

Q1 Progress

Keeping the Fukushima Nuclear Accident firmly in mind: Be safer today than yesterday, and safer tomorrow than today.

- To live up to our resolution (above), we continue to promote nuclear safety reforms, steadily move forward with decommissioning and engage in activities to raise our power stations to the world's highest level of safety.

PM Abe's visit to Fukushima Daiichi

- On April 14, Prime Minister Abe visited Fukushima Daiichi to observe the status of decommissioning and present a letter of appreciation to contractors. Dismantling of the Unit 1/2 exhaust stack began on August 1 with the continued support of ABLE Co., Ltd., a local company. Fuel removal from the Unit 3 spent fuel pool commenced for the second time on July 4.

Decommissioning of Fukushima Daini

- After comprehensively considering the wishes of the local communities that all reactors at nuclear power stations in Fukushima Prefecture should be decommissioned, the decision was made on July 31 to decommission all reactors (Units 1-4) at Fukushima Daini.

Construction work at Kashiwazaki Kariwa

- At Kashiwazaki-Kariwa, construction to enhance the seismic resistance of the large freight entrance on the Unit 7 reactor building began and permission was obtained to treat waste not contaminated with radioactive substances as recyclable industrial waste. After errors were made on earthquake notification forms, a request was received from the Kashiwazaki City Mayor and Kashiwazaki City Council to ascertain the causes of these errors and implement improvements. As part of countermeasures the notification form was revised and shift improvements made in an effort to improve our ability to convey information during an emergency.

Establishment of "Aomori Head Office"

- Aomori Head Office was established in Aomori on July 1 in order to further refine the details of the Aomori Action Plan announced in March. In May, all station personnel participated in visits to all households in Higashidori Village. We will continue to thoroughly enhance operations while considering issues from the perspective of the local community.

Nuclear Safety Reform Plan FY2019Q1 Progress Report Overview

Fukushima Daiichi NPS Progress of reactor decommissioning

Unit 1/2 exhaust stack dismantling

During final preparations for the commencement of dismantling of the approximately 120m tall Unit 1/2 exhaust stack, on May 11 survey equipment that simulates the height of the dismantling mechanism was attached to a crane and hoisted over the actual exhaust stack. It was confirmed that additional procedures, such as readjusting the position of the crane, will be necessary since there is a difference of approximately 3m between the planned and actual distance from the crane hook to the top of the exhaust stack. After considering the dismantling procedure and the impact on other decommissioning work, countermeasures to ensure the correct hoisting height of the crane were implemented and it was confirmed that the crane can indeed hoist equipment high enough (July 18). Therefore, dismantling began on August 1 with the support of ABLE Co., Ltd., a local company.



Confirming that equipment can be installed on the top of the exhaust stack

Removing fuel from the Unit 3 spent fuel pool

The removal of fuel from Unit 3 began on April 15 after the conducting of fuel removal training using simulated fuel and transport containers to confirm that any nonconformities can be adequately handled, and also training on removing rubble from inside the spent fuel pool commenced. There were a total of 566 fuel assemblies in the spent fuel pool (514 spent fuel assemblies and 52 new fuel assemblies). On April 23, seven of the new fuel assemblies were loaded into transport containers and relocated to the common pool building. Removal of the rubble above the new fuel to be removed was also completed, so fuel removal began again for the second time on July 4, and on July 21, 21 new fuel assemblies were removed as planned.



Spent fuel pool after rubble removal

Decision to decommission all reactors at Fukushima Daini

We announced on June 14, 2018 that we were considering decommissioning all reactors (Units 1-4) at the Fukushima Daini Nuclear Power Station in order to put the minds of local residents completely at ease, which would not be the case if we only decommissioned Fukushima Daiichi. We thereafter examined this issue from multiple facets including securing the human resources needed to decommission Fukushima Daiichi, the safe decommissioning of the power station, and the impact that such a decision would have on our operations. With the end to these deliberations in sight we comprehensively considered the wishes of the local communities to decommission all reactors at nuclear power stations in Fukushima Prefecture, and the decision was made on July 31 to decommission all reactors (Units 1-4) at Fukushima Daini. With singleness of purpose we shall engage in this process along with the decommissioning of Fukushima Daiichi in accordance with our basic plan on decommissioning to bring complete peace of mind to the residents of the local community.



Fukushima Daini

Nuclear Safety Reform Plan FY2019Q1 Progress Report Overview

Kashiwazaki-Kariwa NPS Progress of safety measures

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

In April we began dismantling the large freight entrance (used to load and unload materials and equipment) located next to the Unit 7 reactor building after an assessment determined that the piles supporting the large freight entrance and the roof lacked sufficient seismic resistance.

Waste generated in conjunction with the dismantling, such as concrete, can be treated in accordance with the Non-Radioactive (NR) Waste system created to effectively use waste that has not been contaminated by radioactive substances. This waste can henceforth be handled as recyclable industrial waste, marking the first time that this system has been deployed in a TEPCO nuclear power station.

Earthquake notification form errors

The second notice sent to government and related agencies following the earthquake that occurred off the coast of Yamagata Prefecture on June 18 mistakenly stated problems with "on-site power sources used for fuel pool cooling." As part of countermeasures the layout of the notification form was revised in order to prevent human error, and the shift system was enhanced to ensure that information sent to external parties, for example on notification faxes, is correct. Furthermore, by having all station personnel participate in household visits and leveraging operating experience, we aim to cultivate sensitivity to the thoughts and feelings of local residents and society at large. In conjunction with this, we've also enhanced efforts to improve the quality of external reports and eradicate legal infractions. The President and the Chief Nuclear Officer, as well as other representatives from Headquarters and the power stations, have come together with the aim of making ceaseless improvement efforts.

Establishment of Aomori Head Office and promoting dialogue with the community

"Aomori Head Office" was newly established on July 1 in order to further work out details of the Aomori Action Plan announced in March. Having Headquarter functions in Aomori will enable quick decision-making and enable each and every employee to listen earnestly to the opinions and requests of the community as members of the community themselves, thereby enabling us to deliberate and implement initiatives that can contribute to the continued expansion of the region and our nuclear power business. In May, all station personnel participated in visits made to all households in Higashidori Village. Residents told us that they would like us to begin construction quickly and that they expect a lot from TEPCO as we move forward with this venture. We will continue to move forward and further develop this project from the perspective of the local community.



Dismantling of the large freight entrance



Notification training



Explanations given to the regional residents during visits to all households

Nuclear Safety Reform Plan Progress Report

Nuclear Safety Reform Plan Progress Report (Management)

- During the first quarter the results of emergency preparedness training (enhanced in line with recommendations contained in the Emergency Response Improvement Plan) were released and the results were much improved over FY2017. We are currently implementing an action plan designed to make further “communication improvements” and “human resource training enhancements” based on the results of the self-assessment process implemented during the fourth quarter.
- As an initiative to improve communication, a Kaizen report on the output of meetings at each power station deliberating internal & external communication measures was shared in order to transition from “conveying information” to “conveying information that is easily understood.”
- And, as an initiative to enhance human resource training, we are engaging in various forms of training and Kaizen activities targeting everyone from management to new employees, encouraging individuals to improve their technical skills on their own initiative.



Nuclear Safety Reform Plan Progress Report

Results of Nuclear Regulation Authority preparedness training assessment

- Emergency response training was repeatedly implemented during FY2018 in accordance with the Emergency Response Improvement Plan (announced on August 27, 2018) that spell out improvements that need to be made. The Nuclear Regulation Authority's preparedness training assessment results (announced on June 28) gave all A-ratings (10 categories) to Kashiwazaki-Kariwa, which promptly started implementing the aforementioned improvements. And, Fukushima Daini and Fukushima Daiichi received A's in nine and eight categories respectively, thereby showing great improvement over FY2017. We shall not let ourselves get comfortable with this assessment, however, but will instead implement further improvements, such as increasing the number of personnel with honed emergency response skills, as we pursue excellence.



General Preparedness Training
(Kashiwazaki-Kariwa)

Toyota-type Kaizen Initiatives

- We are engaged in Toyota-style Kaizen initiatives in order to balance nuclear safety with productivity improvements. At the Kaizen guidance meeting at Kashiwazaki-Kariwa on May 14, initiatives at thermal power stations to have maintenance on circuit breakers performed in-house were conveyed and Kaizen measures calling on workers to take the initiative to make innovative changes to work platforms were reported on. At the guidance meeting participants commented, "We get the sense that TEPCO workers are venturing into the field and making it their own"; we will continue with more Kaizen activities in order to improve safety and quality.

Internal Oversight Department Activities

The Nuclear Safety Oversight Office, an internal oversight department, has made the following suggestions in the pursuit of excellence:

- To ensure that newly installed equipment has sufficient monitoring and control functions, and that the design process is strengthened so that operational requirements are clarified during the design concept stage. (Fukushima Daiichi)
- In order to further prevent the occurrence of similar cases of nonconformity, the impact of countermeasures should be assessed in order to prevent the scope of their application and the scope of causes needing to be addressed from becoming too narrow. (Nuclear Power Division)

Nuclear Safety Reform Plan Progress Report

Initiatives to Improve Safety Awareness

With regard to shortcomings with corrective measures at Headquarters, which were deemed to be a safety regulation infraction, in reflection of the fact that managers were not able to appropriately monitor corrective measures we have introduced a support system that enables work implementation status to be verified at a glance. This in turn has enabled managers to effectively monitor task progress. Appropriately implementing corrective measures and effectively leveraging operating experience is vital for maintaining and improving safety. Therefore, going forward we shall expand the scope of application of these measures to support monitoring and continue to make improvements, such as by revising processes so that they are not dependent upon individual skill levels.

The Radiation Control Department CFAM* visited the St. Lucie Nuclear Power Plant and the Monticello Nuclear Generating Plant in the U.S. and benchmarked them against the remote monitoring system being used at Fukushima Daiichi. The good practices related to the use of remote monitoring systems at a plant in operation will be proactively deployed.



Visit to the Monticello Nuclear Generating Plant (reactor building)



Visit to the Monticello Nuclear Generating Plant (remote monitoring system)

KPI Results - Safety Awareness

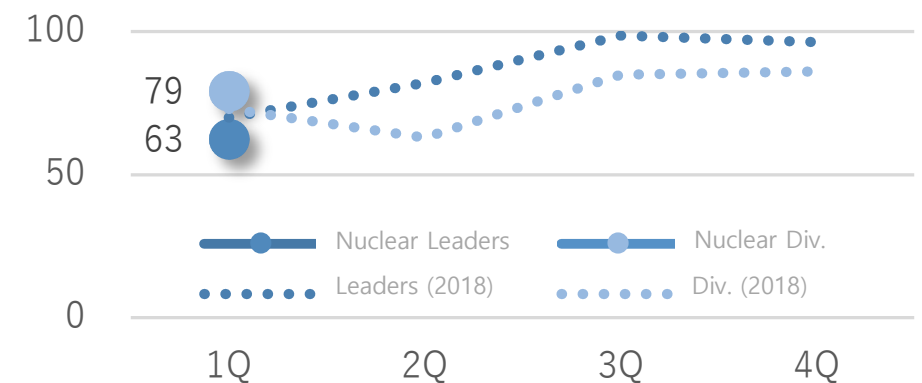
Four new performance indicators have been added to FY2019 KPIs based on the change policy (mentioned in the FY 2018 Q4 progress report) created in light of FY2018 performance. These performance indicators will be monitored in order to achieve targets by the end of FY2019.

Nuclear leaders: **63 points**

(Target: 90 points)

Entire Nuclear Power Division: **79 points**

(Target: 80 points)



*Improvement promoters in each field (Headquarters: CFAM, Power stations: SFAM)

Nuclear Safety Reform Plan Progress Report

Initiatives to Improve Communication Abilities

A Kaizen meeting led by the President was held on July 8 to share information on internal & external communication Kaizen measures that have been discussed at each power station. It was stated during the meeting, "it is important that station personnel are aware of, and inquire into, how the information disseminated by TEPCO has been received and assessed by the local residents."

At Kashiwazaki-Kariwa we are having all station personnel participate in household visits to all homes in Kashiwazaki City and Kariwa Village as a countermeasure to the errors that were made on the earthquake notification form. The aim is to cultivate awareness of the need to convey information from the perspective of the local residents by giving station personnel the opportunity to come in direct contact with them.

As of May 21, 20,000 people have visited the TEPCO Decommissioning Archives, which opened on November 30, 2018. Going forward, we shall update our displays in order to convey information more proactively.



Communication Kaizen sharing meeting



TEPCO Decommissioning Archives theater hall

KPI Results - Ability to Promote Dialogue

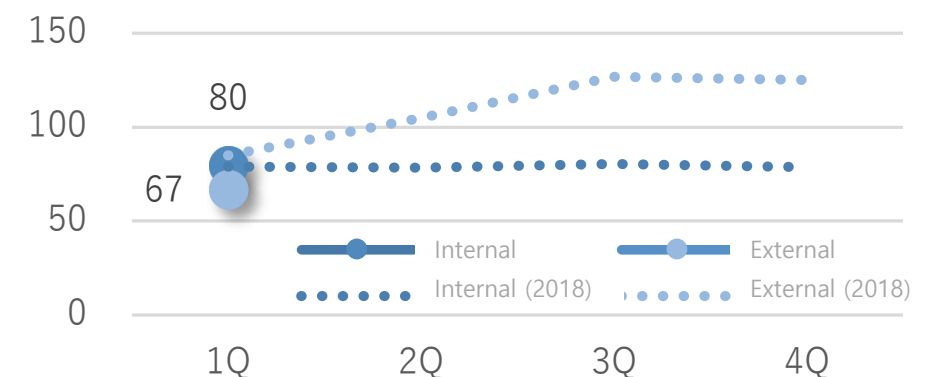
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Internal: **80 points**

(Target: 80 points)

External: **67 points**

(Target: 100 points)



Nuclear Safety Reform Plan Progress Report

Initiatives to Improve Technological Capabilities

Even though we have been engaged in initiatives to improve technological capabilities, individuals still lack the ability to check the quality of current equipment and work processes and make improvements on their own. In light of this we are implementing various types of training and engaging in Kaizen that targets everyone from new employees to management.

Out of the new employees hired during FY2019, 38 were assigned to Fukushima Daiichi, 15 were assigned to Fukushima Daini, and 47 have been assigned to Kashiwazaki-Kariwa. After being assigned these employees were subjected to training in nuclear reactor safety, radiation safety, work safety, basic theory, and plant equipment. Following this the new employees underwent field training and shift training in order to learn how to apply the knowledge they had gained and improve their individual technological capabilities.

In the Operations Division operators are sent to PWR plants operating in Japan to engage in "real equipment training" during which they can experience first-hand working in an operational reactor. During the first quarter, five operators from Kashiwazaki-Kariwa participated in such training at the Shikoku Electric Ikata Nuclear Power Station to experience what it's like working at a plant in operation.



New employee training (Fukushima Daini)



Real equipment training (Ikata Nuclear Power Station)

KPI Results - Technological Capability

Four new performance indicators have been added to FY2019 KPIs based on the change policy (mentioned in the FY 2018 Q4 progress report) created in light of FY2018 performance. These performance indicators will be monitored in order to achieve targets by the end of FY2019.

Times of non-emergency: **103 points**

(Target: 110 points)

Times of emergency: **92 points**

(Target: 110 points)

