nuclear Accident and the company is engaging in initiatives to get each individual to think about safety."

- "We would like to see more support, such as by using information technology, etc., to reduce increasing workloads and prevent errors."

We commend TEPCO for its continuous nuclear safety reform efforts since the creation of the Nuclear Safety Reform Plan in 2013. As the number of employees that did not experience the Fukushima Nuclear Accident firsthand increases, we would like to see the company continue to pass on the company's "resolution" mentioned in the Nuclear Safety Reform Plan that was formulated in light of the company's regrets about the Fukushima Nuclear Accident. At the same time, in light of the dramatic changes that have occurred to both the internal and external environment at TEPCO, we would like to see all employees engage in their daily duties in accordance with the Management Model and the Decommissioning Promotion Strategy.

There is no end to the pursuit of nuclear safety. Even though you are facing a harsh business environment, we would like to see you continue to promote nuclear safety reforms while implementing measures to maintain the motivation of employees and enable them to see the value of the work in which they are engaged.

Nuclear Reform Monitoring Committee

Dr. Dale Klein, Chairman
Lady Barbara Judge, Deputy Chairman
Mr. Masafumi Sakurai, Member
Mr. Takashi Kawamura, Member

TEPCO shall remain humble and take these suggestions seriously as we strive to make improvements through stricter self-assessments to become trustworthy organization.

Reform Monitoring Committee members

Explanation by TEPCO

3.2 SELF-ASSESSMENT OF KEY ISSUES

TEPCO reported on self-assessments at the 15th meeting of the Nuclear Reform Monitoring Committee held on October 5, 2018. Additionally, at the 16th meeting of the Nuclear Reform Monitoring Committee held on January 29, TEPCO gave a report on the

gaps between expectations and reality in regards to technological capability and communication in order to revise self-assessments, and also on action plans for filling in these gaps.

In regards to technological capability, in order to improve the current situation where nonconformities with equipment and work processes stemming from the lack of technological capability continue to occur, the current level of quality of equipment and work processes will be re-examined and countermeasures to fill in the gaps between the current situation and our ideal state will be proposed and implemented as we aim to prevent troubles before they occur.

In regards to communication, although individual countermeasures for supplementing our lack of ability to engage in dialogue are being proposed and implemented, errors and insufficiencies have not been eradicated. The reason for this is a lack of "professional awareness" and "awareness about conveying information that is easily-understood." Therefore, an action plan has been formulated and is being implemented.

The Nuclear Reform Monitoring Committee has commented that, "progress is being made but there are still issues to address." TEPCO is taking this opinion of the NRMC seriously and is in the process of formulating a detailed action plan.

3.2.1 Improvement Initiatives based upon Self-Assessments

(1) Improving human resource training (technological capability)

◆ Developing safety/quality improvement kaizen activities

The primary objective of kaizen being implemented by the Nuclear Power Division is to improve safety and quality. Up until now, these activities had centered around internal deliberations, but during the fourth quarter we expanded these activities to include contractors and called out to them to deliberate on their own what kaizen should be implemented in order to improve safety and quality in their respective companies. Details can be found in section 2.4.2 (5) Improving nuclear safety and productivity through Toyota-type kaizen.

◆ Constructing education/training programs

We are continuing to construct engineer education curriculum that covers seven areas (design, systems, equipment/programs, equipment diagnostics, procurement, safety, and fuel) and have begun using those curriculums for which preparations have been completed. During the fourth quarter, basic training on equipment reliability ("Applying Condition Standard Maintenance," "EPRI PMBD Overview"), which is a process for continually improving equipment reliability, safety, and performance, was started for Nuclear Power Division engineering personnel as a further initiative.

◆ Design/procurement improvement initiatives

The Fukushima Daiichi Decontamination & Decommissioning (D&D) Engineering Company (FDEC) is striving to improve design/procurement in light of the nonconformities with the Unit 3 fuel handling machine. As part of these initiatives we engaged in procurement-related benchmarking with other companies that has enabled us to obtain knowledge that we must incorporate as we move forward with decommissioning of

Fukushima Daiichi, such as how to manage the quality of products from overseas and general industrial products, how to write comprehensive requirements and specifications that clearly define the mission and usage concept, and precautions when procuring items from overseas. In light of the knowledge we have acquired, we are deliberating measures to improve design/procurement processes, and have created a draft of an "Important Procurement/Design Management Guide" in which these improvement measures shall are reflected. Furthermore, the draft of this guide shall be used on a trial basis for important procurements, such as items newly procured from overseas vendors. This process shall be examined and the results reflected in this guide that shall be put into use on April 1.

◆ Initiatives to strengthen quality management

At the FDEC, we are comparing current work processes to those prior to the accident in order to strengthen quality management, analyzing important nonconformances related to quality, and examining measures to shore up identified weaknesses. In particular, we have completed the task of identifying equipment for which it is feared that design weaknesses exist and are in the process of performing new design/technical evaluations in accordance with priority level, which has been set according to equipment importance level, as we continue to improve equipment reliability. Furthermore, we are analyzing common factors related to nonconformances, implementing countermeasures, and examining the effectiveness of these countermeasures.

(2) Communication improvements

◆ Improving awareness at the source of information (Nuclear Power Division)

In the Nuclear Power Division, group discussions are being held in all offices about the "importance of disclosing information in the course of one's duties," and things noticed in the course of these discussions are being leveraged in the course of daily duties.

Furthermore, in an effort to encourage employees to think for themselves and implement kaizen, at each power station kaizen measures based upon the cause analysis of nonconformities related to internal/external communication are being deliberated and gradually put into use.

◆ Improving the awareness of corporate communications departments

During the fourth quarter, new corporate communications department members engaged in training on analyzing past troubles in order to obtain the skills and knowledge required to actually "convey information that is easily understood."

◆ Continual implementation of information disclosure training

At Fukushima Daiichi, information disclosure training conducted jointly by the Nuclear Power Division and the Corporate Communications Division is being held monthly under various simulated conditions to ensure that information flows smoothly in the event of circumstances that have never been experienced. At Kashiwazaki-Kariwa and Fukushima Daini, notification training is being continually held for night shift members in order to improve the response of the night shift. During the fourth quarter, training was held, in principle, every day at Kashiwazaki-Kariwa, and on weekends and holidays at Fukushima Daini.

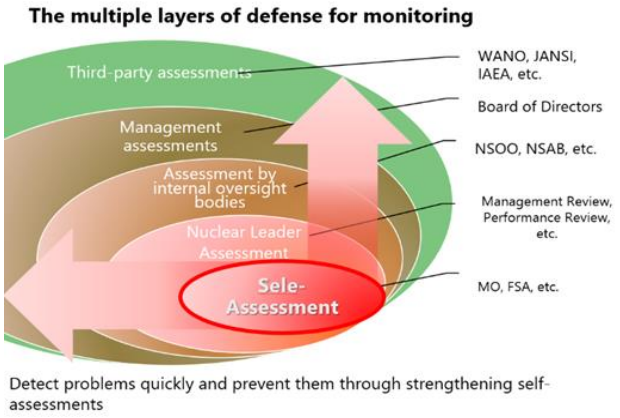
◆ Strengthening monitoring by risk communicators

Risk communicators, who serve as liaisons between the Nuclear Power Division and Corporate Communications, are being continually subjected to training on "strengthening oversight functions" in order to strengthen the ability of each department to engage in oversight from the perspective of society. During the fourth quarter, training to be held during FY2020 was planned and proposed. Experts in risk communication shall be invited to act as external instructors and engage in case studies using events for which it is hard to determine whether or not public disclosure is necessary. This shall enable risk communicators to deepen their knowledge about how to determine whether or not an event needs to be publicly disclosed when something out of the ordinary happens.

3.3 SELF-ASSESSMENT BY THE NUCLEAR POWER DIVISION

(1) Key self-assessments【Measure 2】

In the pursuit of excellence and to make improvements that enable assessors to identify for themselves those issues that should be improved, a Key Self-Assessment Implementation Guide that compiles standard self-assessment methods used by the world's finest operators, such as including external parties and representatives of other sites as assessors, etc., has been created and put into use.



Defence-in-depth for assessments, and self-assessments

This fiscal year we performed a self-assessment of the suitability of Headquarter functions based upon the Key Self-Assessment Implementation Guide and identified areas for improvement, such as, "strengthening the ability of Headquarters to confirm power station status." In addition, we sought advice from overseas experts, such as the Nuclear Safety Advisory Board (NSAB), etc., reflected that advice into action plans in order to make improvements, and transitioned to the execution stage. Going forward we shall strive to strengthen self-assessments in order to further root the behavior of learning and making improvements on our own.

Key self-assessments performed during the fourth quarter are as follows.

◆ Plant walk-down (Kashiwazaki-Kariwa)

Operators perform field patrols and inspections every day, but due to a lack of ability to view issues from the perspectives of fire protection, flooding protection, physical protection, and temporary equipment management, during this fiscal year we commenced detailed plant walk-down training for operators upon inviting experts from the United States to act as instructors. A key self-assessment was implemented to confirm the

effectiveness of this training (January 20, 21). The key self-assessment identified strengths in the forms of the cultivation of the ability of operators to view issues from the perspectives of fire protection, flooding protection, physical protection, and temporary equipment management, and improvements made in the field due to an increase in the number of condition reports filed. However, it also identified a weakness regarding insufficient management of valve status. Going forward, improvements shall be made to address this weakness in accordance with an action plan that has a clear deadline as we aim to create a field environment that has the world's highest levels of management.


Plant walk-down training for operators (Right: Kashiwazaki-Kariwa, Left: Fukushima Daini)

◆ In-house fire brigade education and training (Kashiwazaki-Kariwa)

In the field of fire protection, a key self-assessment of in-house fire brigade education/training was conducted at Kashiwazaki-Kariwa (February 25~27). In-house fire brigade (shift members/site in-house fire brigades comprised of non-shift members/contracted fire brigades) education and training was assessed to identify gaps of excellence from the perspectives of the World Association of Nuclear Operators Performance Objectives & Criteria (WANO PO&C) and the Japan Nuclear Safety Institute (JANSI) excellence guidelines. The assessment identified a strength in the form of "multilayered fire prevention mechanisms have been established to respond to fires," and also identified an area for improvement regarding the fact that "a skill management


Deliberating self-assessments of in-house fire brigade education and training (Kashiwazaki-Kariwa)

program that clearly stipulates the selection requirements for in-house brigade members has not been established." We shall therefore formulate countermeasures and make improvements.

◆ Waste reduction process (Kashiwazaki-Kariwa)

In the field of radioactive waste, a key self-assessment of waste reduction processes was implemented at Kashiwazaki-Kariwa (February 12~14). The assessment was performed by

engaging in field observation and conducting interviews with TEPCO employees and contract workers in order to assess power station waste reduction process performance from the perspectives of the World Association of Nuclear Operators Performance Objectives & Criteria (WANO PO&C) and Japan Nuclear Safety Institute (JANSI) guidelines. The assessment identified a strength in the fact that, "waste reduction is a part of dose reduction processes common all over the globe, however formulating and implementing programs dedicated to waste reduction is helpful for reducing waste and improving awareness about waste reduction." The assessment identified an area for improvement in regards to the fact that, "waste reduction programs have helped to a certain extent to improve reduction mechanisms and reduction awareness, but only information about issues to which waste reduction programs have been applied has been conveyed." So, countermeasures shall be drafted and improvements made during the first half of FY2020.

Interviews (Kashiwazaki-Kariwa)

Field observation (Kashiwazaki-Kariwa)

◆ Risk management (Fukushima Daini/Kashiwazaki-Kariwa)

In the risk management field, we systematically prepared risk management mechanisms during FY2018, and during FY2019 we implemented risk management education and focused on efficacy assessments. During the fourth quarter, we performed a key self-assessment of risk management at Fukushima Daini and at Headquarters we implemented an efficacy assessment of risk management improvement activities. During the key self-assessment of risk management at Fukushima Daini, risk management CFAM from Headquarters served as reviewers alongside representatives from Fukushima Daiichi, Kashiwazaki-Kariwa, and consultants from the United States. Representatives from the Chugoku Electric Power Company also engaged in benchmarking. We performed an efficacy assessment in light of risk management process utilization since the last key self-assessment (FY2018), and also assessed risk management using World Association of Nuclear Operators Performance Objectives & Criteria (WANO PO&C) in order to look back on the issues we must address. In addition, we discussed new strengths and also areas for which industry standards have been satisfied but for which there is still a further room for improvement. Representatives from the Chugoku Electric Power Company commented that, "we see that you have a strong awareness for improving safety and are engaged in developed initiatives to do so. We're also able to see the ideal state you are aiming for." During the efficacy assessments of initiatives to improve risk management at Headquarters, focus was put on site personnel awareness and changes to behavior in regards to risk management. Operations and maintenance division personnel were interviewed to examine whether or not troubles are being prevented and whether or not plant safety is being maintained. We were able to confirm through the assessment that conditions are

improving.

Going forward we plan to implement a key self-assessment of risk management at Kashiwazaki-Kariwa. By identifying areas for improvement and continually making improvements to risk management initiatives that we have strengthened to date, we aim to become an organization that can systematically manage risks while having all personnel related to power station operation maintain a high sensitivity to risk management.

◆ Radioactive contamination management (Fukushima Daiichi)

In the field of radiological protection, we implemented a key self-assessment of radioactive contamination management at Fukushima Daiichi (January 20~21). Radiation contamination management performance at the power station was assessed by reviewing processes, engaging in field observation, and interviewing TEPCO employees as well as contract workers from the perspectives of the World Association of Nuclear Operators Performance Objectives & Criteria (WANO PO&C) and Japan Nuclear Safety Institute (JANSI) guidelines. Since the assessment found, "Areas for improvement: How to respond to unforeseen contamination in areas outside of controlled areas for which there is no possibility of contamination has not been made clear, and the contamination management level of changing areas and equipment switching areas (excluding contamination levels for each zone) is not noted in the manuals," we shall formulate countermeasures and make improvements during the first half of FY2020.

Process review (Fukushima Daiichi)

Field observation of changing area (Fukushima Daiichi)

3.4 OPINIONS OF THE PEOPLE (ASSESSMENT BY REGIONAL COMMUNITIES)

(1) Results of questionnaire regarding nuclear power-related communications activities

We distributed a questionnaire about TEPCO's nuclear power-related communication activities to people to whom TEPCO regularly provides information (Fukushima, Niigata, Aomori, Tokyo, overseas) in order to obtain an objective assessment from parties outside the company that will enable us to make improvements.

◆Questionnaire overview
Survey method: Answers written on questionnaire answer sheet (anonymous)

Assessment targets: "Quantity/quality of provided information," "Approach to an awareness about corporate communications and listening to public opinion"

Assessment method: The degree of improvement compared to last year was measured on a seven-point scale from -3 to +3 (0 meaning no change)

Reply period: August~December 2019

Number of responses received: 198 (response rate: 81%)

◆Questionnaire results overview

The overall assessment was +1.0 thereby continuing a positive YoY trend. (Target: questionnaire assessing ability to promote dialogue: Positive YoY increase <Over +0.9>

The degree of improvement of "quantity/quality of provided information," and "approach to and awareness about corporate communications and listening to the public" increased as follows compared to last fiscal year:

"Quantity/quality of provided information" +0.9→+1.0

"Approach to and awareness about corporate communications and listening to the public" +0.9→+1.1

	Fukushima	Niigata	Aomori	Tokyo	Overseas	All areas
Overall assessment	+1.0	+0.8	+1.4	+1.0	+2.8	+1.0
Quantity/quality of provided information	+1.0	+0.8	+1.3	+0.9	+3.0	+1.0
Approach to and awareness about corporate communications and listening to the public	+1.1	+0.9	+1.5	+1.3	+2.5	+1.1
Number of respondents	82	50	29	35	2	198

While some people commented that, "information provided has become easier to understand," and "I feel like the company is actively trying to convey information," some others commented that, "the information is technical and difficult to understand," and "you need to look more through the eyes of the people receiving the information." Through regular communication we will seek opportunities to learn about what the people are concerned about and about what type of information they would like as we strive to convey information that is easily understood.

3.5 Monitoring Results from the Nuclear Safety Oversight Office【Measure 2】

In the pursuit of excellence, the Nuclear Safety Oversight Office (NSOO), which is an independent internal oversight department, has made the following recommendations based on observations it has made over several months with a focus on mainly the fourth

quarter that were reported to the executive officer committee and the Board of Directors.

Nuclear Safety Oversight Office - Quarterly Monitoring Evaluation Report FY2019 Q4

Introduction

This report summarizes the evaluation results of the 4th quarter of FY2019 (January to March) of the Nuclear Safety Monitoring Office (hereafter "NSOO"). NSOO had discussion with each department in charge about the recommendations, advices and observation results reported in this report. NSOO proposals were accepted by management layer of the line departments and the countermeasures are being examined or started.

1. Top two recommendations in response to which improvement should be made from a perspective of nuclear safety

NSOO HQ team and the chief engineer of reactors (hereafter "Senior Reactor Engineer") observe steady improvement of nuclear safety in many areas.

In this chapter, particularly important recommendations are stated based on the observations in the current period for further improvement.

1.1 Reinforcement of response to external observations (Kashiwazaki-Kariwa)

[Issues confirmed]

A status has continued after the Earthquake that it took long time to complete the response for the observations by external parties related to nuclear safety. An improving trend is observed recently under the intensive checking / guidance by Site Superintendent of Nuclear Safety Center.

However, if the scope of target facilities and the organizations in charge of response is wide, there is a scope of improvement in terms of promptness.

If this condition continues, it is concerned that early reduction of risks won't be achieved in similar cases in future.

[Considerations and possible causes]

(Cases)

- The percentage of cases that require long period (2 years or longer) to complete the response for the observations by external parties is as below:
  - Observations by external parties during the period 2012 to 2016 64% (38 out of 59 cases)
  - Observations by external parties during the period 2017 to 2018 20% (3 out of 15 cases)
- Response to the following 2 cases have not been completed AND require long period in recent observations:
  - Insufficient protection of important-to-safety facilities against scaffolding, etc. (Characteristics：large volume / scope of the target items)
  - Insufficient basic practice for maintenance work by contracting company workers (Characteristics：wide scope of organizations in charge of response)

  (However, the response is in progress for these two cases by setting the target of completion within this year.)

The attributable cause is as follows:

- If the volume of target facilities is large and their locations are widely spread, or, if deployment in the areas outside TEPCO organization is necessary (implementation by contractors), the period until the completion of response tends to be prolonged.

  In such a case, the contrivance from the perspective of promptly reducing the nuclear safety risks (early stage response to prioritized targets, early establishment of cooperation framework among stakeholders, etc.) was insufficient.

[Recommendations]

The NSOO suggests Safety Administrative Department General Manager to instruct the following to the staff responsible for the response to the observations by external parties in future:

- In the case of large volume / scope of the target items, response to the prioritized targets should be planed at early stage.
- In the case of wide scope of response organizations including contractors, a plan embodying the early establishment of cooperation framework among stakeholders should be developed.
- It is necessary to understand the above-stated perspectives more deeply and understand the industry standard concept* for developing effective and timely measures so that it is possible to lead the planning / achievement with responsibility.

*SMARTS: Industry standard concept in developing measures based on S (Specific), M (Measurable), A (Achievable) R (Realistic), T (Timely), S (Sustainable)

1.2 Insufficient autonomous use of Condition Report*(CR) (Fukushima Daiichi)

* : Report of unsafe status / behavior, etc. including those with minor impact

[Issues confirmed]

Under the initiative of Engineering, Quality and Safety Management Department, introduction and deployment of CR have been implemented stringently since October last year.

Meanwhile, risks (CR issuance and stagnation of analysis) identified prior to the introduction have shown the sign of manifestation with regard to performance improvement using CR.

If this condition continues, it is likely to disturb a smooth progress to the essential purpose of corrective action program activities, i.e. the improvement before occurrence of serious problem by detecting the sign of degradation autonomously.

[Considerations and possible causes]

(Cases)

- The number of CRs issued were approx. 60 cases / month, which was smaller than those in the other power stations. (In Kashiwazaki-Kariwa, ca. 200 cases / month immediately after the CR introduction and ca. 300 cases / month recently)
- Many of the CRs were issued triggered by operation inspector's observation. The number of autonomous reporting does not show an obvious increasing trend.
  (Number of operation inspector's observation/Total number : December (20/57 cases), January (10/43 cases), February (14/62 cases))
- While "statistic trend analysis" has been implemented, "cognitive trend analysis" has yet to be utilized that captures the potential trend by associating the similar events in the recent CR.
  (Example : There is no discussion based on CR information in routine opportunities such as morning regular meetings, etc.

In introducing CR, the risks related to CR issuance and stagnation of analysis were understood and the mitigation actions were listed. Nevertheless, these actions didn't work effectively. The attributable cause is as follows:

- In Line teams, understanding of the important of improvement by capturing the degradation sign autonomically in early phase has not been uniformly disseminated.

- Engineering, Quality and Safety Management Department, General Manager failed to provide sufficient education to the managements (General Manager, Group Manager) about trend analysis method.

[Recommendations]

The NSOO suggests Decommissioning Quality and Safety Management Department General Manager to do the following:

- Clarify the site superintendent's expectations to the managements about the use of CR, and have the managements observe them as stringent instructions.
- So that CR can be used as a management tool proactively and honestly, guidance should be given to the management layer about the method of practical trend analysis.

2. Other Recommendations Made during This Quarter

Among the observations made by the NSOO HQ Teams and the Senior Reactor Engineers in this period, noteworthy recommendations except for those described in Chapter 1 are as follows:

2.1 Fukushima Daiichi

① Site status not checked thoroughly at the time of construction (HQ Team)

② Lack of specialization training in Decommissioning Core Technology Seminar (HQ Team)

③ Improvement of education for on-site operation supervision (Senior Reactor Engineer)

④ Provide operators with necessary information for station-wide monitoring (Senior Reactor Engineer)

2.2 Fukushima Daini

①Improvement of sensitivity related to the on-site facility status (Senior Reactor Engineer)

②Findings: Tendency of delay in performance assessment (Senior Reactor Engineer)

2.3 Kashiwazaki Kariwa

①Reinforcement of restart preparation after long-term shutdown based on experiences inside and outside of the country (HQ Team)

②Lack of cooperation among stakeholder organizations in solving issues related to As Found Data collection / use (Senior Reactor Engineer)

③Examination of RIDM useful in the field (Senior Reactor Engineer)

3. Opinions of the General Manager of the Nuclear Safety Oversight Office based on evaluations (throughout the fiscal 2019)

3.1 Policies for improving nuclear safety

With regard to the penetration of "Management Model" and "Fundamentals" which Nuclear Power & Plant Siting Division has been committed to for about 3 years, working level people have started to describe them as common concept including the contractors. It is good that they continue the policy for nuclear safety improvement targeting the consistency within the organization.

Meanwhile, Fukushima Daiichi Decontamination and Decommissioning Engineering Company (hereafter "Decommissioning Company") has just developed the "Management Model" and "Fundamentals" integrating the special characteristics of Fukushima Daiichi based on those specified by Nuclear Power & Plant Siting Division as late as the second half of FY2019. Because of this, the deployment in term of power station operation will be an important issue in future.

Both Nuclear Power & Plant Siting Division and Decommissioning Company are requested to pursue the practical implementation of these policies throughout the FY2020 as a basis for pursuing nuclear safety of the global level with responding to the changes.

3.2 Systems and competencies

As an impactful framework change, the Decommissioning Company conducted a reorganization in this April with the purpose to reinforce project management and safety / quality management. NSOO urged the Company to solve concerns, suggesting that the advance change management was not sufficient. Therefore, the Decommissioning Company was committed to the solution of problems until April. If any insufficiency related to task interface, etc. is found after transferring to actual operation, it is necessary to plan an early improvement under the personnel in charge of reorganization.

About competence, review on competence management was promoted including the improvement of competence management sheet by Nuclear Power & Plant Siting Division and development of human resource record by Fukushima Daiichi Decontamination and Decommissioning Engineering Company. Further, a training was started since FY2019 for make line

managers to understand SAT (Analytical Approach for Education and Training). However, the certification quality to judge whether the working-level staff can pursue the tasks individually has not been improved necessarily. So that the Line Managers should fulfill the responsibility to improve competence of their people in addition to the responsibility for short-term achievement of tasks, it is expected that the top managements will issue the expectation items and perform review continuously.

Based on the higher level decision making and information sharing among experts in Emergency Response Center who addressed the improvement in FY2018 for the emergency response skill cited as an issue in FY2017, the number of expert level staff has been increased in FY2019. This is a good practice. We expect that reinforcement of liaison between the Emergency Response Head Office and the actual field is realized in future.

3.3 Implementation Process

The following are the main processes in which the NSOO identified gaps with the excellence through oversight activities in fiscal 2019.

<Nuclear Power & Plant Siting Division>

- Assessing maintenance effectiveness (Thorough use of trouble experience, information control of judgment basis)
- Improvement of performance of operators (Correction of gap among individual staff about conservative decision, etc.)

<Fukushima Daiichi D & D Engineering Company>

- Management of tasks involving the heavy contamination (Reinforced involvement in the field work by Radiation Control Department)
- Securing reliability through the phases from design to operation (Risk reinforcement in facility operation, improvement of mock-up effectiveness)

The NSOO has already proposed recommendations regarding the above processes. In fiscal 2020, the Nuclear Safety Oversight Office will keep monitoring and overseeing how they will be improved.

4. Status of completion of the recommendations presented by the NSOO

Line Department has been continuing good activities in general towards the completion of Recommendations by NSOO.

- Of the 193 recommendations presented so far, 174 recommendations have been completed. In this quarter, 11 recommendations were

completed.
・In this term, 4 recommendations were presented.

In this term, there was no recommendations newly judged by NSOO as not making satisfactory progress even after passing 6 months or as not completed even after passing 1 year without justifiable reasons.

5. Benchmarking and training

With the purpose to contribute to the planning of practical measures by the power station for "solving potential issues in operators' performance" suggested to Kashiwazaki-Kariwa in the first period, NSOO visited the Peach Bottom Nuclear Power Station (USA) operated by Exelon Corporation together with the operators of Kashiwazaki-Kariwa in February. A benchmarking was carried out about the approaches to maintain / improve competence of operators.

Information for activities contributing to the improvement was obtained, including the arrangement of powerful leaders who observe and guide the training across the organization to enhance consistency within an organization. Operation Department in Kashiwazaki-Kariwa started the deployment of practical improvement measures based on these findings.

End of Document

3.6 COMMENTS, GUIDANCE AND ASSESSMENT BY NUCLEAR POWER-RELATED AGENCIES

(1) Results from exchange of opinions with the Nuclear Regulation Authority and the status of addressing identified issues

During the 53rd special session of the Nuclear Regulation Authority, the president gave a report on the causes and countermeasures for accidents/troubles that occurred at Fukushima Daiichi this fiscal year and exchanged opinions with committee members (January 16).

The president reported that analysis results of the causes of accidents and troubles identified "not thoroughly ascertaining actual field conditions/actual conditions of equipment" as a common cause, and ascertaining actual field conditions/actual conditions of equipment is effective at improving safety/quality and preventing accidents and troubles from occurring. In conjunction with this, the president also reported on countermeasures

for “ascertaining actual field conditions/actual conditions of equipment and improving the ability to do so” and “developing personnel and departments.” However, members of the Nuclear Regulation Authority questioned whether or not, “the cause of accidents and troubles is a failure to distribute sufficient resources to the field” in light of the TEPCO accidents/troubles report given by the Fukushima Daiichi Nuclear Regulation Secretariat General Manager to the Nuclear Regulation Authority in November 2019.

In response to this, TEPCO is strengthening personnel at Fukushima Daiichi involved in safety/quality, radiation control, and preparedness/safety in light of the recent accidents and troubles. Furthermore, in conjunction with department reorganization that centers on Fukushima Daiichi in order to focus on field conditions and the conditions of actual equipment in the field, approximately 80 personnel from Headquarters have been transferred to the site in order to strengthen project management functions. We’ve also implemented measures to keep employees transferred from Headquarters separate from those already working at Fukushima Daiichi for a certain period of time in order to prevent the spread of Covid-19.

At Kashiwazaki-Kariwa, CFAM, who are Headquarter leaders for each functional area, now reside on site and have commenced kaizen initiatives from the perspective of field conditions and the conditions of actual equipment in the field.

Flanged tank dismantling kaizen (Fukushima Daiichi)
Left: Decontaminating the inside of tanks using a laser; Right: Tank dismantling

4 KPI/PI RESULTS

4.1 FY2019 KPI/PI

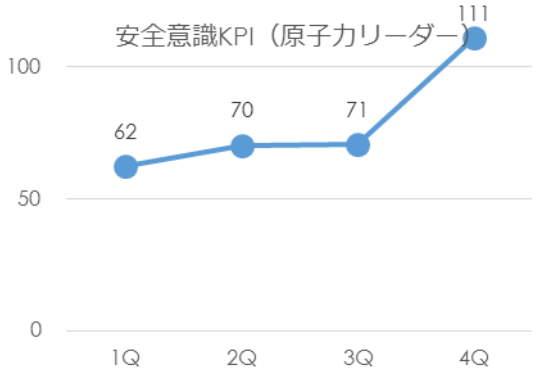
FY2018 KPI targets for safety awareness (nuclear leaders/entire Nuclear Power Division), ability to promote dialogue (external), and technological capability (during times of non-emergency) have been reached, but targets for ability to promote dialogue (internal), and technological capability (during times of emergency) were not. In light of FY2018 results, four new related PI were added to FY2019 KPI and monitored for one year. The results are shown below.

4.2 KPI RESULTS

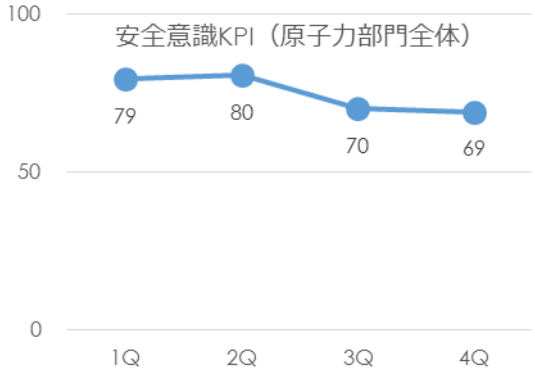
Note 1: Some PI used to calculate KPI are quick estimates.
Note 2: Quick estimates used for the previous quarterly report have been replaced with correct values
Note 3: Q3 values have been replaced with the correct values
Note 4: Values for the last quarter do not include quick estimates for the last month in that quarter

Safety Awareness KPI ····· Target

Safety Awareness (Nuclear Leaders) ·····90 points



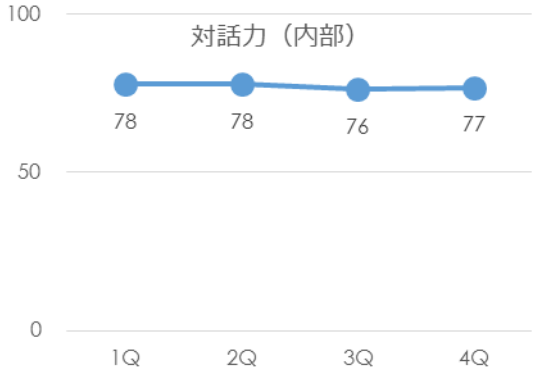
Safety Awareness (entire Nuclear Power Division) ····· 80 points



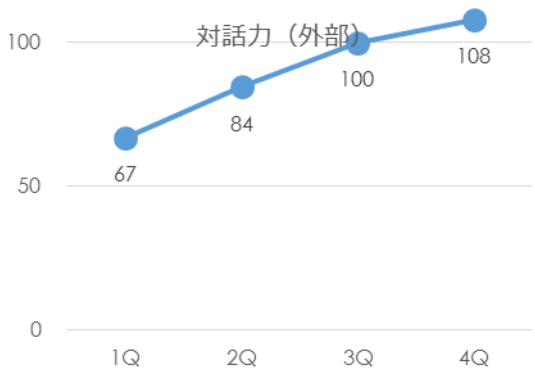
Notes 1, 2

Ability to Promote Dialogue KPI ····· Target

Ability to Promote Dialogue（Internal）··80 points



Ability to Promote Dialogue（External）·····100 points



Notes 1, 2

Technological Capability KPI ····· Target

Technological Capability（Times of non-emergency） ····· 110 points

Technological Capability（Times of emergency） ····· 110 points

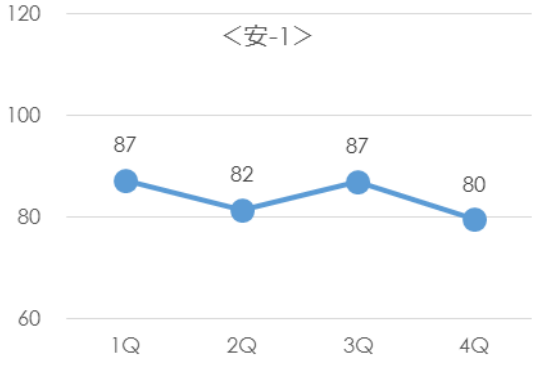
Note 3

4.3 PI Results

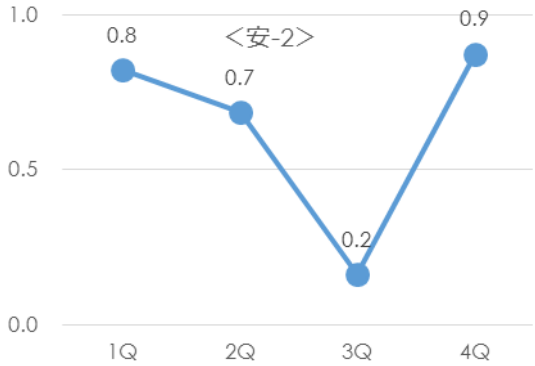
Safety Awareness PI ····· Target

Nuclear Leaders

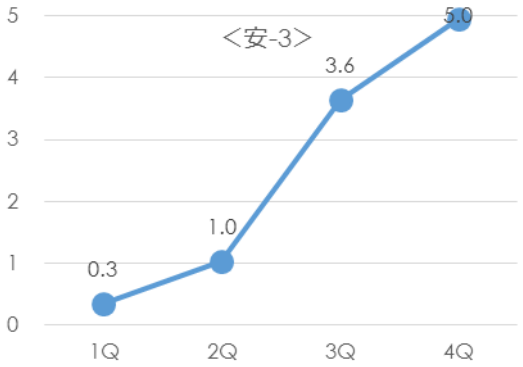
Rate of implementation of retrospection on the traits by nuclear leaders ····· 100%



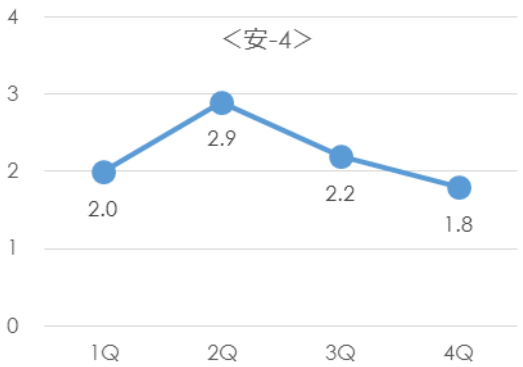
Number of times emails have been sent by nuclear leaders in order to share information ····· Once a week/person



Number of times nuclear leaders participated in training according to plan...Twice/year/person

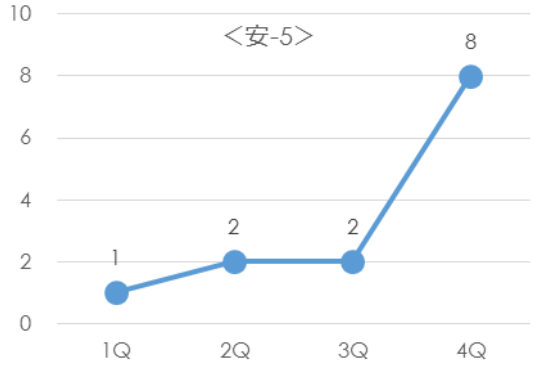


Number of times nuclear leaders went into the field ..... Twice a month



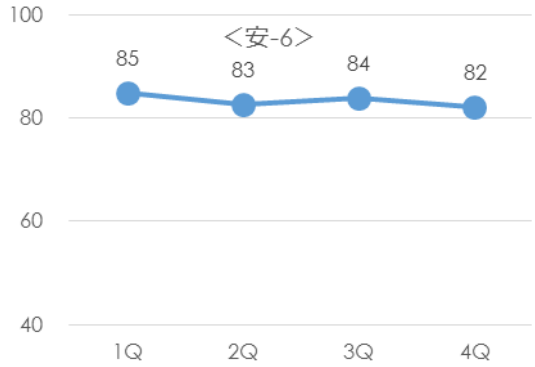
Note 2

Number of benchmarked issues for which nuclear leaders are responsible that were put into practice 4/year

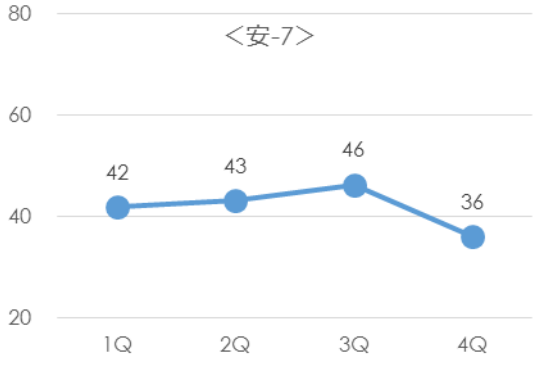


Entire Nuclear Power Division

Implementation rate of group discussion about Traits 100%

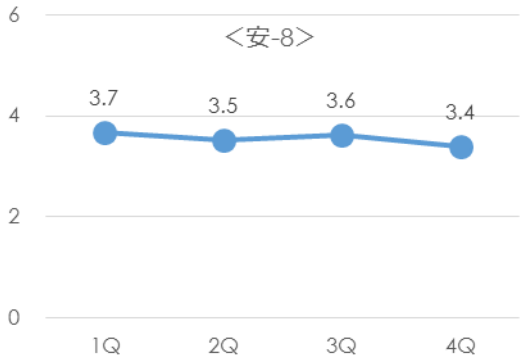


Percentage of intranet messages from nuclear leaders that have been read 80%



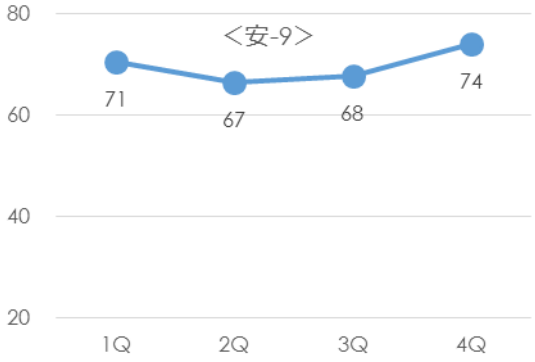
Notes 2, 4

Number of times managers engaged in management observation at power stations……Fukushima Daiichi/Fukushima Daini 4.0 times, Kashiwazaki-Kariwa 3.1times/person



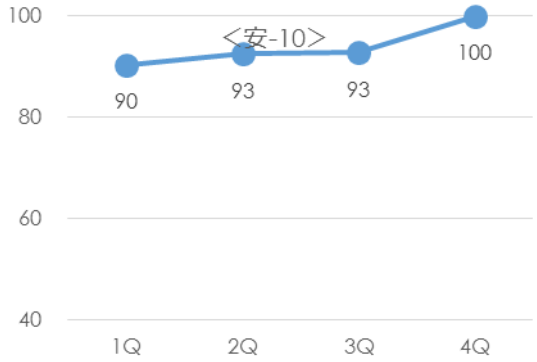
Note: Weighted average for Fukushima Daiichi, Fukushima Daini and Kashiwazaki-Kariwa

Good MO reporting rate……50%



Note: Weighted average for Fukushima Daini and Kashiwazaki-Kariwa

Completion rate of GII or higher corrective measures within the deadline……100%

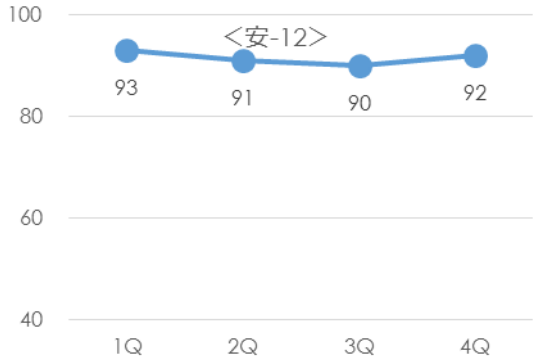


Note: Weighted average for HQ, 2F and KK

No. of nonconformance recurrences (GII or higher)……0/month

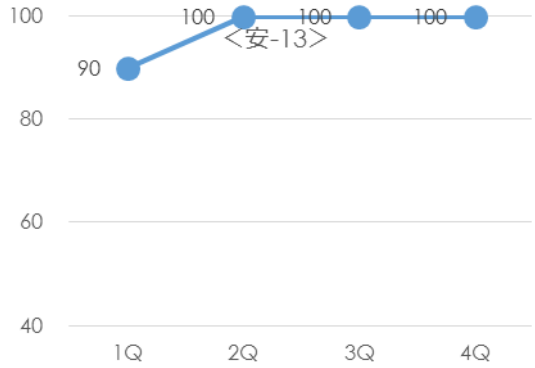
Note: Total for HQ, 2F and KK

Nonconformance voucher period achievement rate……80%



Note: Weighted average for HQ, 2F and KK

Preventative measures completion rate (within deadline)……90%



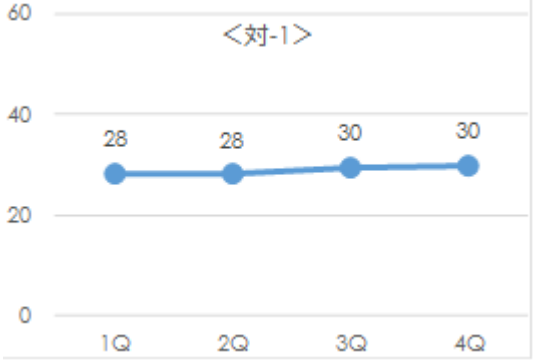
Significant OE training participation rate……60%

Note: Q4 training was suspended to prevent the spread of Covid-19

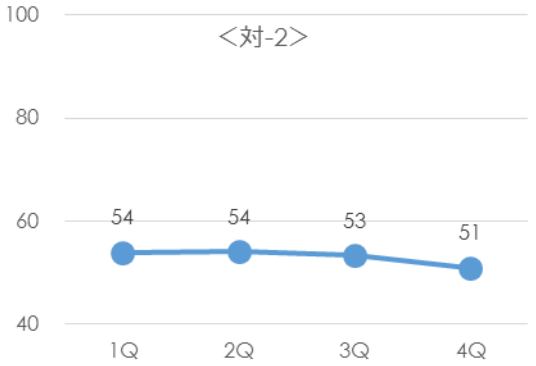
Ability to Promote Dialogue PI……Target

Internal

Percentage of employees that feel that intranet messages from nuclear leaders are "helpful"….50%

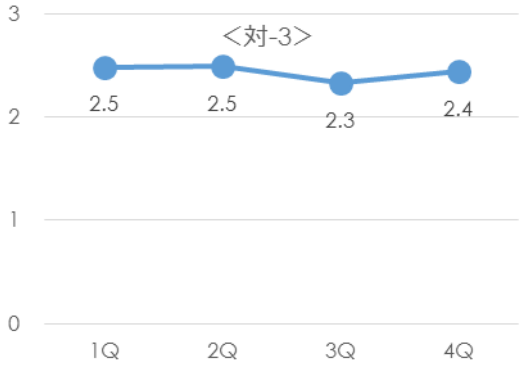


Response rate to e-mail questionnaire on the information conveyed by nuclear leaders……70%



Notes 2, 4

Degree of understanding of information conveyed by nuclear leaders……2.5 points



External

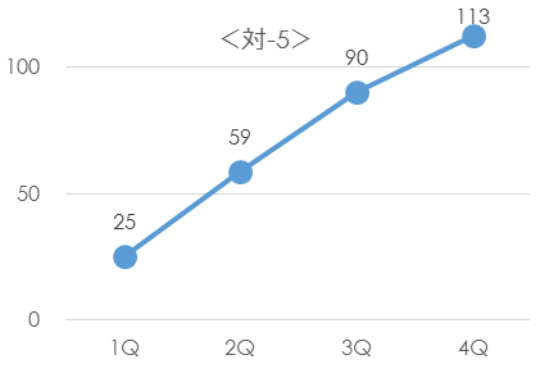
Ability to promote dialogue assessment questionnaire results

…… Positive increase over last fiscal year

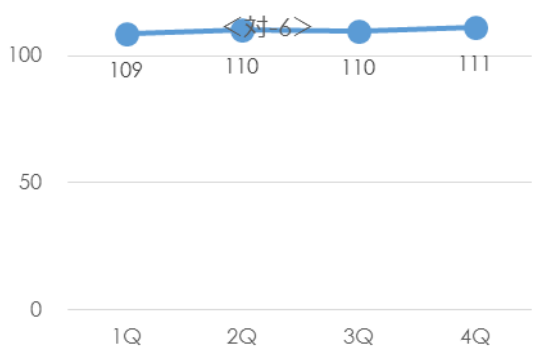
＜Dialogue-4＞ ＋1.0

Note: Assessment is conducted annually

Progress rate of dialogue activities aimed at furthering relationships……100%



Dialogue activity questionnaire assessment…… 100 points



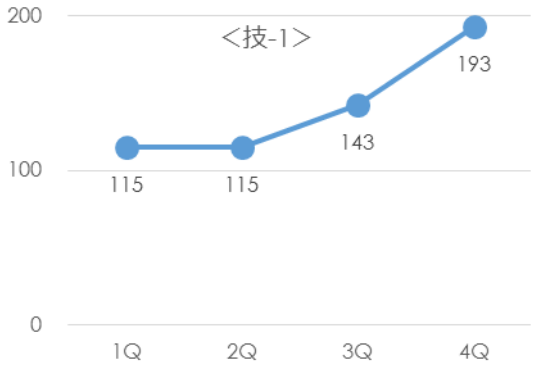
Technological Capability PI …… Target

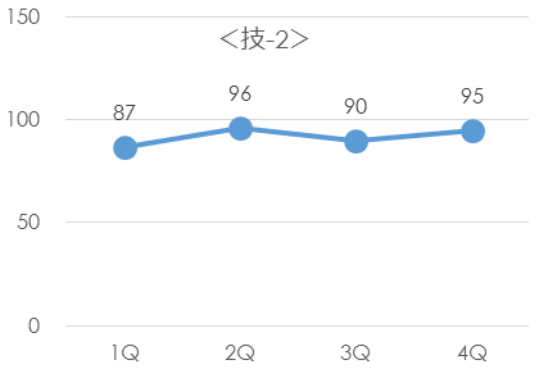
Times of non-emergency

No. of workers certified in operations/maintenance/engineering/radiation and chemistry/fuel/safety, no. of external certification holders

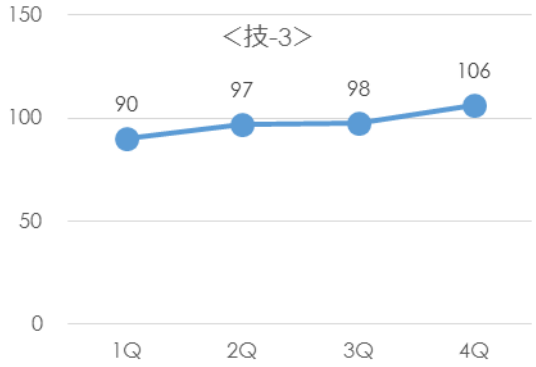
…… 110 points

Education/training issue resolution rate……80%

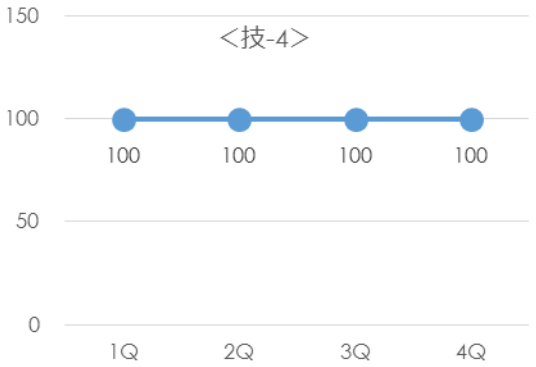




Rate of participation in design-related educational programs ……90%

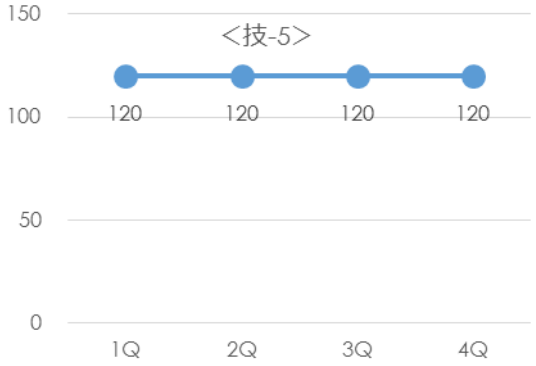


Safety/quality improvement kaizen implementation rate……90%



Times of emergency

No. of in-house certified emergency personnel (fire trucks, power supply trucks, cable connecting, radiation surveys, wheel loaders, Unic trucks, etc.) …… 120%

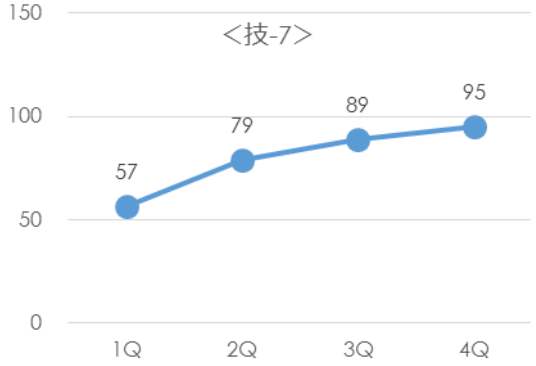


Percentage of "A" assessments given by the Nuclear Regulatory Agency for emergency response training categories ……80%

<Technological-6> 90%

Note: Assessment is conducted annually. Assessment results are for training from the previous fiscal year

Training participation rate……90%



Note 3

4.4 PI Revision Policy

In the Nuclear Safety Reform Plan Progress Report, performance indicators (PI) have been set for Safety Awareness, Technological Capability, and the Ability to Promote Dialogue in order to quantitatively measure the degree to which nuclear safety reforms have been

achieved since FY2015. During FY2019 we saw a certain degree of progress even though targets for some key performance indicators (KPI) were not achieved. For nuclear reform KPI, the achievement level of several related PI targets was averaged, but since this is only an average for multiple PIs it did not contribute to an improvement of KPIs and only resulted in improvement in individual PI results. Furthermore, as mentioned in "Nuclear Safety Reforms for the Next Generation," work mechanisms and the ways in which tasks are carried out have been systemized using the Management Model, etc. there by incorporating nuclear safety reforms into daily tasks through work plans, etc. Accordingly, PI related to Safety Awareness, Technological Capability, and the Ability to Promote Dialogue match the PI set for the Management Model. Our FY2020 PI revision policy is as follows.

	Revision Policy
KPI	・The achievement level of multiple related PI targets will not be averaged ・Important PI related to Safety Awareness, Technological Capability, and the Ability to Promote Dialogue shall be managed as KPI
PI	PI set for each functional field of the Management Model shall be for the following functional fields related to Safety Awareness, Technological Capability, and the Ability to Promote Dialogue ・Safety awareness: Safety culture cultivation, performance improvements, operating experience utilization, etc. ・Technological Capability: Emergency response, education/training, etc. ・Ability to Promote Dialogue: External communication, internal communication, etc.

CONCLUSION

With firm resolution to, "**keep the Fukushima Nuclear Accident firmly in mind; we should be safer today than we were yesterday, and safer tomorrow than today, and become an operator that continues to create unparalleled levels of safety**," we continue to promote nuclear safety reforms while subjecting ourselves to objective assessments by the Nuclear Reform Monitoring Committee[2].

On the ninth Fukushima Nuclear Accident Remembrance Day, we began our "Nuclear Safety Reforms for the Next Generation" initiative. The objective of this initiative is to remain firm in our resolution and continue reforms amidst our changing environment, such as an increase in the number of employees that did not experience the Fukushima Nuclear Accident firsthand.

- Pass on regrets and lessons learned from the Fukushima Nuclear Accident, including our resolution, to the next generation.
- Continually make improvements to equipment and management safety measures in order to adapt to the changing environment and continue kaizen.
- Systemize work mechanisms and work procedures using the Management Model and the Decommissioning Promotion Strategy, and leverage these tools in the course of daily duties.
- Give public updates on initiative progress, listen to criticism and opinions, and reflect this criticism in future plans.

As mentioned in Nuclear Safety Reforms for the Next Generation, identifying hidden risks in our duties from the perspective of field conditions/conditions of actual equipment in the field, repeatedly implementing never-ending kaizen for individual activities, and continuing to improve nuclear power station safety performance will enable us to fulfill our "seven promises."

Please visit our website[3] if you have any opinions and comments about nuclear safety reforms.

[2] http://www.nrmc.jp/index-j.htm

[3] https://www4.tepco.co.jp/ep/support/voice/form.html

ABBREVIATIONS

As Found Data：Data collected before commencing inspection and maintenance

CFAM： Leader at the Head Office that aims to achieve the world's highest level of excellence for each aspect of power station operation (Corporate Functional Area Manager)

CAP： Corrective Action Program

COP： Common Operational Picture

CR： Condition report. Report on symptoms, such as near misses, unsafe conditions/behavior, etc. and improvement information, such as things pointed out by external parties.

EAL： Emergency Action Level

EPRI： Electric Power Research Institute (USA)

GII： Nonconformances for which the need for corrective measures must be deliberated in addition to the implementation of corrective measures.

JANSI： Japan Nuclear Safety Institute

KPI： Key Performance Indicator

MO： Management Observations

NR system：Waste clearance system for non-radioactive waste (Non-Radioactive Waste System)

NSAB： Nuclear Safety Advisory Board

NSOO： Nuclear Safety Oversight Office

OE information：Operating Experience

PDCA： Plan-Do-Check-Act cycle

PI： Performance Indicators

PICO： Performance Improvement Coordinator

PMBD： Preventive Maintenance Basis Database

PRA： Probabilistic Risk Assessment

RIDM： Risk Informed Decision Making

SAT： Systematic Approach to Training. Standard education and training method proposed by the International Atomic Energy Association (IAEA)

SFAM： Site Functional Area Manager. CFAM counterpart at power stations

SNS： Social Networking Service

SOER： Significant Operating Experience Report from the World Association of Nuclear Operators (WANO)

Standard seismic motion Ss: Seismic motion used to fulfill seismic resistance requirements during the design of nuclear power stations

Traits： 10 Traits and 40 behaviors indicative of robust nuclear safety culture

WANO： World Association of Nuclear Operators

WANO PO&C：Performance Objectives and Criteria for nuclear operators stipulated by the World Association of Nuclear Operators (WANO)