Appendix

Fourth Quarter, FY2016

Nuclear Safety Reform Plan Progress Report

INCLUDING PROGRESS ON SAFETY MEASURES AT POWER STATIONS

Tokyo Electric Power Company Holdings, Inc.
May 10, 2017

TEPCO

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FOREWORD

We at TEPCO would like to extend our deepest apologies for the tremendous inconvenience and anxiety that the Fukushima nuclear accident, as well as subsequent accidents and problems, have caused everyone living in communities around the Fukushima Daiichi Nuclear Power Station and society as a whole. The entire TEPCO Group will continue to work to facilitate the smooth and early provision of compensation, accelerate recovery efforts in Fukushima, move reactor decommissioning steadily forward, and thoroughly ensure nuclear safety.

TEPCO announced its "Reassessment of the Fukushima Nuclear Accident and the Nuclear Safety Reform Plan" on March 29, 2013, and we are currently moving forward with nuclear safety reforms. The progress that we make is verified quarterly and the compiled results released to the public. This report details the progress made in the fourth quarter of FY2016 (January-March, 2017[1])

In conjunction with this report TEPCO also reported on the status of efforts implemented in response to the review results of its self-assessment of nuclear safety reforms received from the Nuclear Reform Monitoring Committee on January 30.

Furthermore, at the review meeting held on February 14 of this year to discuss the compliance of Kashiwazaki-Kariwa Units 6/7 with the New Regulatory Requirements, TEPCO was not able to clearly explain that the seismic isolated building is able to withstand an earthquake of the same magnitude as the Niigata-Chuetsu-Oki Earthquake nor clearly respond about the validity of seismic resistance analyses of the seismic isolated building conducted in the past. This caused the parties involved to question the seismic resistance of the seismic isolated building and also the reliability of TEPCO's explanations. In light of this incident, TEPCO received harsh criticism about insufficiencies with documents that TEPCO has submitted in the past and also our approach to the review process thereby causing a huge inconvenience on the Nuclear Regulation Authority and the Secretariat of Nuclear Regulation Authority and a loss of trust of the residents of Niigata Prefecture and society as a whole; something for which we deeply apologize. TEPCO deeply regrets having caused this incident and has implemented countermeasures upon clarifying the causes[2]. Going forward we will steadily implement these countermeasures in an effort to regain the people's trust.

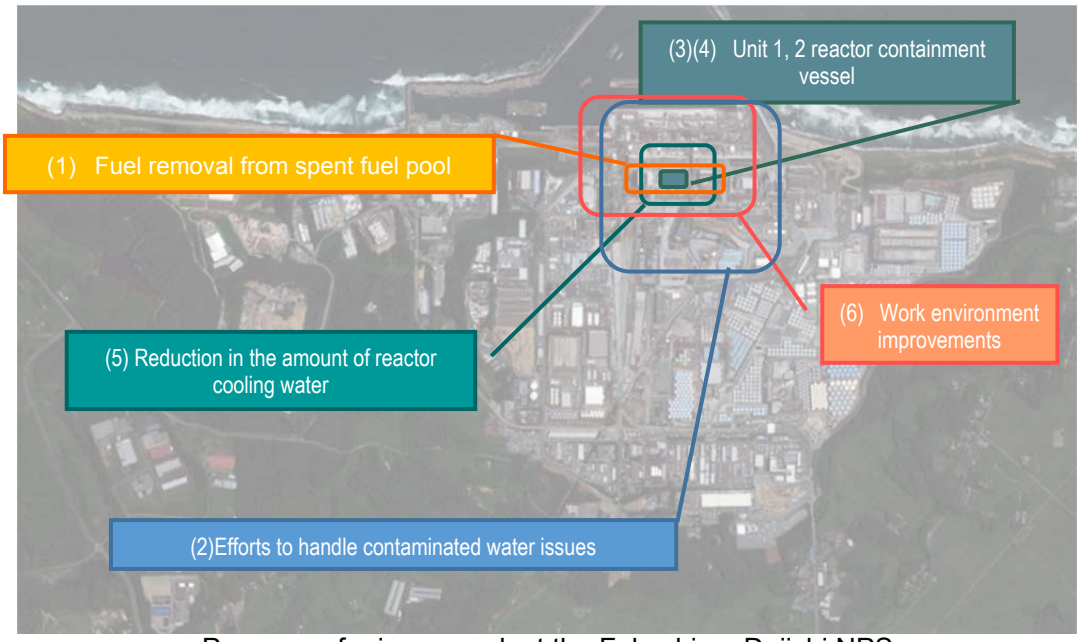
[1] Dates noted hereinafter shall be for 2017 unless otherwise stated.

[2] Reported to the Nuclear Regulation Authority on March 9
http://www.tepco.co.jp/about/power_station/disaster_prevention/2017/pdf/nuclear_power_170309_07.pdf
Reported to Niigata Prefecture on April 19. http://www.tepco.co.jp/press/news/2017/1410451_8963.html

1. THE PROGRESS WITH SAFETY MEASURES AT POWER STATIONS

1.1 Fukushima Daiichi Nuclear Power Station

The decommissioning of the TEPCO Fukushima Daiichi Nuclear Power Station (NPS) is proceeding steadily in accordance with the Mid-and-Long-Term Roadmap Towards Decommissioning of Fukushima Daiichi Nuclear Power Station Units 1 to 4 (June 12, 2015 revision).

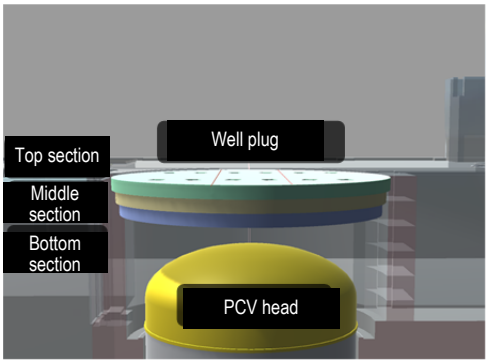


Progress of primary work at the Fukushima Daiichi NPS

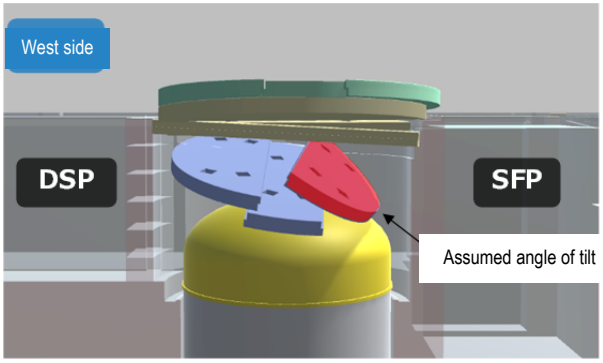
(1) Removing fuel from the spent fuel pools

◆ Unit 1

The operating floor, which is the uppermost floor of the building, is still littered with debris from the collapsed roof caused by the hydrogen explosion, and this debris is hindering the removal of fuel debris and pool fuel. We are currently examining the conditions of this debris and implementing various surveys, such as an examination of the damage of the reactor well plug, etc., in order to formulate a debris removal plan. The results of these surveys have shown that the top, middle, and lower layers of the reactor well plug have all been dislodged from their proper positions. We will carefully continue this work with the objective of beginning fuel removal during FY2020 (number of fuel assemblies stored in the spent fuel pool: 392).



Concept drawing of reactor well plug (at normal times)

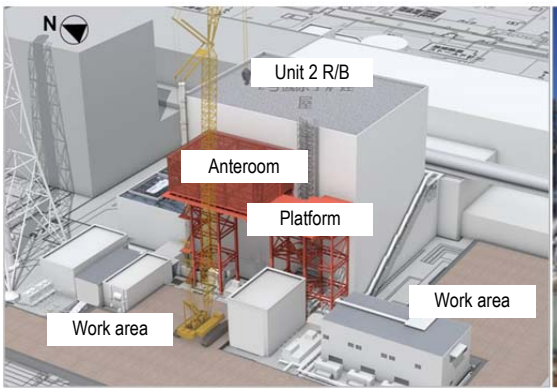


Concept drawing of reactor well plug damage

Damage to reactor well plug

◆ Unit 2

In preparation for the removal of fuel debris and fuels in the pool, we are planning to completely dismantle the top of the reactor building in consideration of work safety, the impact on the environment outside the site, and early risk reduction. In anticipation of dismantling, the top of the spent fuel pool needs to be covered. This requires an opening to allow materials and equipment to be directly carried in/out of the operating floor, so a platform and anteroom is being built on the west side of the reactor building (the platform was completed on February 21, and the anteroom is still being constructed).



Concept drawing of completed anteroom of R/B platform

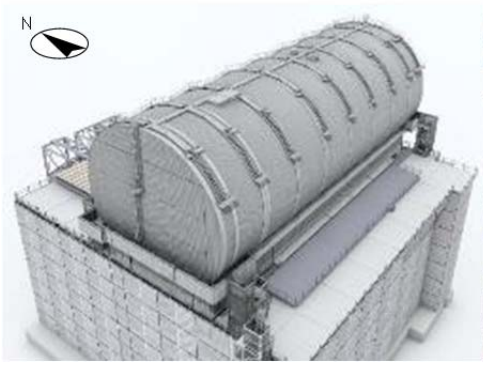
Platform/Anteroom (Photographed on March 11)

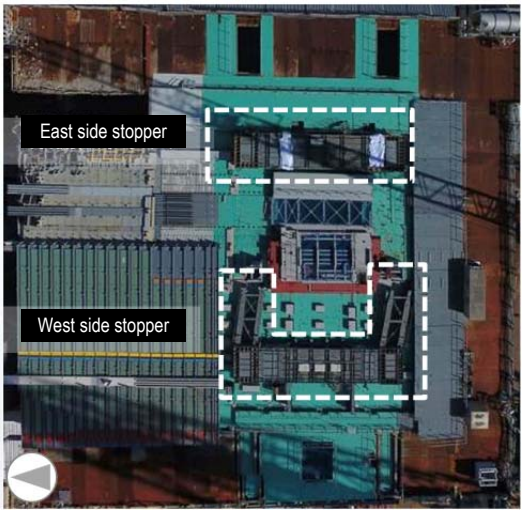
◆ Unit 3

Construction of a cover for fuel removal from the pool began on January 5. Stopper[3] installation began on January 17 and was completed on March 7. FHM (Fuel Handling Machine) girder installation began on March 1 and erection (suspension) above the operating floor commenced on March 2. We predicted that

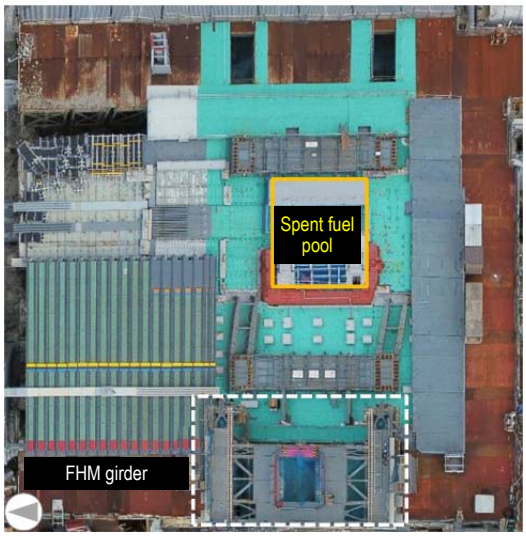
[3] Parts that prevented the lateral displacement of the fuel removal cover

pool fuel removal will be able to be commenced during FY2018 (number of fuel assemblies stored in the spent fuel pool: 566).





Concept drawing of completed pool fuel removal cover Stopper installation (Photographed on February 13)



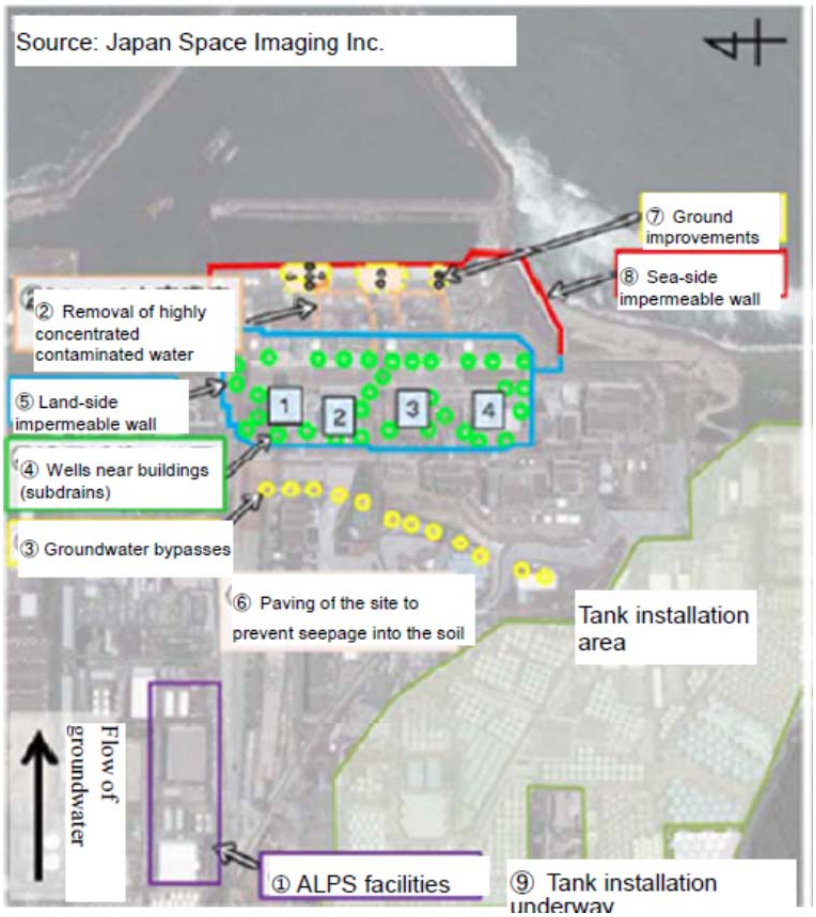
Stopper installation (Photographed on February 7) FHM girder construction (Photographed on March 13)

(2) 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 continuing to implement measures to prevent the outflow of contaminated water into the power station port, and counter the problem of contaminated water leaking from tanks.

Measures to remove contamination sources		
Cleaning up contaminated water using the advanced liquid processing system (alps)	Diagram (1)	Completed May 2015
Removal of contaminated water from inside seawater pipe trenches	Diagram (2)	Completed December 2015
Measures to isolate water from contamination sources		
Drawing up groundwater through groundwater bypasses	Diagram (3)	Operation commenced April 2014
Drawing up groundwater through wells (sub- drains) near buildings	Diagram (4)	Operation commenced September 2015
Installation of frozen-soil impermeable wall on land-side of units	Diagram (5)	Operation commenced March 2016
Paving of site to keep rainwater from permeating the soi	Diagram (6)	Completed for the most part except the area where

		scattered debris is stored
Measures to prevent the leakage of contaminated water		
Improvement of ground with soluble glass	Diagram (7)	Completed March 2014
Installation of impermeable wall on the sea-side of units	Diagram (8)	Completed October 2015
Installation of additional tanks (replacement with welded tanks)	Diagram (9)	Work ongoing

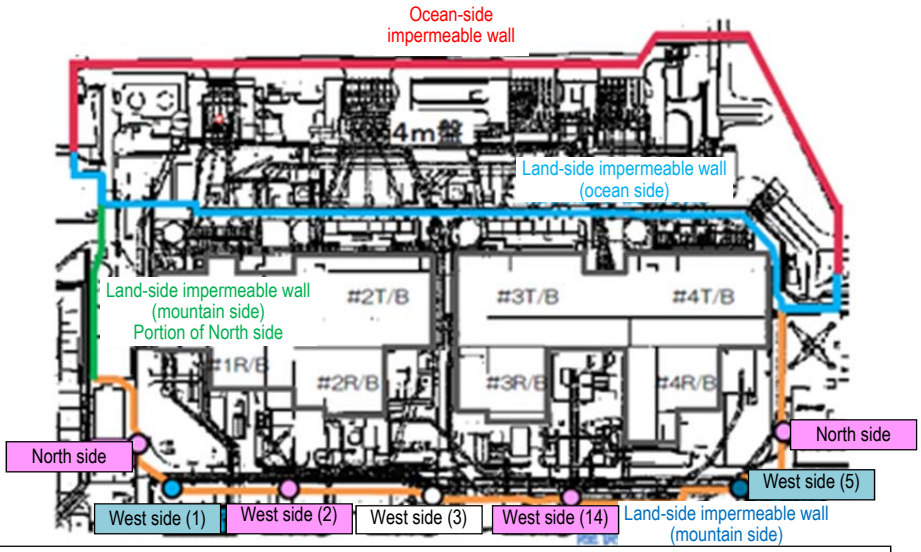


Primary contaminated water countermeasure work

◆ Status of Freezing of the Land-Side Impermeable Wall

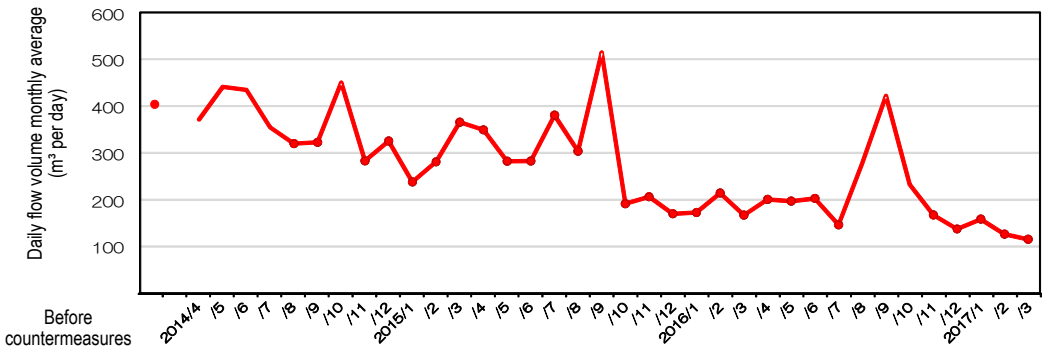
The work to freeze the land-side impermeable wall around Units 1-4 transitioned to Stage 1 (Phase II) on June 6 to initiate freezing across the specified range with the exception of seven places on the mountain-side that have yet to be frozen (approximately 95% of the entire length along the mountain side has been frozen). Since it has been confirmed that the wall is freezing well, the decision was made to transition to Stage 2 and on December 3, 2016 freezing of two out of seven of the unfrozen locations commenced. Then on March 3, 2017, freezing of four of the remaining five unfrozen locations began. This leaves only one location as of yet unfrozen.

As a result of the impermeable wall and the operation of groundwater bypasses/sub- drains, etc., the flow of groundwater/rainwater into buildings has been reduced from approximately 400m³/day prior to countermeasures, to a three-month average of approximately 120m³/day thereby finally allowing us to achieve the objectives of the previously revised Mid-to-Long-Term Roadmap (less than 100m³/day).



Scope of freezing during Phase I of the land-side impermeable wall (2016/3/31-6/6) (green/blue lines)
Scope of freezing during Phase II of the land-side impermeable wall (2016/6/6-12/2) (orange lines)
Scope of freezing of Phase II of the land-side impermeable wall (2016/12/3-) (west side①, west side⑤)
Scope of freezing of Phase II of the land-side impermeable wall (2016/3/3-) (north side, west side, south side)

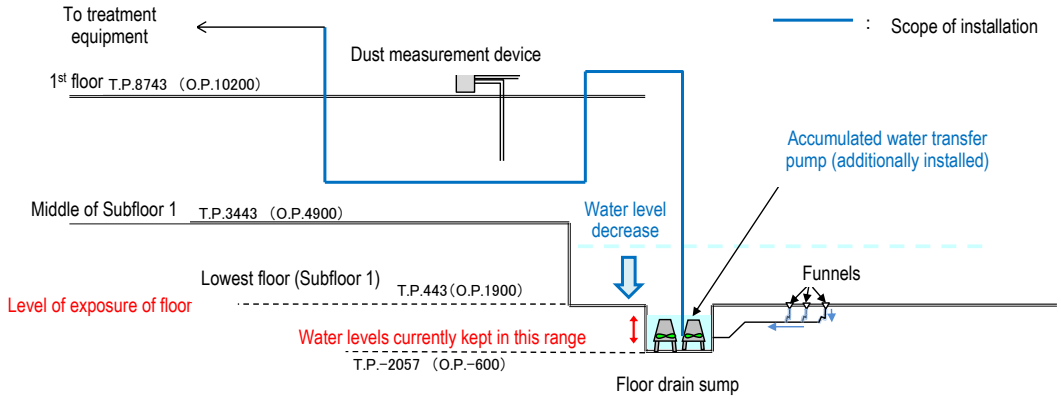
Overview of impermeable frozen soil wall locations



Trends in the amount of groundwater/rain water flowing into buildings

◆ Removal of Accumulated Water from inside the Unit 1 Turbine Building

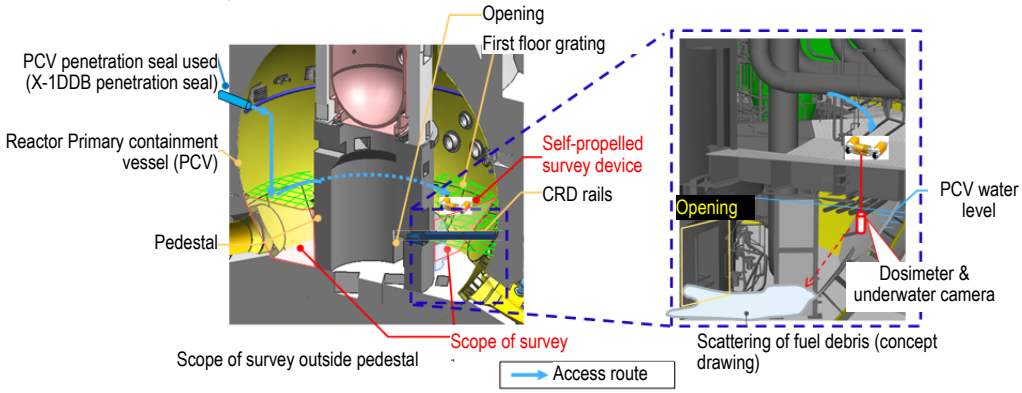
We are examining the removal of accumulated water from inside buildings as part of contaminated water reduction measures. Removal of accumulated water from the Unit 1 turbine building began on March 22 after the completion of pre-operation inspections of accumulated water transfer equipment. On March 23rd, water levels inside the building dropped below the floor level thereby allowing us to see the floor. Groundwater continues to flow into the building even though water levels have been reduced, but water levels are being maintained within floor drain sumps through the use of accumulated water transfer pumps. No increases in subfloor dust concentrations have been seen after water levels decreased.



Overview of the transfer of accumulated water from the Unit 1 turbine building

(3) Internal Survey of the Unit 1 Reactor Primary Containment Vessel

Based upon the results of the survey above the first floor grating inside the primary containment vessel (PCV), which was conducted in April 2015, a self-propelled survey robot was inserted into the subfloors outside the pedestal in order to examine to what extent fuel debris has been scattered about (March 18-22). During the survey a dosimeter and camera, etc. were lowered from the first floor grating in order to examine the conditions of the subfloors. This marks the first time that we were able to photograph conditions on the bottom of the PCV near the pedestal opening and we were able to confirm that radiation levels increase as we approached the bottom of the PCV. Going forward we will examine the images taken and also analyze the nature of deposits at the bottom of the PCV using samples that were taken.

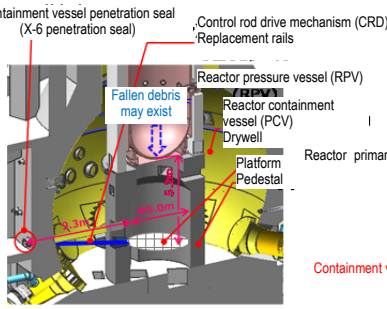


Overview of Unit 1 Reactor Containment Vessel internal survey

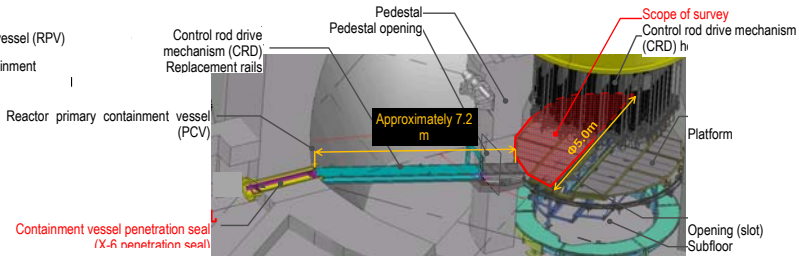
Photographs from Unit 1 PCV internal survey

(4) Internal Survey of the Unit 2 Reactor PCV

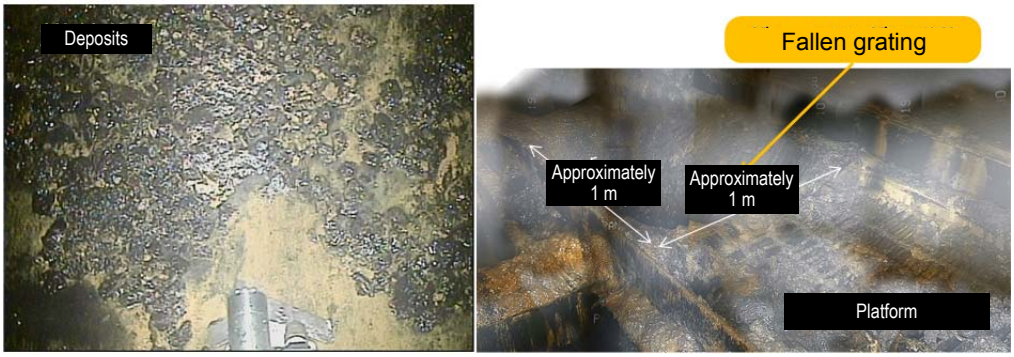
Between January and February 2017, a self-propelled survey robot was inserted to survey the inside of the PCV. The condition of deposits and fallen grating around the CRD replacement rails and inside the pedestal was examined. Going forward the data obtained from the series of surveys will be examined and reflected in future plans to survey the inside of the PCV.



Cross-section of PCV



Scope of internal survey of pedestal



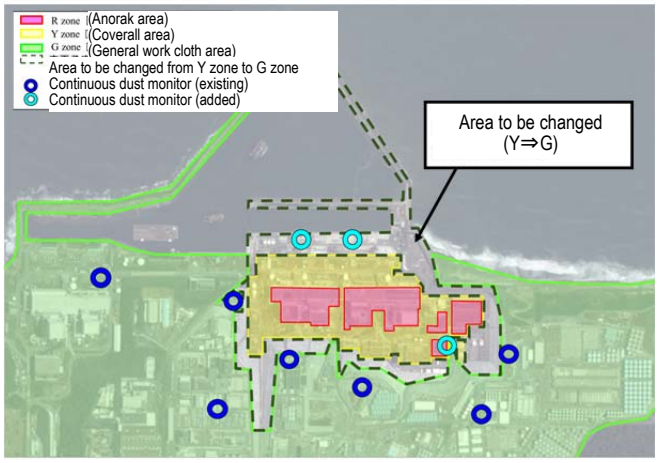
Photographs from Unit 2 PCV internal survey
(Left: Deposits on CRD replacement rails, Right: Fallen grating inside the pedestal)

(5) Reduction of the Amount of Coolant Water Injected into the Unit 1-3 Reactors

At current time, we have created a margin in the amount of cooling water that needs to be injected into the reactors to keep them cool, so we have begun reducing the amount of cooling water injected in order to reduce the amount of accumulated water generated. At Units 1, 2, and 3 the amount of cooling water injected into the reactor was gradually decreased in steps from 4.5m³/hour to 3.0m³/hour between December 14, 2016 to January 31, 2017, March 7 to 29, 2017, and February 8 to March 1, 2017, respectively. The status of reactor cooling has remained stable after this reduction.

(6) Work Environment Improvements (Expansion of the Green Zone)

In order to improve safety and efficiency by reducing the burden on workers the classification of the area 4m above sea level and the Unit 1-4 slope, at which environmental improvements, such as debris removal and paving, have been under way, was upgraded from Yellow Zones to Green Zones on March 30 thereby expanding the area in which workers can wear normal work clothes or special-purpose on-site work clothes and disposable dust masks. This means that normal work clothes can be worn on approximately 95% of the power station site.



Expanded Green Zone

(7) Status of Discussions between TEPCO HD and the Niigata Prefecture Joint Investigative Commission

March 24, TEPCO gave a report at the second meeting of the TEPCO HD and Niigata Prefecture Joint Investigative Commission (hereinafter referred to as, "Joint Investigative Commission") on the results of interviews and questionnaires given to those parties involved.

Furthermore, in order to gather information from a wide variety of sources, the issues being examined by the Joint Investigative Commission were put on the company's intranet to allow access by all employees of the Nuclear Power Division and an appeal for related information was made on July 7, 2016. However, no new information was submitted during the fourth quarter.

As shown below, all of the countermeasures implemented as part of the "Initiatives to Correct Problems Related to the Reporting of Events that Occurred during the Fukushima Nuclear Accident," which was announced on June 21, 2016, have been completed.

List of Initiatives to Correct Problems Related to the Reporting of Events that Occurred during the Fukushima Nuclear Accident

Issue	Countermeasure	Details	Implementation Status
I-1. Ability to respond during an emergency	① Diversification of training scenarios such as constantly changing radiation levels [Countermeasure 5]	-Implement general training that includes reporting events by using harsh scenarios where events need to be continually reported amidst constantly changing radiation levels both within the site and at site borders as a result of core damage, and harsh scenarios that continue for a while, such as an all station blackout. -Commenced at Kashiwazaki-Kariwa and Fukushima Daini during Q2 and will be continually implemented approximately once every four training sessions.	(Countermeasures completed) -Training using harsh scenarios commenced in September 2016. -Will be continually implemented in the future based upon the mid/long-term training plan.
	②Revision to educational content for emergency responders [Countermeasure 6]	-The educational content for emergency responders will be revised to deepen understanding of how other units and the company as a whole responds. -In particular, details on the roles of each unit, the types and reasons for different manuals required during an emergency response, and other important issues will be included in the educational materials used by each unit and e-learning educational materials.	(Countermeasures completed) -Educational materials (manual study materials) were created for each unit, and e-learning educational materials have been revised

	③Manage skills by implementing comprehension tests on emergency response manuals. [Countermeasure 6]	-Hold manual study sessions for emergency response personnel to teach them about emergency response manuals, the background and important parts of each manual, and then implement comprehension tests. Skills will be continually managed thereafter by periodically implementing review training and comprehension tests	(Countermeasures completed) -Manual study sessions were commenced in July 2016 and are being continually implemented.
I-2. Public relation during an emergency	①Assign a manager that can make technical decisions about how terms are used [Countermeasure 5]	-It will be noted in the Nuclear Disaster Countermeasure Manual that the head of the Nuclear Power & Plant Siting Division shall be responsible for making technical decisions about how terms are used	(Countermeasures completed) -Reflected in manual
	②It shall be noted in the manual that the role of the Director of External Communication is to “give advice to the president” [Countermeasure 5]	-It shall be noted in the Nuclear Disaster Countermeasures Manual that the role of the Director of External Communication is to “give advice to the president” in regards to how to convey information to external parties	(Countermeasures completed) -Reflected in manual
	③Info on this event will be included in educational materials. [Countermeasure 1] [Countermeasure 4]	-In order to foster awareness about the type of reporting that is suitable during an emergency and the importance of disclosing information from the perspective of society, the details behind the problems identified with past reporting, and the problem specifics, will be reflected in training materials for management. -In order to foster awareness about the type of reporting that is suitable during an emergency and the importance of disclosing information from the perspective of society, the details behind the problems identified with past reporting, and the problem specifics will be reflected in educational materials for the Social Communications Office and risk communicators	(Countermeasures completed) -Training materials for management have been revised and manager training implemented. -Yearly management training will be continually implemented
	④Implement preparedness training that envisions difficult demands [Countermeasure 5]	-Implement training that includes scenarios wherein difficult demands are made by external parties when conveying information to these parties during an emergency. -Training at the Head Office commenced during Q2 and will be continually implemented approximately once every four training sessions.	(Countermeasures completed) -Scenarios that include strong demands were created and training commenced in September 2016. -Going forward this training will be continually implemented based on the Mid/ Long-Term Training Plan
	⑤Keep detailed records of reports made to, and conversations had with, government officials [Countermeasure 5]	-The general preparedness network established in the Technical Support Center (Head Office) has already been equipped with function for recording and videotaping conversations with national and local government officials during an emergency. -It will be clearly noted in the Nuclear Disaster Countermeasures Manual that all conversations between the aforementioned network and national and local government officials during an emergency are to be recorded.	(Countermeasures completed) -Reflected in manual

	⑥Leveraging the advice of external experts [Countermeasure 4]	The Director of External Communication shall make a list of external experts from which advice is to be obtained. It shall be noted in the Director of External Communication guidelines that the advice of external experts shall be included in suggestions made to the president by the Director of External Communication.	(Countermeasures completed) -A list of external experts has been made and is continually being updated. -The Director of External Communication guidelines have been revised.
II-1. Information Sharing	① Enhance the sharing of information about important issues concerning the Nuclear Power Division [Countermeasure 1]	A mechanism will be constructed to distribute emails to all members of the Nuclear Power Division about the status of examination of important issues and periodic reporting on important issues to external parties by site superintendents and Head Office general managers	(Countermeasures completed) -Emails have been sent out since July 2016 and will continue
	②OJT will be used to teach about the basis for safety design and cultivate internal experts [Countermeasure 6]	-As part of on-the-job training (OJT) during daily activities important points related to safety design shall be taught to all members of the Nuclear Power Division, and educational materials for conveying information about serious operating events that have occurred in the past shall be shared via the intranet. Furthermore, along with instructing each office to engage in these learning opportunities the cultivation of experts (internal experts) that have expert knowledge will continue.	(Countermeasures completed) -Study sessions began in July 2016 and will continue
	② As part of Off-JT, the Nuclear Training Center (tentative name) will be leveraged to ensure that employees can thoroughly learn and to improve the skills of each individual. [Countermeasure 6]	At the Nuclear Training Center (tentative name), a systematic approach to the knowledge and skills required of each engineering department (define everything from the ability to engage in one's duties to the knowledge and skills required and to develop/assess programs) shall be leveraged to revise and implement current mechanisms for education management.	(Countermeasures completed) -A Human Resource Center based at the Fukushima Daini NPS has been used since December 2016 to continually improve education management.
II-2. Mechanism for finding information	①Clearly show external parties that the company promotes "proactive reporting" [Countermeasure 1]	-Clearly express to all employees through messages from the president and explanatory materials that TEPCO promotes the "proactive reporting" of any information related to the accident by any employee that notices something in order to contribute to improving nuclear safety and also the way in which information is reported and disclosed to the public. -Convey this information to external parties through TEPCO press conferences and the disclosure of countermeasures reports.	(Countermeasures completed) -Messages have been sent and all employees have been apprised of this countermeasure
	②Collecting information related to reporting and disclosure during the accident [Countermeasure 1]	-In ① employees were asked to provide information not mentioned in the accident investigation reports about the events that occurred during the accident in order to improve how information is reported and disclosed during an emergency. -Information is submitted via an intranet site	(Countermeasures completed) -An intranet site was set up in June 2016 and remains active
	③Calling for information on issues examined by the TEPCO HD and Niigata Prefecture Joint Investigative Commission [Countermeasure 1]	Issues examined by the TEPCO HD and Niigata Prefecture Joint Investigative Commission have been posted on the intranet to allow access by all employees and a call for the submission of related information has been made	(Countermeasures completed) -An intranet site was set up in July 2016 and is being used to continuously collect information

1.2 Fukushima Daini Nuclear Power Station

Since the accident, the TEPCO Fukushima Daini Nuclear Power Station has implemented safety assurance measures and conducted training to maintain cold shutdown, made preparations to handle a severe accident based on the lessons learned from the Fukushima nuclear accident, and provided assistance for reactor decommissioning at the Fukushima Daiichi NPS.

(1) Efforts to improve safety

◆ Initiatives to prevent memories of the Fukushima Nuclear Accident from fading[4]

Six years have passed since the Fukushima Daiichi Nuclear Accident and during this time many of the employees that actually responded to the accident have either been transferred or have retired. In order to prevent the important lessons learned by Fukushima Daini from the accident from fading, we held “The Great Eastern Japan Earthquake March 11, 2011 ~Examining the Fukushima Daini Miracle~” on March 11 to look back on the accident. A former shift supervisor during the accident gave a special lecture entitled “the operator’s miracle” during which participants reflected upon the actions that were taken amidst harsh circumstances to bring the reactors to their current state of cold shutdown. The importance of sharing information in particular was conveyed to participants based upon the experience during the disaster with achieving cold shutdown of the plant while prioritizing worker safety and also handling increasing radiation levels outside whilst being unable to ascertain the status of the Fukushima Daiichi NPS. Participants were told that continually receiving information from the main control room is what enabled operators to remain calm and take quick action. Awareness was increased about the fact that conveying this type of information with personnel that joined the company or were transferred to the plant after the accident is what will help all employees to come together to maintain cold shutdown and enable local residents to return to their homes and live with peace of mind.

Special lecture by former shift supervisor

Fukuni no Kiseki training

◆ Improvements made in light of how the November 22, 2016 earthquake was handled

At around 5:59 AM on November 22, 2016, an earthquake originating off the coast of Fukushima Prefecture with a magnitude of 7.4, and a maximum seismic intensity of 5-strong caused the shutdown of cooling system pumps used to cool the Unit 3 spent fuel pool at the Fukushima Daini Nuclear Power Station. And, sloshing of the spent fuel pools at Units 2, 3, and 4 caused water from the spent fuel pools to leak into the reactor buildings through the ventilation and air conditioning system exhaust ducts. The person responsible for reporting these

[4] Similar initiatives have been implemented at the Fukushima Daiichi NPS, Kashiwazaki-Kariwa NPS, Higashidori and the Head Office.

events assumed that it was not necessary to notify the national and local governments even if pool cooling systems shut down temporarily if the spare pump was operational, which caused a delay in notifying the national/local governments and the media of these events. Furthermore, the fact that equipment temporarily shut down as a result of foreseeable water level fluctuations caused by an earthquake revealed weaknesses in the design of facilities important to safety, such as the spent fuel pool cooling systems. Therefore, the following countermeasures were formulated for both event notification and also the operation and management of equipment.

- Equipment operation and management improvements
  - ・As a pump shutdown countermeasure, skimmer surge tank water levels are now kept higher. A method for automatically replenishing the water in tanks is also being deliberated.
  - ・As a countermeasure for duct joint leaks, the duct joints are being periodically inspected and a method for closing off ducts is being deliberated in consideration of the impact on building air conditioning and ventilation systems.
- Event notification improvements
  - ・In order to rectify notification delays, the notification form has been revised to include spaces for noting the operation status of fuel cooling equipment, whether or not there have been any pool water leaks and the temperature of pool water, and parties responsible for notifying events have been informed of these revisions.
  - ・In order to improve event notification at night and on holidays, a person responsible for notifying and publicly disclosing events has been added to these shifts and every day the person on those shifts responsible for this task is subject to practice in case an event that requires reporting occurs.
- Impact of countermeasures

  After the aforementioned countermeasures were implemented an earthquake off the coast of Fukushima Prefecture with a magnitude of 5.7 and a maximum seismic intensity of 5-weak occurred at around 4:49 PM on February 28. Not only were there no leaks from the spent fuel pools at Units 1-4, nor shutdown of the cooling system pumps, but information on the status of equipment important to power station safety was accurately conveyed along with information on the earthquake as a result of improvements to the event notification form. The earthquake enabled us to verify the effectiveness of countermeasures implemented in regards to both equipment operation and management and event reporting, but we aim to further improve safety by repeatedly making improvements as we continue to train for emergencies and respond to actual earthquakes.

Training for personnel responsible for notifying and publicly disclosing events

(2) Assisting with Fukushima Daiichi reactor decommissioning

The Fukushima Daini NPS has provided various levels of support for safely and reliably moving forward with decommissioning at the Fukushima Daiichi NPS. The following continued assistance was offered during the fourth quarter just as during the third quarter.

- Laundering special undergarments for use in controlled areas
- Temporarily storing assembled tanks for contaminated water storage (steel circular vertical tanks)
- Supervising the production of sand slurry to be used in covering the seabed inside the port

1.3 Kashiwazaki-Kariwa Nuclear Power Station

(1) Status of Implementation of Safety Measures

At the Kashiwazaki-Kariwa Nuclear Power Station ("Kashiwazaki-Kariwa NPS"), we are implementing safety measures with a focus on Units 6 and 7 for which applications have been submitted for review of the reactor installation permit, based on the lessons learned from the Fukushima nuclear accident.

<Overview of Safety Measures>

Preparations for tsunami and internal inundation	• Installation of seawalls, tidal walls, waterproof doors and other structures for protecting important facilities and equipment inside buildings from inundation caused by tsunami that are 15m above sea level • Tsunami monitoring cameras have been set up so that the Emergency Response Center (ERC) and Main Control Rooms (MRC) are able to monitor a tsunami if one occurs • In order to prevent the flooding of important safety equipment in the event that the inside of a building is inundated as the result of damage to pipes, etc., inside the building, building penetration seals have been waterproofed, doors to important equipment rooms have been made watertight, and permanent sump pumps have been installed that operate off of emergency power sources • Dykes have been built to ensure that seawater required to cool the reactor, etc., can be obtained during a tsunami (when the wave recedes)
Preparations for power loss [Augmenting power sources]	• In order to ensure power even in the case of a station blackout, power sources have been made redundant and diversified through the deployment of gas-turbine generator trucks, the installation of emergency power panels, the installation of alternative station internal electric facilities as well as the deployment of multiple power supply trucks, alternative DC batteries and other such equipment. • In order to enhance methods for injecting cooling water into the reactors even if all power is lost, preparations have been made to ready the means for injecting cooling water into reactors by installing alternate high-pressure cooling water injection pumps (steam turbine-driven pumps), preparing alternate means for injecting cooling water into reactors using the make-up water condensate system powered by a gas turbine generator truck, dispersing fire trucks on high ground and setting up cooling water injection heads outside reactor buildings so that fire engines may be used to inject cooling water from outside the building
Preparing for damage to the reactor core or spent fuel [Augmenting heat removal and cooling functions]	• In order to provide an ultimate heat removal means as a measure to prevent a severe accident, an alternate reactor core component cooling water system (CCWS) has been installed • Reservoirs have been built to secure water sources • To maintain cooling of the spent fuel pool even if a station blackout (SBO) occurs, water level gauges have been mounted in the spent fuel pools (SPF) along with spray systems, etc. to cool the spent fuel pool. Cooling water injection heads have also been installed outside the reactor building so that cooling water may be injected using fire engines, and a supplemental line independent from the existing pool cooling system has been added.

Preparing for damage to the reactor containment vessel or the reactor building [Measures to prevent damage due to excessive PCV pressure and prevent a hydrogen explosion]	• To enhance means for depressurizing the reactor pressure vessel, backup portable batteries, nitrogen cylinders and air compressors have been installed. • To prevent damage to the reactor containment vessel, above-ground filtered venting equipment has been installed to release pressure and heat from inside the reactor containment vessel. And, in preparation for a situation where remote operation from the Main Control Room (MCR) is not possible, improvements have been made to valves that allow them to be manually operated, and the valves have been installed in uncontrolled areas to allow for easy access. • A system has been installed for filling the PCV with water from the top in order to prevent damage to the PCV top due to an excessive rise in temperature, and prevent hydrogen outflow into the reactor building • To prevent hydrogen from accumulating and remaining inside the reactor building, static catalytic hydrogen recombination systems, and hydrogen discharging top vents on the reactor building roof, and hydrogen detectors etc. have been added. • To prevent contact between molten fuel and the PCV boundary, a corium shield (zirconia refractory material) has been installed in the lower part of the PCV
Preventing the dispersion of radioactive materials	• To prevent the dispersion of radioactive materials outside the site, water sprinklers (high-capacity water cannons, etc.) have been readied so that cooling water can be injected from outside the reactor buildings
Preparing for fires [Countermeasures for external and internal fires]	• Firebreaks have been established to prevent forest fires from spreading to reactor facilities • Fire detectors have been installed in parking lots on high ground so as to quickly detect oil fires being fed by fuel in emergency vehicles • To prevent important safety facilities from being rendered inoperable due to a fire inside a building, measures have been taken to fireproof penetrations, and different types of fire detection devices have been added as well as stationary fire extinguishing equipment, fire resistant walls, fire dampers, cable wrappings, etc.
Addressing external hazards	• To withstand a collision with a flying debris during a tornado, building doors have been reinforced, protective nets have been mounted on building openings and over outdoor equipment, and light oil tanks replaced • As a measure to prevent flying debris during a tornado, manhole covers have been lashed down • To prevent ventilation and air conditioning system filters from clogging up with ash following a volcanic eruption and rendering important safety facilities inoperable, replacement spare bag filters are kept on hand
Improvements to Main Control Room and Emergency Response Center environments	• To prevent exposure to external radiation, shielded ventilation and air conditioning systems have been added inside the main control rooms (MCR)
Strengthening emergency response	• Communications equipment has been enhanced in order to ensure a means for notification and communication (satellite phones installed, etc.) • Multiple access routes have been created and the roads reinforced in order to ensure that emergency vehicles can gain access • In order to enhance radiation control mechanisms during an accident, dedicated power sources have been installed for permanent monitoring posts, the number of monitoring cars has been increased and additional radiation measurement instruments and radiation protection equipment/materials have been readied.

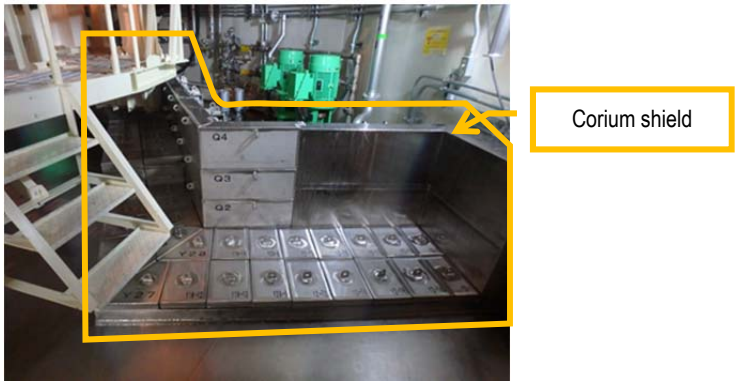
In addition, measures have been implemented in a systematic manner to prepare not only for earthquakes and tsunamis, but also tornadoes, volcanic eruptions, magnetic storms, cyber-terrorism and other external hazards.

On February 16, the Nuclear Regulation Authority performed its third field inspection and checked the status of deployment of fire engines used to inject cooling water from outside the buildings and examined the area at which a technical support center (TSC) will be built at Unit 5, the access route from the main building to Unit 5, and measures to prevent water from permeating into the service tunnels for electric cables which are inside of the tsunami wash up zone. After the field inspection, the proxy for Chairman Fuketa commented that, “based on the fact that improvements have been made to access routes in response to issues that were pointed out at the inspection meeting, I believe that improvements have been made in regards to gaining access to buildings.”

The progress of safety measures during the fourth quarter is as follows:

- Preventing damage to the Primary Containment Vessel (PCV) due to over-pressurization
  - Corium shield installation

    If fuel melts as a result of a severe accident, melts through the bottom of the reactor pressure vessel and falls to the bottom of the PCV, it is possible that the boundary function of the PCV may be lost if the concrete at the bottom of the dry well sump[5] is eaten away and the fuel comes in contact with the steel liner. In order to prevent molten fuel from flowing into the dry well sump, a corium shield[6] has been installed that will prevent the concrete at the bottom of the sump from being eaten away thereby preventing contact between the molten fuel and the PCV boundary. The installation of a corium shield as a lesson learned from the Fukushima Nuclear Accident, and installation at Unit 6 was completed on March 30 (installation at Unit 7 was completed on May 27, 2016).



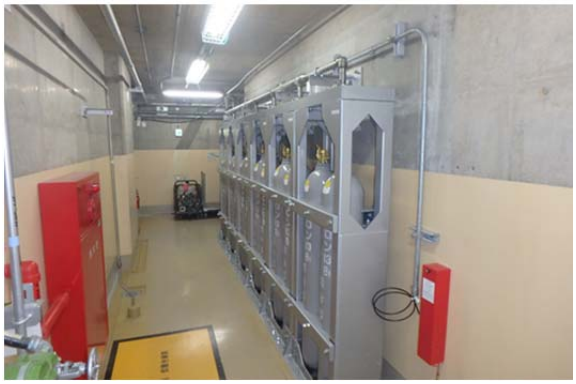
Installation of corium shield (Unit 6)

- Fire countermeasures
  - Fixed Firefighting System Installation

    Fixed firefighting system equipment that can be operated remotely from the Main Control Rooms or directly from the field have been installed in areas that contain equipment that have function for safely shutting down and maintaining shutdown of the reactors, equipment that contain radioactive substances, and equipment used for handling a severe accident, as well as in areas where it would be difficult to engage in firefighting activities due to the smoke created by a fire or radiation levels (Unit 7: 120 sections). Halogen fire retardants have been employed in consideration of electrical equipment and also to protect workers in the event of a mistaken discharge.

[5] Tank for waste water from pipes and other equipment inside the primer containment vessel.

[6] A highly heat-resistant material (zirconia refractory material) that can withstand temperatures up to approximately 2700°C has been used.



Tanks for fixed fire extinguishing system

◆ Strengthening emergency response

- Unit 5 Technical Support Center (TSC)

  The location of the TSC was switched from the Unit 3 reactor building to the Unit 5 reactor building after an assessment of the seawall on the Arahama side deemed that liquefaction of the ground could cause the structure to lack the strength that is required to have. Preparation of the area for the TSC began in March.

Examination of location for the Unit 5 TSC by the Nuclear Regulation Authority

- Reinforcing roads and making redundant access routes

  In order to make access routes redundant and to consider liquefaction of the ground under the seawall on the Arahama side, a new access route for traveling from the main building to the Unit 5 TSC will be built on ground that is higher than design standard tsunami height. A firebreak at least 20m in width will also be created in order to protect this new access route from forest fires. Mortar will be used to create the firebreak in order to make it resistant to fires and the area will be paved to prevent vegetation from growing.

1.4 Insufficient handling by TEPCO of New Safety Regulation Compliance Reviews

(1) Background

In September 2013, TEPCO requested of the Nuclear Regulation Authority and Secretariat of the Nuclear Regulation Authority that Kashiwazaki-Kariwa Units 6 and 7 be subjected to New Safety Regulation compliance reviews, which are currently underway.

However, during the 442nd inspection meeting held on February 14 of this year, the failure on behalf of TEPCO to explain that the seismic isolated building can withstand an earthquake of

the same magnitude as the Niigata-Chuetsu-Oki Earthquake, and give an accurate explanation of the validity of seismic resistance analyses performed in the past for the seismic isolated building caused questions about the reliability of TEPCO's explanations. Furthermore, in addition to this matter, the chairman of the Nuclear Regulation Authority and other members conveyed harsh criticism directly to the president of TEPCO in regards to serious deficiencies with submitted documents and explanations and the company's attitude towards handling of the reviews and inspections as a whole (February 28).

Meanwhile, these events caused great concern amongst the residents of Niigata Prefecture and on February 16 the Governor of Niigata Prefecture requested the following.

1. That the background and reasons why explanations that differ from the truth were given be explained.
2. That an explanation be given of the countermeasures that have been implemented internally in light of these events.
3. That explanations based on facts be given not just in regards to the lack of seismic resistance of the seismic isolated building, but also safety measures in general.

(2) Insufficient handling by TEPCO

In addition to the explanations of the seismic isolated building, which became problematic at the February 14 review meeting, it was also pointed out that TEPCO's handling of the following issues has also been insufficient.

Issues that have been pointed out as being insufficiently handled by TEPCO

Inspection Issue	Problematic Areas
Technical support center (to be used in conjunction with the seismic isolated building)	<February 2015> ・ The expression, "… Does not satisfy some design standard seismic motions" was used and it was explained that [the building] complies with the new safety regulations in regards to the other design standard seismic motions. ・ Furthermore, the results of the analysis performed as part of "2014 Reinforcement Deliberations" were not presented. <February 2017> ・ The "2014 Reinforcement Deliberations Analysis Results," which were not explained during the 2015 explanation, were presented without suitable explanation. ・ It wasn't clearly explained that the seismic isolated building can withstand an earthquake of the same magnitude as the Niigata Chuetsu-Oki Earthquake. ・ Other parties involved were not able to prevent these problems
Seawall	<May 2016> ・ The risks associated with changing assessment policies were not shared amongst the parties involved at the point in time when it was deemed possible that an assessment based upon specifications for highway bridges and liquefaction test results would not be accepted ・ Therefore, the decision was not made to begin liquefaction analysis quickly and implement measures to reinforce the seawall or switch locations of the TSC from Unit 3 to Unit 5.
Preventing Flooding on the Arahama Side	<August 2016> ・ There were large discrepancies between the explanations of the tsunami protection measures given during the seismic resistance-related review and the explanations given during the equipment review.
Seismic-resistance design plan	<February 2016> ・ Documents used to explain why a seismic resistance assessment method that had never been used before was being employed were not prepared sufficiently (an explanation of adequacy and conservativeness)

The underlying contributor to all of these problems was the fact that, "there were discrepancies between explanations given at the review meetings with the Nuclear Regulation Authority and explanations given during consults with the Secretariat of the Nuclear Regulatory Authority which resulted because some review issues were deliberated without sharing them with all the parties involved due to a failure to construct a mechanism for promptly sharing

inspection-related discussion points with all those involved in handling the reviews, including management."

Furthermore, when the causes of these problems were investigated one cause of these insufficiencies stood out amongst all others. That was, "a failure to learn from other operators that had experience with these reviews and a lack of effort to strengthen mechanisms for handling them." In light of this the initiatives of other operators were examined and best practices adopted as recurrence prevention measures.

Meanwhile, when the chronological order of explanations given by TEPCO to the Secretariat of the Nuclear Regulatory Authority and Niigata Prefecture about the seismic isolated building and the TSC were examined, it became evident that the positioning of the seismic isolated building in relation to the New Regulatory Requirements was not explained carefully nor sufficiently, and the following three points for critical review were identified.

- The fact that the seismic isolated building "does not satisfy the seismic resistance requirements of the New Regulatory Requirements" was not accurately conveyed to the residents of Niigata Prefecture and society as a whole.
- As a consequence of only conveying that the seismic isolated building would be the "primary TSC", TEPCO's plan to use this facility in conjunction with the TSC at Unit 5 (Unit 3) was not widely conveyed.
- The decision to not use the seismic isolated building as a TSC, which is an important policy change, was only conveyed to the local government immediately prior [to the meeting].

It is possible that the tendency of TEPCO to prioritize company goals over the local community and not consider its actions from the perspective of society is common underlying causes of these three issues. Therefore, we shall move in the following direction as we continually strive to make improvements.

- Coordination between Head Office compliance review-handling departments and communication departments responsible for dealing with the local community will be strengthened.
- Events that have a social impact will be explained sincerely and carefully to the residents of Niigata Prefecture and society as a whole.
- Important decisions, such as changes to safety measures, will be sincerely and carefully conveyed to the residents of Niigata Prefecture.

(3) Status of implementation of countermeasures

After identifying the background and causes of these problems the following countermeasures were formulated and reported during the 451st inspection meeting held on March 9.

	Countermeasure	Details	Implementation status (as of the end of March)
Immediate countermeasures	Establishment of a team to improve handling of regulatory issues (learned from other electric companies)	A team for improving the handling of regulatory issues comprising several people intimately familiar with regulatory guidelines and independent from the managers and departments handling inspections will be established for each inspection issue.	Established on March 6
	Inspection information sharing meeting (learned from other electric companies)	Meetings attended by nuclear power leaders, the Niigata division, and licensed reactor engineers, etc., will be held every day in order to share information on the status of inspections and issues to be discussed between upper management and senior supervisors.	Commenced on March 6
	Inspection policy review meeting (learned from other electric companies)	Meetings for confirming inspection issues to be discussed and handling policies between management handling the inspections, such as nuclear power leaders and power station unit superintendents, will be held every day.	Commenced on March 7

	Countermeasure	Details	Implementation status (as of the end of March)
	Appointment of project supervisors (countermeasures implemented in light of the seismic isolated building issue)	Project supervisors from the four fields of safety engineering, civil engineering, architecture, and electrical/mechanical engineering will be assigned to assist project managers.	For project supervisors have been assigned (March 6)
	Enhancing the responsibility and authority of project managers (countermeasures implemented in light of the seismic isolated building issue)	The responsibility and authority that project managers have over projects that they are handling shall be noted in the job description. Furthermore, explanations at inspection meetings shall be given by the project managers.	Job descriptions have been completed as of the end of March. Project managers started giving explanations and inspection meetings on March 9.
Acceleration of nuclear safety reforms	Strengthening organizational governance	The positioning and mutual relationship between each task shall be clearly stated so as to allow all members of the Nuclear Power Division to engage in their duties with a common understanding of the objectives and each other's roles. At the same time, a mechanism for closely monitoring how these tasks are being carried out and following up with them will be constructed.	"Fundamentals (Basic Action)" that stipulate how the organization and each individual are to act were created (January 27)
	Human resource development	Cultivate system engineers intimately familiar with fields for systems vital to safety such as design, permits, operation, and maintenance, etc.	Five engineers assigned as of the end of March
	Establishment of an engineering center	Engineering functions and tasks shall be integrated into the engineering center under the direct supervision of the General Manager of the Nuclear Power and Plant Siting Division thereby limiting the lack of communication between departments through the unified management of basic design and detailed design	Decisions have been made on how to restructure the Nuclear Power Division, including the establishment of the Nuclear Engineering Center (March 31). A technical specification modification permit application is being prepared.
	Enhancing configuration management	Specification values that serve as the basis for equipment design and permits, the basis for decision to implement analysis, and the basis for compliance with requirements shall be compiled into design guidelines and shared internally, while keeping this information up to date by monitoring the progress of deliberations and adding new knowledge as it is obtained.	A standard format for design guidelines has been formulated and will be put into use in May for new equipment installed in accordance with the New Regulatory Requirements. Furthermore, the currently insufficient configuration management process will be revised and put into effect in conjunction with the establishment of the Nuclear Engineering Center
	Establishment of internal communications teams	External experts shall be invited to participate and internal communications teams established.	Core members of internal communications teams decided on (March 24)

We will continue to make improvements and assess the effectiveness of countermeasures, and the results will be disclosed in the Nuclear Safety Reform Plan Progress Report (status as of the end of March has been included in the chart above).

(4) Improvement measures to ease the minds of the residents of Niigata Prefecture

Detailed improvement measures based upon the direction of improvements have been formulated as shown below and the causes and countermeasures for the aforementioned review handling problems have been reported to Niigata Prefecture (April 19).

Direction of Improvements	Improvement Measures
Deepen coordination between the review-handling departments at the Head Office, and the communications department responsible for dealing with the local community	<Improvement Measure ①> The newly created inspection policy review meeting will be leveraged to share information about policies important to the safety measures between the inspection-handling departments at the Head Office and the communications departments.
	<Improvement Measure ②> Head Office Nuclear Power Division executives will engage in Niigata Headquarter public hearing activities (such as visits to residents in Kashiwazaki City and Kariwa Village, explanation booths at different locations within the prefecture, and volunteer activities, etc.)
Give sincere and detailed explanations about events that have a social impact to the residents of Niigata Prefecture and society as a whole	<Improvement Measure ③> Report on and hear opinions about communications activities engaged in by the Kashiwazaki-Kariwa Nuclear Power Station at town hall meetings.
	<Improvement Measure ④> Further improve the explanations given by TEPCO corporate communications representatives in order to convey the details of events that have a social impact in an easy-to-understand and timely manner. (Examples of corporate communications initiatives: power station PR house, tours, community briefings and explanation booths at different locations within the prefecture, website, etc.)
	<Improvement Measure ⑤> Continually implement training about improving awareness by using examples of problems that TEPCO has faced in regards to information disclosure and communication for Head Office Nuclear Power Division, the Niigata Division and the Kashiwazaki-Kariwa Nuclear Power Station
Sincerely and carefully convey important issues, such as changes to safety measures, to the residents of Niigata Prefecture	<Improvement Measure ①> The newly created inspection policy review meeting (aforementioned immediate countermeasure) will be leveraged to share information about policies important to the safety measures between the inspection-handling departments at the Head Office and the communications departments.
	<Improvement Measure ②> Head Office Nuclear Power Division executives will engage in Niigata Headquarter public hearing activities (such as visits to residents in Kashiwazaki City and Kariwa Village, explanation booths at different locations within the prefecture, and volunteer activities, etc.)
	<Improvement Measure ⑥> Enhance mechanisms for sharing of information with Niigata Prefecture, Kashiwazaki City and Kariwa Village, and report on the status of inspections as necessary.

Along with disclosing the progress of the aforementioned improvement measures in the form of the Nuclear Safety Reform Plan Progress Report, the same information is also reported to the Nuclear Reform Monitoring Committee for assessment from the point of view of a third party.

Through these countermeasures, we will improve the awareness of employees in the Nuclear Power Division, such as departments at the Head Office responsible for handling the reviews, and continually confirm that our actions prioritize the local community and consider the perspective of society, while at the same time proactively identifying new issues and engaging in undying efforts to make improvements

1.5 Cable Damage Found at the Fukushima Daiichi NPS and Electrocution of a Worker at the Fukushima Daini NPS

Whereas these two accident/troubles were not serious, we believe that there are important lessons to learn from them and have therefore included them in this progress report.

(1) Cable Damage Found at the Fukushima Daiichi NPS

While performing test digging at the Fukushima Daiichi NPS site, a buried pipe was found for which the department responsible for management could not be ascertained. An attempt was made to find the department responsible for the buried pipe at the power station, however the department responsible could not be ascertained, and due to the facts that another buried pipe next to it contained electrical wires and there was a water volume meter nearby, it was assumed that the aforementioned pipe was a sewage pipe. Assuming that water would leak out, steel pipe cutters were used very carefully to slowly make a cut in the pipe, and since no water leaked out it was assumed that the pipe was empty.

Therefore, the cut was continued quickly and the pipe severed. Unfortunately, this pipe did contain charging cables which produced sparks when cut (February 20).

At the Fukushima Daiichi NPS, there have been some incidents where buried electrical pipes have been cut or damaged and recurrence prevention measures had been put in place, which is why steps to ascertain the nature of the pipe were taken carefully. However, this carefulness did not persist to the very end. Going forward, rules concerning pipe cutting, such as performing an internal inspection of the pipe using nondestructive inspection technology, will be deliberated.

(2) Electrocution of a Worker at the Fukushima Daini Seismic Isolated Building

In the midst of preparing for voltage resistance tests of a vacuum circuit breaker in the 6.9kV high-voltage power switch panel in order to inspect power source equipment in the seismic isolated building, a ground wire for the test device came in contact with the ground terminal on the bottom of the high-voltage power switch panel. At this time the distance of separation between the ground wire and the charge section was not far enough thereby resulting in electrocution left-hand (ungloved) of the worker (March 8). After interviewing the worker, it was learned that he was aware that the work area was charged sections and that working on live equipment is forbidden.

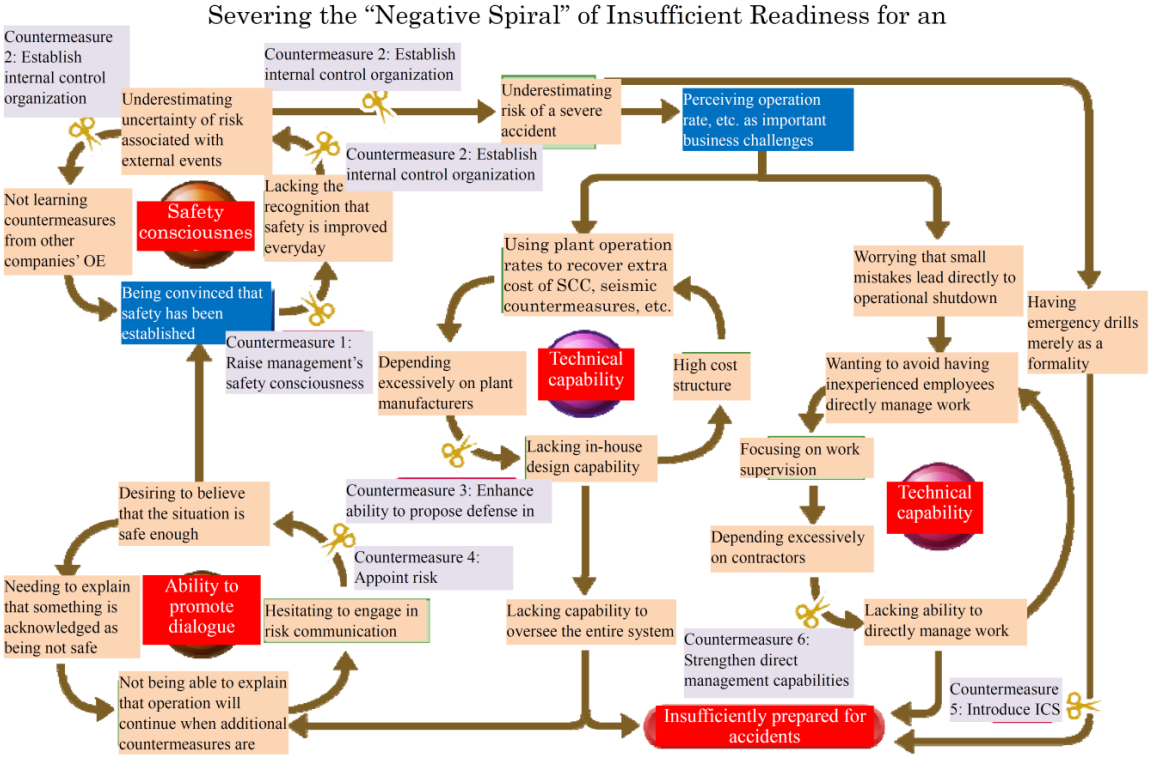
Since this incident is considered very serious because the accident was the result of a worker purposely ignoring rules, root cause analysis will be performed, the safety awareness of TEPCO workers and contractors improved, specific problems with work supervision identified and recurrence prevention measures deliberated.

2. THE PROGRESS STATUS OF NUCLEAR SAFETY REFORM PLAN (MANAGEMENT)

TEPCO has been making progress with six measures for stopping the “negative spiral” that has exasperated structural issues faced by the Nuclear Power Division based upon the Nuclear Safety Reform Plan (Management) that was formulated in March 2013.

“Measures Implemented during the Fourth Quarter” and “Future Plans” have been compiled for each measure and the results of nuclear safety reform KPI measurements and an assessment of those results as been compiled in “2.8 Assessment of the Degree of Achievement of Nuclear Safety Reforms.”

Severing the “Negative Spiral” of Insufficient Readiness for an



2.1 Initiatives to Enhance Governance by Nuclear Power Leaders

- In order to promote nuclear power management reforms, the Management Model Project was used to analyze the gap between TEPCO and the world's highest standards, and improvement measures were deliberated and proposed (Phase I (July through August 2016)). We have transitioned to Phase II (September 2016 through March 2018) during which time the improvement measures proposed during Phase I will be implemented and efforts will be made to improve organizational management, department structures, and processes/procedures.
- Status of creation of the management model
  - As part of the Management Model Project launched in July of last year, skills in the areas of operations, maintenance, engineering, radiation protection were improved through management observation training, and progress was made with improvements, such as the introduction of a remote monitoring system at the Fukushima Daiichi NPS in order to reduce exposure. Furthermore, ideal behaviors for each field of work (fundamentals) were formulated and are being conveyed to all employees of the Nuclear Power Division.
  - At the same time, the Management Model that will enable all employees to engage in their duties with a common understanding of the objectives of the division and each

other's roles is being created. During the fourth quarter weekend sessions during which all nuclear power leaders meet at once were held twice. At the sessions, discussions were held about, for example, the state which the TEPCO Nuclear Power Division aims to achieve and how improvements are to be promoted using the Management Model, and a framework for the Management Model was created.


Discussion of Management Model by nuclear power leaders

- Conveying and permeating fundamentals
  - All employees in the Nuclear Power Division are being taught about the ideal behaviors for each field of work (fundamentals). For example, the understanding and permeation of leadership fundamentals, which apply to employees in team leader positions or higher, are being fostered by having power station executives and Head Office management repeatedly debate examples of behaviors through case study sessions, much like nuclear power leaders repeatedly engaged in debate during creation of the fundamentals.
  - Furthermore, the permeation of fundamentals in other expert fields has begun by leveraging management observation and retrospection during group discussions.


Leadership fundamentals case study session (Left: Head Office, Right: Fukushima Daini)

2.2 Measure 1. Reform from Top Management

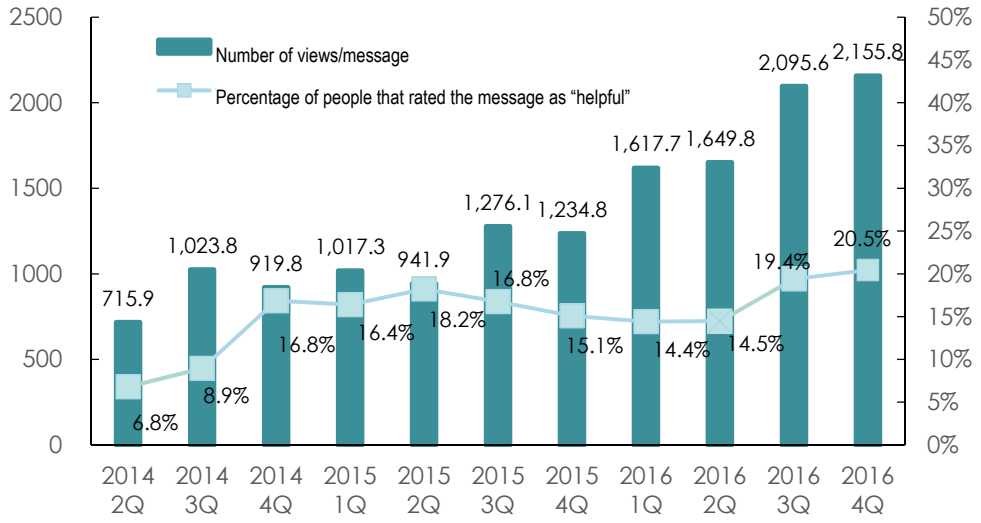
(1) Fourth Quarter Achievements

[Measure 1-1. Increase Safety Awareness throughout the Entire Organization and Management]

- Direct dialogue between nuclear power leaders
  - Since the fourth quarter of FY2015, nuclear power leaders at Head Office (General Manager of the Nuclear Power and Plant Siting Division and other General Managers)

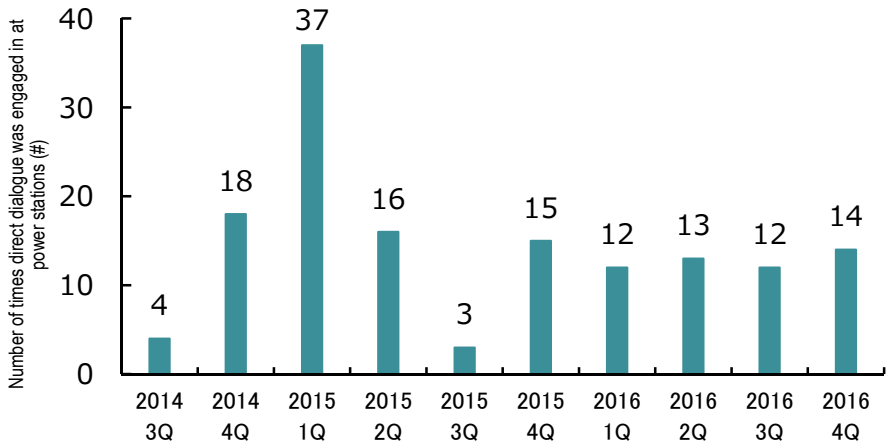
have begun visiting power stations to engage in direct dialogue with power station executives (site superintendent, unit superintendents, Nuclear Safety Center director, power station general managers). During the fourth quarter, Head Office nuclear power leaders continued to engage in direct dialogue with power station executives (Fukushima Daini: January 20). During direct dialogue at Fukushima Daini, discussions are being held about the roles that each should play in achieving reform based upon TEPCO Reform Proposals compiled by the Committee for Reforming TEPCO and Overcoming 1F Challenges, much like the discussions that took place at Kashiwazaki-Kariwa in December 2016.

- Conveying the expectations of nuclear power leaders
  - In order to promote nuclear safety reforms, nuclear power 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 power leaders are leveraging video messages, intranet messages, email, meetings and morning meetings as opportunities to convey their expectations. In particular, the General Manager of the Nuclear Power and Plant Siting Division is sending emails directly to each individual in the Nuclear Power Division.
  - The following graph shows the number of times that messages by nuclear power leaders have been read by employees. During the fourth quarter, more than 2,100 employees, or approximately two thirds of the Nuclear Power Division, read each message and the percentage of people who rated the message as “helpful” rose to 20% thereby showing a slowly increasing trend.



Number of views per message sent via the intranet/”Helpful” assessment rate

- In order to convey “thoughts” that cannot be completely conveyed through written messages over the intranet, the General Manager of the Nuclear Power and Plant Siting Division has been engaging in direct dialogue with power station personnel and headquarter employees since February 2014.



Number of times direct dialogue was engaged in between the General Manager of the Nuclear Power and Plant Siting Division and workers

- Since FY2015, the General Manager of the Nuclear Power and 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 and Plant Siting Division and the president of the Fukushima Daiichi Decontamination & Decommissioning Engineering Company

Period	Head Office	Fukushima Daiichi	Fukushima Daini	Kashiwazaki-Kariwa
FY2015	24(2)	47	19	24
FY2016				
Q1	5	6	4	6
Q2	5	3	3	7
Q3	10(1)	8	3	7
Q4	5	2	4	5
Total	25(1)	19	14	25

(Numbers in parentheses indicate the number of commendations given at Higashidori)

- Enhancing information sharing about issues important to the Nuclear Power Division
  - Upon reflecting on the core meltdown issue, the site superintendents, who are responsible for each power station, and General Managers have started (July 2016) periodically sending emails to all personnel in the Nuclear Power Division that give information on important reports to be released to the public, the status of deliberation of important issues, and background information on instructions that have been given.
  - Since October 2016 we have been conducting electronic questionnaires designed to gather opinions about the messages that were conveyed and also confirm the level of understanding of these messages and whether or not they were received. The results of the questionnaire and opinions about messages are being provided as feedback to the sender in order to improve subsequent messages.
  - Averages for the response rate[7] and level of understanding[8] of the electronic questionnaire are compiled quarterly and monitored as a KPI for the ability to promote dialogue (internal 2). During the fourth quarter response rate was 35% (objective:

[7] The percentage of people that responded to the questionnaire within one week after receiving the email

[8] Measured on a four-step scale with 1 being "well understood" and 4 being "not very well understood"

75% or higher), and the level of understanding was 2.4 points (objective: two points or higher). Compared to the third quarter, response rate increased slightly by 2.3 points, and there was no change in the level of understanding.

- Gathering information on notifications that were given and information that was disclosed during the accident
  - Many facts about the accident have been revealed by the government's Investigation and Verification Committee. However, in order to improve nuclear safety going forward and contribute to improving how events are reported and disclosed to the public, employees are being encouraged to proactively report anything that they find to be missing from these investigation reports via an intranet site that has been set up for that purpose (June 21, 2016).
  - No information or opinions were provided through the site during the fourth quarter.

[Measure 1-2. Developing Nuclear Power Leaders]

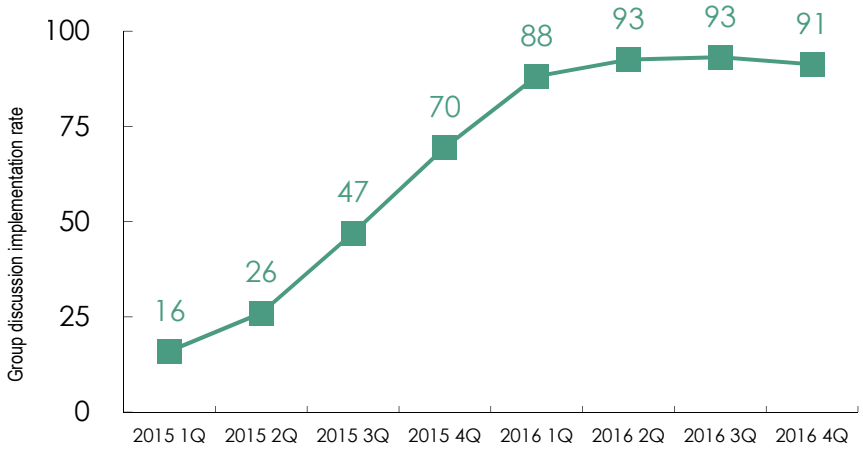
- Creating succession plans for nuclear power leaders
  - In order to train and cultivate nuclear power leader successors and ensure that the organization has the personnel it needs in the future, a process for creating succession plans was established.
  - In particular, job descriptions that clarify the requirements for important posts, including positions vital for nuclear safety, are being created and required education/training, and OJT, is being added based on the requirements noted in these job descriptions.
- Nuclear power leader training
  - In FY2016 we planned training for the five newly appointed deputy superintendents (unit superintendents) at the Fukushima Daiichi NPS, Fukushima Daini NPS and Kashiwazaki-Kariwa NPS in order to provide knowledge required for nuclear safety. Basic Plant Operation Knowledge training during which participants learn about planned behavior during an accident by performing actual operations on a site simulator, and risk communication training were both implemented as planned by February.

Plant operations basic knowledge training (Left: Trainee, Right: Instructor)

[Measure 1-3. Spreading Nuclear Safety Culture throughout the Organization]

- Benchmarking for nuclear power management reform
  - We are benchmarking excellence (best practices) from both within and outside of Japan and proactively incorporating these practices in order to become a nuclear operator with the world's highest level of safety.
  - During the fourth quarter, we benchmarked with the Koeberg Nuclear Power Station in Republic of South Africa that engages in excellent severe accident management and leverages operation experience (March 27-29). The best practices obtained through this benchmarking (creation of an accident management guide for spent fuel pools during shutdown) will be put into practice at TEPCO in the future.
- Permeating nuclear safety culture throughout the organization

- In the Nuclear Power Division, we have stipulated the, “individual, leader and organizational traits needed to embody robust nuclear safety culture (10 traits and 40 behaviors for robust nuclear safety culture).” By using these traits to reflect on and compare one’s own actions with ideal behavior on a daily basis, we are encouraging employees to notice the differences in effort to improve safety awareness.
- Self-retrospection activities have taken root but the rate of implementation of self-retrospection during the fourth quarter declined slightly to approximately 92% so this trend will be watched.
- The implementation rate of group discussions, which are used to share the results of individual self-retrospection, learn from each other, and take notice of new issues, is 91% showing that the activities have taken root.



Group discussion implementation rate

- Lectures on nuclear safety culture
  - In order to improve middle-management’s knowledge about nuclear safety culture and their ability to lead, we hold lectures on safety culture given by instructors invited from both inside and outside the company. During the fourth quarter, a lecture on “What Needs to Be Done to Enhance the Ability to Effectively Leverage QMS?” was given by an expert on quality assurance from the Japan Atomic Nuclear Safety Institute (JANSI) who stated that, “safety and quality cannot be achieved if QMS is not implemented simultaneously with independent improvement measures” (Fukushima Daiichi NPS: March 13, Fukushima Daini NPS: March 14, Kashiwazaki-Kariwa NPS: March 27, Head Office: February 28).

“What Needs to Be Done to Enhance the Ability to Effectively Leverage QMS?” (Head Office)

- Safety Council meetings
  - In June 2016, a Safety Council[9] was established to enable the Nuclear Power & Plant Siting Division to discuss safety with Fukushima Daiichi Decontamination & Decommissioning Engineering Company (FDEC) management, share problem awareness, and promote the quick implementation of common countermeasures.
  - At the third Safety Council meeting, discussions were held on the topic of "Self-Retrospection Conducted this Fiscal Year as Part of Safety Culture Cultivation Activities, and Policies for Next Fiscal Year" (February 13). As a result of the discussions it was proposed that instead of having all contractors implement uniform initiatives, safety culture cultivation activity plans should be formulated upon having each separate company set detailed objectives for permeating safety culture.

- Communicating with contractors and efforts to improve understanding
  - In order to improve nuclear safety at TEPCO's nuclear power stations, contractors must have an understanding of nuclear safety reforms and cultivate nuclear safety culture. Therefore, up until the third quarter representatives of management from the Head Office were visiting the headquarters of contractors in order to exchange opinions on nuclear safety. However, based upon the results of these opinion exchanges conducted at the headquarters of contractors, during the fourth quarter management representatives from the Head Office visited the offices of power station contractors to exchange opinions with contractor executives on the power station side (February 16: two companies, March 16: one company). Mutual understanding of nuclear safety has been deepened through these activities.
  - Representatives from contractor headquarters were assembled for a Nuclear Safety Information Liaison Council meeting (January 16). At the Nuclear Information Liaison Council meeting opinions were exchanged about "what can be done to improve the behavior of workers" in order to achieve nuclear safety. As a result, we were able to share knowledge with contractors about how to improve behaviors such as "the importance of forming an environment for good communication," and "the importance of explaining the reasons for roles."

- Initiatives to repeatedly reflect upon the Fukushima Nuclear Accident (March 11 initiatives)

  As part of the events held for "Fukushima Nuclear Accident Remembrance Day" on March 11, direct dialogue was engaged in with the General Manager of the Nuclear Power & Plant Siting Division, lectures were given by those who actually responded to the accident, and group discussions were held. These activities served as good opportunities to reaffirm our conviction towards improving nuclear safety and helping Fukushima to recover.
  - The General Manager of the Nuclear Power & Plant Siting Division sat down with younger employees to discuss how the accident at the Fukushima Daiichi NPS was handled and shared thoughts about improving nuclear safety (Fukushima Daini NPS: February 15, Kashiwazaki-Kariwa NPS: March 10, Head Office: March 11).
  - Through lectures given by those parties that actually responded to the accident, and learning about the conditions at the time of the accident, reactor decommissioning initiatives, initiatives by other departments, and listening to internally archived records of comments from the local community, participants reflected upon the conditions at the time of the accident and all that has happened during the six years since it. Upon doing this a group discussion was held on "What should we do to help Fukushima recover and to improve nuclear safety?"

[9] The Council is comprised of the General Manager of the Nuclear Power & Plant Siting Division, FDEC President, power station site superintendents, and Head Office general managers.

Direct dialogue with the General Manager of the Nuclear Power & Plant Siting Division (Head Office)
Lecture by people that actually responded to the Fukushima Nuclear Accident (Head Office)

(2) Primary Future Plans

[Measure 1-1. Increase Safety Awareness throughout the Entire Organization and Management]

- Since there seem to be discrepancies between the response given at each plant in regards to sharing information on important tasks, response will be promoted by giving feedback in the form of the results for each plant in order to improve response rate.

[Measure 1-2. Developing Nuclear Power Leaders]

- Starting in FY2017, we will begin cultivating successors in cooperation with the “Nuclear Human Resource Development Management System,” which will be discussed later as part of Measure 6, based upon the Successor Plan process established for the sustainable cultivation of leader successors.

[Measure 1-3. Spreading Nuclear Safety Culture throughout the Organization]

- In accordance with the results of benchmarking, as part of our management model project, during FY2017 we will start incorporating CAP (Measure 3-5), which will be mentioned later, to prevent delays in the commencement of improvements and guarantee that activities are followed up with after they have begun, just as we did with the self-assessment results.
- During FY2017, we will assess the state of nuclear safety culture at the Fukushima Daiichi NPS in cooperation with the Japan Atomic Nuclear Safety Institute (JANSI).
- In regards to communication with contractors, Nuclear Safety Information Liaison Council members and Head Office management have visited the offices of contractors and power stations in order work out the details of how to permeate safety culture at each contracting company and to work together with contractors to further improve safety improvement awareness.
- During the March 11 events, many participants commented that it is important to pass down the various lessons learned through lectures and discussions. Therefore, deliberation will continue on a mechanism for passing down the lessons learned from the Fukushima Nuclear Accident.

2.3 Measure 2. Enhancement of Oversight and Support for Management

(1) Fourth Quarter Achievements

[Measure 2-1. Nuclear Safety Oversight Office Conducts Monitoring and Executes Improvements in Response to Indications and Proposals]

- Nuclear Safety Oversight Office Monitoring Activities

The views of the Nuclear Safety Oversight Office based on the past several months of monitoring activities conducted the fourth quarter are given below. These views were reported to the Executive Committee on April 18.

Nuclear Safety Oversight Office (NSOO) Quarterly report

Foreword

This report summarizes the Nuclear Safety Oversight Office (NSOO) assessment results for 2016, Q4 (October through December). Recommendations, advice and observations have been discussed with the management as they arose and have already been accepted and acted on (or actions are planned).

1. Safety Performance

The Assessment Team reports continue to indicate steady improvement in safety in many areas.

There are still areas for improvement and the following summarizes the observations made and advice given.

The Senior Reactor Engineers (SRE) on site constantly observe important operations and meetings providing advice and guidance. Some of their key involvement and advice is also incorporated

1.1. Fukushima Daiichi

- Risk Management; Good progress is being made but more resource band expertise is required to develop the safety classification and to promote risk assessment earlier in the planning process. External resource should be used if necessary.

- Radiation Protection; The RP department is working hard to minimize exposures and to implement the individual dose target concept. However the level of understanding of the importance of dose reduction by staff, particularly contractors is low.

- Human Resource Development; The Nuclear Human Resource Development Centre is promoting various reforms. Although this initiative has started well, progress in effective program setting are slow at this stage since high priority is initially placed on the development of the education program.

- Survey Inside Unit 2: Although the technical aspects of the pre-work preparation were not good enough, the Pre-Work Safety and ALARA meetings were well conducted and control of safety of work in progress was good. The survey revealed such invaluable information as dose rates, temperatures, and the status of surrounding structures, which were evaluated accordingly as major achievements.

1.2 Fukushima Daini

- Emergency Arrangements: In emergency drills, conditions are set by taking advantage of the earthquake response experience from last year. Proficiency in responses for containing events is enhancing with each drill. For example, we expect improvements in the response ability of staff outside working hours and improvements exercising in the field.

- Leadership and Governance: We verified 2F's efforts toward developing unity in terms of business objectives between station leadership and personnel, increasing risk response capabilities during normal times and emergencies, and enhancing site strength through MO. The electric shock accident in March, however, revealed vulnerability in safety-ensuring efforts. It is important to thoroughly evaluate the effectiveness of each effort and to improve them into more productive initiatives.

1.3 Kashiwazaki Kariwa

- KK 6/7 Restart Project: With a build-up of this project structure, under a strong leadership, cross-divisional initiatives are obvious, such as rapidly shifting resources to critical operations.

- Strengthen Safety of Equipment: Development and revision of system documents are rigorously managed to be ready for the handover of safety systems. Foreign material exclusion (FME) control, meanwhile, has weaknesses in such aspects as clarification of TEPCO's requirements. Activities are underway to fill the gap that exists between global excellence.

- Emergency Preparedness: Emergency response drills including such severe scenarios as core damage and vent are conducted, and the findings are obtained accordingly. Also, procedure development and their implementations are continuously done. Currently, the major challenges are: TSC response for highly uncertain events (crisis) that are not part of procedure; improving the variations in personnel competence; and the coordination among TSC and the in-house fire brigade.

- Operation Management: New efforts aimed at excellence are vigorously carried out. Training for improving the technical background knowledge on the operating procedures during accidents that has been identified as a major gap with the United States has started. The Conduct of Operations (COO) has started to undergo trial

applications, for instance. In establishing and making COO penetrate into operators, it is important to systematically integrate with and abolish (i.e. change management) existing manuals.

- Management and Governance: Activities to make operation management more effective such as each organization achieving its own mission, and linking the various activities being carried out within the power station for becoming “Self-improving organizations” with the operation plan are continuing. On the other hand, such as we found the responding to inflow of rainwater in Shika Nuclear Power Plant, we can see that areas such as “Perceiving one’s own responsibility very narrowly”, “Collaborating and coordinating actively with stakeholders” are not up to the mark.

1.4 Corporate Assessments

- Penetration of Fundamentals: Maintenance Fundamentals have been compiled as “The Principles of Business Conduct” and the HQ Management Model Project have been reinforcing them to the station maintenance groups. However, in order to gain acceptance and streamline introduction to the entire organization, change management is needed when starting such new efforts as fundamentals.

- Personal Dose Management Policy: Headquarters is leading preparations for the introduction of personal dose targets. However, in order to gain understanding by staff and contractors and for personal dose targets to continuously produce effects, it is important for the entire organization to share and understand goals and objectives.

- Emergency Arrangements at HQ: HQ performance continues to improve. However, some staff are still not adequately trained. Emergency response personnel need to maintain necessary competence through day-today drills. Persons in charge of functional teams must verify that personnel are maintaining the required competency.
- In view or recent performance and recent and imminent staff changes, CNSO suggests that professional training is given to the central emergency response teams in HQ and that such training is also considered for the central team at the site TSCs

2. NSOO / Chief Nuclear Safety Officer (CNSO) Insights from Assessments

- **Risk awareness in Decommissioning**

In nuclear work, risk awareness and respect for risk are a very important part of a good safety culture. Our risk awareness is improving. However, our nuclear risk awareness is still not high enough. I wish to encourage senior and line management to put mire resource and emphasis on nuclear risk management.

- **Pessimistic Assessment of Risk in Decommissioning**

  There has been good work on reducing the cooling of fuel. However, the work shows that fuel cooling and heat transfer calculations may be pessimistic. This could lead to a pessimistic view of the risks. Safety culture can be degraded when people perceive that the risks are exaggerated and efforts are being made to improve the modelling.

- **Implementation of Key Policy Changes**

  There is good work ongoing to improve leadership and fundamentals. However TEPCO is implementing some key policy changes such as the introduction of "Fundamentals" and the use of Personal Dose Targets. This is proving difficult and slow. For such changes to occur effectively recipients have to fully accept that the change is beneficial. Leaders of these changes must focus their activity to properly define the end states and advantages and to persuading stakeholders of the need for the change.

3. NSOO Performance – Closure of NSOO Actions

There has continued to be good performance by the line in closing out NSOO recommendations;

- Of the 128 actions raised prior to this quarter, 97 are closed. And there are 3 closed in this quarter.

- In this quarter we raised three new recommendations

4. Benchmarking and Mentoring (safety culture)

NSOO invited Dr. K Dahlgren to both educate NSOO staff on nuclear safety culture and to observe culture at KK. She is an international expert in nuclear safety culture. In the time available her observations could only be superficial but some key points were as follows;

- She saw a lot of good practice – people wanted to learn and improve their safety performance.

- Alternatively she saw some reactive (rather than proactive) behaviour which she suggested came from heavy workloads and tight schedules with no time for reflection and dialogue.

- She recommended that we should increase our safety culture and human factors capabilities.

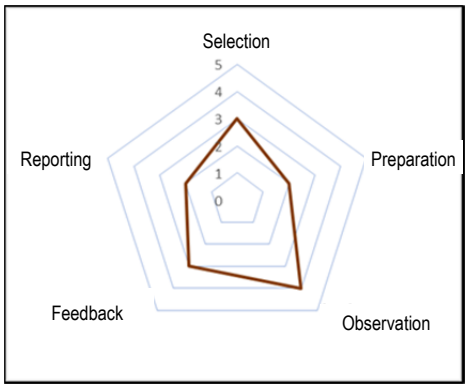
- Finally she observed that TEPCO's style is demotivating in that we focus too much on our weaknesses – we should identify our strengths, praise them, and build on them.

[Measure 2-2. Improving the Roles of Middle Management]

- Enhancing management observation
  - In order to promote nuclear safety reforms and enhance nuclear safety, improvements must be appropriately implemented. Accordingly, management observations (MO), which have been incorporated by outstanding nuclear operators in other countries, have been used to monitor what is happening in the field and accurately ascertain any problems.
  - During the fourth quarter, hands-on training of MO skills was commenced through individual coaching of management observers in the field by overseas experts ("Coach to Coach") in addition to the management observer classroom study sessions implemented during the third quarter. A total of 56 general managers and managers from the Operation Management Department, Maintenance Department, and Radiation Protection Department participated in "Coach the Coach" training.

    <Five skills learned during MO Coach the Coach>

    - Understand the high-value of MO and select in advance work with high risks that should be observed (selecting tasks to be observed)
    - Learn work procedures, rules, and excellence in advance, and understand what is required to engage in observation (advanced preparation)
    - Build a relationship of trust by proactively interacting with workers, and observe work in the field while considering not only conditions in the field but also the behavior of workers, organizational factors, and processes (observation implementation).
    - Engage with workers with a questioning attitude (open questions) and promote thinking by themselves. Furthermore, engage in good dialogue that is required to get the workers themselves to accept what needs to be done and give feedback in order to achieve nuclear safety (give feedback to those being observed)
    - Give accurate reports on improvements and issues pointed out, and perform assessments based on fundamentals (observation result reporting)
  - MO Coach the Coach is being actively implemented in each department and department managers have said that, "MO skills have been clearly defined and skills have improved." Furthermore, attempts were made to make the assessment results of skills obtained through MO Coach the Coach more visual. This will be used going forward as an index for improving MO skills.
  - An MO system for efficiently gathering and analyzing MO results from each power station was developed and put into trial operation. A PICO[10] analysis was performed on weaknesses in fundamentals ascertained through MO, and activities to make improvements for troubles and human errors by linking these results with CAP[11] initiatives were enhanced.

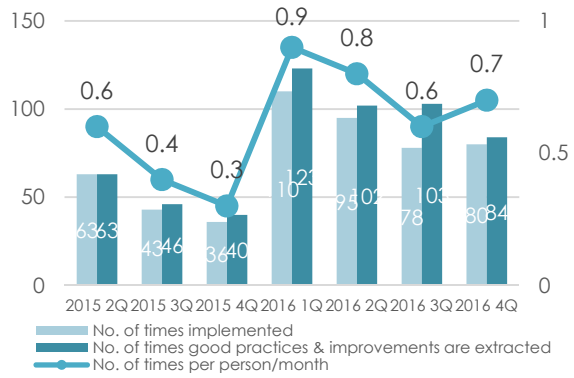


[10] Performance Improvement COordinator

[11] Corrective Action Program

MO implemented during Q4 is as follows:

	Head Office	1F	2F	KK
Number of times implemented	80 times 0.7 times/month/ person	376 times 0.9 times/month/ person	831 times 4.1 times/month/ person	505 times 1.7 times/month/ person
Number of good practices/ places for improvement identified	84 -18%	501 -35%	1,804 +40%	1,381 -36%



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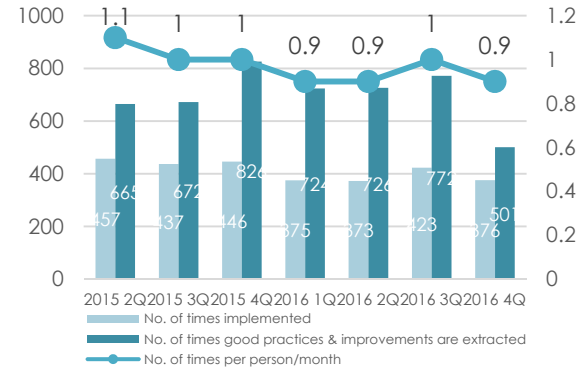

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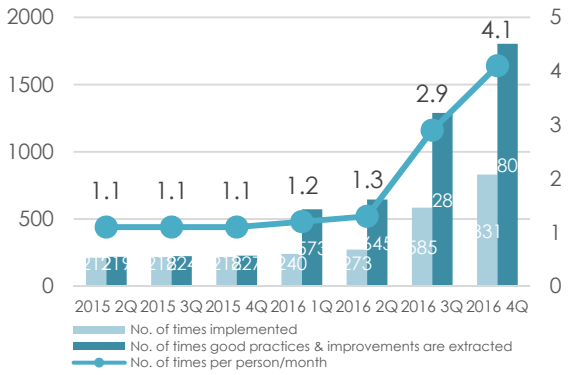

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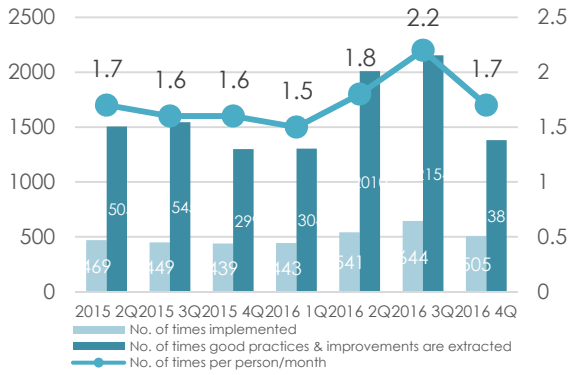


<KK>

(2) Primary Future Plans

[Measure 2-1. Nuclear Safety Oversight Office Conducts Monitoring and Executes Improvements in Response to Indications and Proposals]

- The Nuclear Safety Oversight Office will continue to monitor activities that are important for nuclear safety, point out issues to be addressed, and make suggestions as it advances improvements in nuclear safety. In addition, we shall leverage advice from mentors in addition to the results of overseas benchmarking will be applied to achieve our aim of having world-class level monitoring operations as well.
- We will continue to monitor the progress of issues focused on during the fourth quarter, such as risk management, the KK6/7 restart project, and the permeation of fundamentals. Furthermore, since managing changes of major policies, such as introducing fundamentals, is extremely important for achieving results, change management will also be watched

carefully.

[Measure 2-2. Improving the Roles of Middle Management]

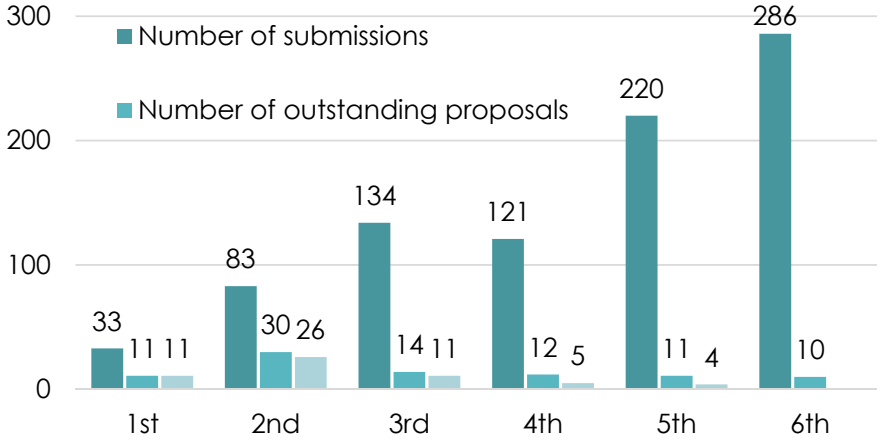
- Next fiscal year TEPCO's middle management (General Managers, Managers) will serve as coaches for MO. Through working as coaches, middle management will proactively learn MO skills and create an environment for coaching (teaching) those being observed by serving as examples of MO.
- Index-based assessments will commence in order to make improvements in MO skills and implementation frequency more visual. This will help to make the quality of MO and the prevalence of MO experts visual in a qualitative manner.

2.4 Measure 3. Enhancement of Ability to Propose Defense-in-Depth

(1) Fourth Quarter achievements

[Measure 3-1. Hold Competitions for Strengthening the Ability to Propose Safety Improvements]

- TEPCO has been holding Safety Improvement Proposal Competitions so that personnel may, in addition to conducting multi-faceted reviews from the perspective of defense-in-depth, acquire the technical ability to propose cost-effective safety measures and have these proposals put promptly into practice. The current status of these competitions is as follows
  - During the fourth quarter, a judging committee was convened to judge outstanding proposals from the sixth competition and as a result the total of 10 outstanding proposals were selected from all three power stations.
  - The outstanding proposals to date that were put into practice during the fourth quarter are as follows:
    - 4th Competition: Out of the 12[12] outstanding proposals submitted, one has been put into practice since the last report (cumulative total: five proposals).
    - 5th Competition: Out of the 11 outstanding proposals submitted, two have been put into practice since the last report (cumulative total: four proposals).



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

<4th Competition>

- It is known that depending upon the method of storage of pump axle bearings, when used there after the condition of the lubricant may deteriorate thereby causing axle bearing friction which may lead to pump breakdown. Therefore, upon conducting tests to verify proposals such as "storing pump axle bearings in lubricating oil," and "preventing oxidation by storing in vacuum bags," it was found

[12] Out of the 13 outstanding proposals submitted, one proposal was employed at multiple power stations, so the total number of outstanding proposals is listed as 12.

that “keeping the bearings out of contact with outside air by wrapping them in rust-inhibiting paper and putting them inside a bag along with a desiccative” is the best method of storage. (Fukushima Daini).

Wrapping them in rust-inhibiting paper and putting them inside a bag along with a desiccative was found to be the most effective means of storage

<5th Competition>

- Manually turning pumps to transfer diesel fuel for emergency diesel generators in the event that the fuel transfer pump is damaged by water thereby rendering the motor inoperable was examined and this transfer method was incorporated into procedures. (Fukushima Daini)

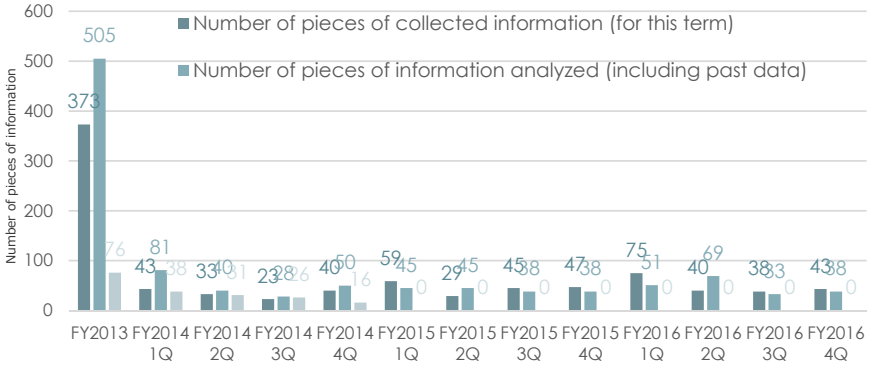
Manually operating fuel transfer pump

- The instrument rack for the spent fuel pool cooling cleanup water system is located next to a walkway thereby making it possible that a pump shutdown signal could be accidentally sent by the detector if it receives a jolt resulting from contact with a passerby or materials being transported. So, a protective fence was installed in front of the aforementioned instrument rack. (Fukushima Daini).

Installation of protective fence around instrument rack

[Measure 3-2. Utilize Operation Experience (OE) Data from inside and outside Japan]

- One of the lessons learned from the Fukushima Nuclear Accident is that we should learn from the failures of others. Assuming that something that happened somewhere else in the world could potentially also happened at a TEPCO power station, we are identifying lessons to learn and deliberating/implementing countermeasures.
- Operating experience (OE[13]) from both within and outside of Japan is being gathered and countermeasures are being proactively deliberated as personnel in the Nuclear Power Division attempts to leverage this information.
  - During the fourth quarter, 43 pieces of new OE information were gathered and 38 pieces of information, including OE information gathered in the past, were analyzed. We will continue to analyze this information in a planned manner and there is no information awaiting analysis that is older than three months.



OE information gathering and analysis

- Focused study sessions are held for important OE information[14] (severe accidents that have occurred within and outside Japan and SOER[15]), as efforts are made to give overviews of these accidents and troubles, and understand the lessons to be learned.
  - During the fourth quarter, total of 132 participants attended a study session concerning "over-dependency on past successes leads to organizational weaknesses" based upon the incident at the Nine Mile Point Nuclear Power Plant in the United States where water levels decreased during reactor shutdown implemented as part of "SOER

[13] Operating Experience

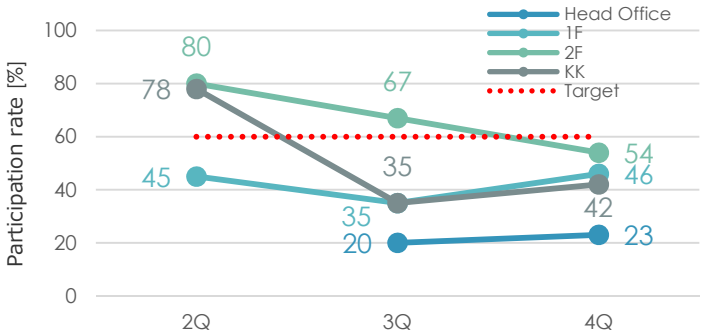
[14] 22 accidents/troubles, including the cable fire at the Browns Ferry Nuclear Power Station, were selected for discussion

[15] Significant Operating Experience Report (SOER) issued by WANO

10-2 departments that think and get involved" (Fukushima Daiichi NPS: January 30, Fukushima Daini NPS: January 31, Kashiwazaki-Kariwa NPS: January 23, March 14, Head Office: January 24). Participating managers commented that, "excellence must continually be demanded of managers," and "I was strongly reminded of the importance of departments that ask questions and think."

SOER study session (Head Office: January 24)

- The participation rate in OE training by managers since the second quarter has been set as a new performance indicator (PI) in order to "look beyond the superficial cause and proactively learned from important OE information." Measurement of this PI has commenced and the participation rate of managers during the fourth quarter was 23% at the Head Office, 46% at the Fukushima Daiichi NPS, 54% at the Fukushima Daini NPS, and 42% at the Kashiwazaki-Kariwa NPS. One of the reasons why participation rate did not increase is because it was difficult for pedestrians to find time in their schedules to attend because training registration information was only given directly prior to the training session, for example.
- OE training is being incorporated into management proven programs for managers. From FY2017 OE training will be implemented in a planned manner in addition to regular study sessions in effort to improve participation rate.



OE training manager participation rate (Target: 60%)

[Measure 3-3. Construct Processes for Improvements Based on Hazard Analyses]

- TEPCO is developing mechanisms for handling accidents and hazards that have a high potential to become "cliff-edge events" and for which the frequency of occurrence is highly uncertain under the assumption that such accidents may occur.
  - The Kashiwazaki-Kariwa NPS finished an analysis of approximately 30 hazardous events in FY2014, and is currently reviewing countermeasures in accordance with the formulated plan.
  - At the Fukushima Daiichi NPS, tornadoes are being used as an example of natural phenomena to examine risk scenarios that involve direct exposure and a release of

radioactive materials resulting from the aforementioned phenomena, in consideration of current risks and the importance level of those risks.

[Measure 3-4. Improve Processes for Periodic Safety Assessments (Safety Reviews)

- TEPCO's improvement activities are not limited to addressing non-conformances, items indicated during safety inspections, or items indicated during third-party reviews. We also conduct safety reviews to proactively and continually improve nuclear safety by delving into the underlying causes of problems.
  - In order to conduct safety reviews of power stations in an effective and organized manner, we have begun deliberating a process for the systematic selection of topics and have compiled a guideline draft. At current time, power stations are concentrating on commenting on this guideline draft.
  - In order to improve the effectiveness of safety reviews discussions were held between the Fukushima Daiichi NPS and the Head Office secretariat (February 7). Along with reconfirming the objectives of safety reviews, how to proceed next fiscal year was discussed and the decision was made to not only focus on non-conformance recurrence prevention and the lateral dissemination of information, but also to eliminate risks that have yet to manifest.
- The status of safety reviews at each power station is as follows:
  - Fukushima Daiichi NPS

    At the end of last year, a questionnaire on the "10 traits of robust nuclear safety culture" was distributed to all employees. Replies on how employees feel on a daily basis about the nuclear safety culture in their departments and the reasons why were gathered. It was found that discrepancies exist in regards to safety awareness between departments and between managers and subordinates, and that there also discrepancies between the hierarchies in regards to the approach to safety. The questionnaire results will be used to provide feedback to each department in regards to which of the 10 traits are weak as we continue on a daily basis to cultivate nuclear safety culture.
  - Fukushima Daini NPS

    Procedures were confirmed and interviews were conducted with implementing departments about tasks for which in-house abilities for handling an emergency must be enhanced (debris removal, motor replacement, cable connecting, pump repair). As a result it was found that there was no detailed instruction for installing or adjusting parts in the pump repair procedures, so the procedures were revised.
  - Kashiwazaki-Kariwa NPS

    The effectiveness of "mechanisms for confirming the impact that field work has on plant safety functions" was verified. It was confirmed that designs and checklists created prior to the commencement of work are being checked by the department in charge of the work and that they are also being examined by experts. Furthermore, checklists created to date were gathered, the areas that should be focused on due to the repercussive impacts that each type of construction has were typified, and efforts to leverage this information when confirming the suitability of checks performed prior to the commencement of construction were commenced. These efforts were also compiled into guidelines.

[Measure 3-5. Promote Improvement Activities through use of the CAP[16] System]

- Of the information that contributes to improving nuclear safety, the root causes of nonconformances, the status of implementation of countermeasures, and OE information is being managed using a system. However, comprehensive analyses of weaknesses of other information and further deeper investigations into the causes are not being carried out.
- Information shall not be limited to just non-conformances and OE information, but rather all

[16] Corrective Action Program

information that is beneficial for improving nuclear safety (management observation results, benchmarking results, external review results, near-miss information, etc.), and managed in a uniform manner by CAP. This will help to reduce redundant improvements and formulate fundamental countermeasures thereby leading to more effective and efficient improvements.

- Improvements to how non-conformance information is managed
  - To prevent non-conformances from recurring, TEPCO revamped the process for analyzing causes and determining the level of corrective measures (management grade) based on the degree of impact of the non-conformance, along with latent risks and the degree to which the event was learned from. This new system was put into use in July 2016 and we have started to see results, such as an increase in the number of cases where the causes of a non-conformance are looked into deeper.
  - There has been a reassessment of the processes for learning not just from non-conformances, but from a variety of improvement information, so it was decided to change the name of the Non-conformance Management Committee to the Performance Improvement Committee from October 2016.
- Enhancement of Improvement Activities by Assigning Personnel Responsible for Improvements
  - To strengthen improvement activities, performance improvement coordinators (hereinafter referred to as, "PICO"[17]) have been assigned to power station departments beginning in October 2016. PICO personnel screen non-conformance and improvement data each day and support trend monitoring and cause analysis, thereby further preventing the recurrence of accidents and non-conformances.
  - Since October 2016, PICOs in each department have been pre-screening non-conformance information during PICO peer meetings and exchanging frank opinions with each other in order to assist with proposing effective countermeasures and to ensure that causes are ascertained. We started to see the following results during the fourth quarter.
    - Discussion at PICO peer meetings are quite thorough due in part to PICOs becoming used to finishing preparations for the PICO peer meetings in advance. Furthermore, discussions on risk that look at the issues from a wide view are being held thereby showing that the skill of PICOs is steadily improving.
    - At the Performance Improvement Committee meeting, discussions that are smooth and to the point are being held because the committee is provided with overviews of the discussions held during PICO peer meetings.
- Further efforts to improve performance
  - During the fourth quarter, an MO system was developed for efficiently gathering and analyzing the results of management observation at each power station and put into trial use. As a result, the weaknesses identified through MO were analyzed by PICO and these results were in turn utilized in coordination with CAP mechanisms to enhance activities to make improvements before troubles and human errors occur.

[Measure 3-6. Improve Ability to Resolve Inter-Departmental Issues (Change Management)]

- An analysis of the Nuclear Safety Reform Plan found that, when resolving issues in which multiple organizations are involved, poor project management is a cause of the slow pace of resolution and insufficiency of anticipated results.
- In order to improve these areas, TEPCO formulated a policy that provides, in principle, not only for full-time project leaders and the specifying and sharing of responsibility and authority, objectives, expectations and deadlines, as well as the provision of regular progress reports, but also enables organizational leaders to respond in a methodical manner when common issues arise.
- TEPCO examined maintenance process improvements (introduction of Maximo[18]), applied

[17] Performance Improvement COordinator

[18] IT solution for strategic asset management

improvement plans, monitored the status of these improvements, and examined the degree of improvement to project management.

- Preparations were made at Kashiwazaki-Kariwa to introduce Maximo, and the transition to the new system was made on October 24, 2016. Since the introduction of Maximo operational status and operational issues have been continually ascertained in order to continually deliberate and implement improvements.
- New task processes using Maximo were put into use in April in conjunction with inspections performed based on the special maintenance plans for Kashiwazaki-Kariwa Units 1-5.
- Furthermore, preparations, such as preparing data, etc., are currently underway to put the system into operation at the Fukushima Daini NPS during the second half of FY2017.
- Also during the fourth quarter briefings on new task processes were given and a poster advertising the commencement of the new task processes was created and posted at the Kashiwazaki-Kariwa NPS and in Head Office nuclear power departments in order to create awareness amongst related parties about process changes.

Displayed posters (Kashiwazaki-Kariwa)

(2) Primary Future Plans

[Measure 3-1. Hold Competitions for Strengthening the Ability to Propose Safety Improvements]

- Awards were given to those people who submitted outstanding proposals during the 6th competition, and also to the departments that implemented outstanding proposals submitted during past competitions.
- The process of bringing outstanding proposals to fruition will be continually monitored and if the process is not going smoothly follow-ups will be implemented quickly.
- Plans for the 7th competition will be made.

[Measure 3-2. Utilize Operation Experience (OE) Data from Inside and Outside Japan]

- Intensive courses taught by overseas experts to learn about major accidents and SOER will be offered in a systematic and planned manner, and OE training instructors at each power station will be cultivated. Through these activities TEPCO aims to have all employees of the Nuclear Power Division gain a thorough understanding of important OE data and the lessons to be learned from it.

[Measure 3-3. Construct Processes for Improvement Based on Hazard Analyses]

- TEPCO will assess the impact of hazards at Fukushima Daiichi NPS based on risk scenarios where the triggering factor is a natural phenomenon, such as a tornado.

[Measure 3-4. Improve Processes for Periodic Safety Reviews]

- In order to effectively conduct safety reviews, TEPCO will create a guide for the process of selecting safety review topics, organize issues related to nuclear safety, such as nuclear safety KPI, etc., based upon this guide, and use it to select topics for the next review.
- At the Fukushima Daiichi NPS, another questionnaire on cultivating nuclear safety culture will be implemented approximately six months from now in order to ascertain the degree to which the situation has improved.
- At the Kashiwazaki-Kariwa NPS, verification of the effectiveness of “mechanisms for confirming the impact of that field work has on plant safety functions” will continue. Problems will be identified in order to improve the mechanism for enabling effective checks.

[Measure 3-5. Promote Improvement Activities through use of the CAP System]

- From FY2017, handling CAP required to improve performance in consideration of the MO system, OE information, MO information, and issues pointed out during external reviews in a unified manner will enable comprehensive analyses thereby allowing identification of root causes and organizational issues, and this information will be laterally disseminated in a timely manner to each department.

[Measure 3-6. Improve Ability to Resolve Inter-Departmental Issues (Change Management)]

- Since monitoring of “maintenance task process improvements (introduction of Maximo)” has shown some results, from FY2017 the focus of monitoring will be switched to activities aimed at resolving issues that affect the entire organization in conjunction with other change management.

2.5 Measure 4. Enhancement of Risk Communication Activities

(1) Fourth quarter achievements

[Measure 4-1. Systematic Appointment and Training of Risk Communicators]

- At current time there are 43 active risk communicators (as of March 31). Training is continually implemented to maintain and improve the skills of risk communicators. During the fourth quarter simulated press conference training, group discussions on external issues, and group training aimed at improving logical reasoning were held.

Presentation training (Left: Presentation, Right: Explanation by instructor)

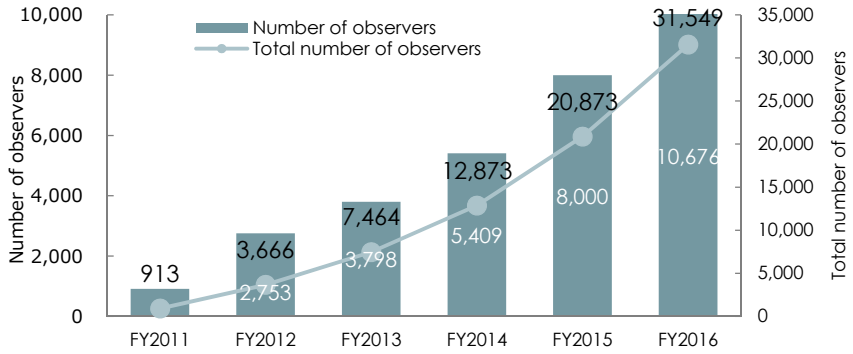
- The Social Communication Office and risk communicators continue to give suggestions to management and the Nuclear Power Division in regards to disclosing and formulating countermeasures for risks (37 suggestions made during the fourth quarter for total of 120 for FY2016)

[Measure 4-2. Risk Communication]

A: Activities in the Fukushima area

- We continue to offer tours of the Fukushima Daiichi NPS in an effort to deepen

understanding by having people see the power station with their own eyes (fourth-quarter: 2,731 people, total for FY 2016: 10,676 people).



Trends in visitors to Fukushima Daiichi (since FY2011)

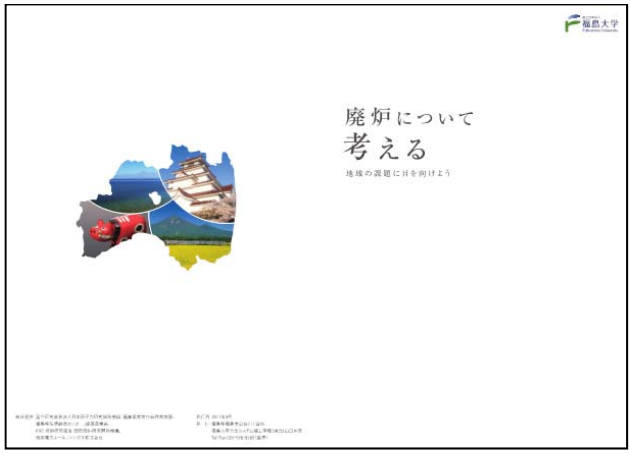
- In an effort to support recovery efforts and convey the realities of Fukushima through the promotion of soccer we have launched the “DREAM the Fukushima Action Plan.” To publicize this plan, we gave tours of the Fukushima Daiichi NPS site to Football Association of Japan Chairman Tajima, J-League Chairman Murai and club players from the J-League and the Nadeshiko League as well as soccer officials. Former Japan national team player, Daiki Iwamasa, commented that, “it was apparent that things have changed” (January 10, March 13).

Tour of Fukushima Daiichi

Ceremony held at the new main building

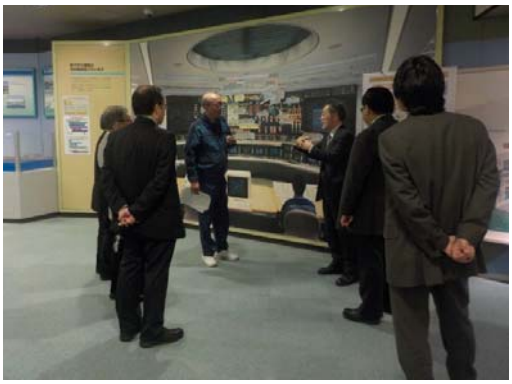
- Some reporting by the mass media on the radiation levels measured during the pre-survey of the inside of the Fukushima Daiichi NPS Unit 2 reactor containment vessel in January could lead to bad rumors. In consideration of this we carefully explained that there have been no troubles, such as the leak of radioactive materials into the external environment, when publicly disclosing radiation level data measured during the internal survey of the Unit 1 and Unit 2 reactor containment vessels performed thereafter.
- At the 12th meeting of the Fukushima Council on Decommissioning and Decontamination Measures (March 4), videos, etc., were used to give explanations of issues that are of high concern to society, such as the internal survey of the Fukushima Daiichi NPS Unit 2 reactor containment vessel, and the effectiveness of the land-side impermeable wall (frozen soil wall). Attendees commented that, “more effort is to be put into disseminating information overseas in light of the reporting by overseas media about the impact of radiation from Unit 2,” “information has to be conveyed from the perspective of society more so than it was during the disaster,” and “recurrence prevention measures have to be thoroughly implemented so as to prevent human errors like those that occurred in December of last year from happening again.”
- As part of the “Project for Cultivating Human Resources to Continually Assist with Reactor

Decommissioning Efforts in the Fukushima Region" subsidized by the Ministry of Education, Culture, Sports, Science and Technology, in FY2016 Fukushima University created a pamphlet that explains the accident and the current countermeasures being implemented, as well as human resources needed in the field entitled "Thinking about Reactor Decommissioning." TEPCO provided photographs and schematics to be included in this pamphlet. Through the distribution of this pamphlet we hope that university students in Fukushima Prefecture will gain an understanding of the Fukushima Daiichi NPS accident as well as the technical issues and appeal of working on reactor decommissioning.



Fukushima Daiichi Decommissioning Human Resource Training Pamphlet (photo)

- We continue to have interaction with educators. During the fourth quarter, an update on the latest conditions of Fukushima Daiichi NPS reactor decommissioning and tours of the Kashiwazaki-Kariwa NPS was given to university professors from Hokkaido who are experts in providing education to the next generation about energy. Tour participants commented that, "the tour was very helpful from the point of view of creating educational materials for the next generation in regards to the final disposal of radioactive waste." We will continue to listen to the requests of educators and cooperate with educating the next generation on energy environments and radiation.



Tour of Kashiwazaki-Kariwa by Hokkaido energy education officials

- The 1 FOR ALL JAPAN website that was launched for approximately 6,000 workers in Fukushima Daiichi in October 2015 continues to be operational. The website gets an average of approximately 28,000 hits per month. Furthermore, every month we distribute approximately 2,000 copies of the Monthly 1F newsletter to workers on site and people that tour the Fukushima Daiichi NPS facility.

Monthly 1F Newsletter (March 2017 issue)

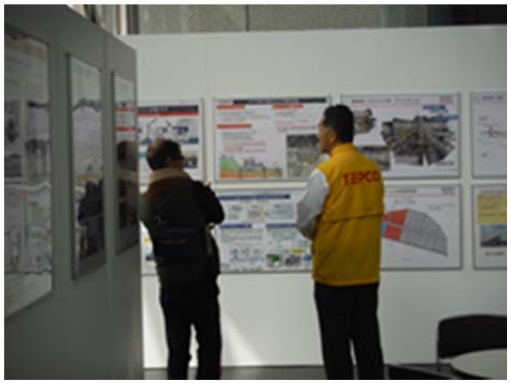
B. Activities in the Niigata Area

- In the Kashiwazaki-Kariwa region, visits have been made to the chairman of the Kashiwazaki City Council and the Ward Chief of Kariwa Village, as well as many community residents, to hear their opinions and questions, and invite them to tour the power station. The number of people that tour the power station during the fourth quarter is as follows: from Niigata Prefecture: 1,075 people, total [19] : 37,476 people, Kashiwazaki-Kariwa region: 549 people, total: 14,466 people.
- "*Fureai* Talk Salons" have been opened at TEPCO PR facilities (Service Hall, TEPCO Fureai Salon Ki-na-se, Energy Hall) to engage primarily women in the siting community and hear their opinions. At these salons, explanations are given of the safety measures being implemented at the Kashiwazaki-Kariwa NPS based upon the lessons learned from the Fukushima Nuclear Accident, opinions are exchanged, tours of the power station sites are offered and cultural seminars given. And, opinions are exchanged with people working at companies in the siting community at tea parties.
- We have also started the distribution of the "TEPCO Press," a newsletter included in newspapers, to the residents of Niigata Prefecture in which messages from Niigata Headquarters President Kimura are conveyed. We plan to distribute this newsletter once each quarter in conjunction with the timing of press conferences given by the Niigata Headquarters President (the fourth quarter newsletter was issued on January 24).

[19] Cumulative total since of the Fukushima Nuclear Accident

TEPCO Press Issue #1

- An opinion exchange session with female intellectuals living in Niigata Prefecture was held on the current conditions at the Fukushima Daiichi NPS and the seismic isolated building problem (March 6-7). A questionnaire distributed after the session revealed that approximately 70% of the 59 participants were satisfied with the discussion.
- Communication booths have been established in Joetsu City, Niigata City and Nagaoka City in Niigata Prefecture (Joetsu City: February 1-5, Niigata City: March 8-12, Nagaoka City: March 17-21). An explanation of the seismic isolated building problem was given to residents of Niigata Prefecture in conjunction with an explanation of the status of safety measures at the Kashiwazaki-Kariwa NPS, opinions were heard and questions answered.


Niigata City communication booth

C: Information conveyed by management through press conferences

- In the Fukushima area, Fukushima Revitalization Headquarters President Ishizaki and Fukushima Daiichi Decontamination & Decommissioning Engineering Company (FDEC) President Masuda hold regular press conferences at the end of each month to give updates on the status of activities at the Fukushima Revitalization Headquarters and explain the status of progress with decommissioning and contaminated water countermeasures at the Fukushima Daiichi NPS. Separate regular press conferences are also being held by FDEC President Masuda to convey the results of the internal surveys of the Fukushima Daiichi Unit 1 reactor containment vessel (March 27).

D: Conveying information in an easy-to-understand manner, and leveraging social media

- We continue to use videos to give explanations in order to deepen understanding of various

technical issues and initiatives related to nuclear power. When conveying information about the Unit 1 PCV internal survey we tried the new approach of creating and disclosing videos in which risk communicators explain the information conveyed during press conferences in an easy-to-understand manner that targets the general public.
  - Explanation of the Unit 2 reactor containment vessel internal survey (March 9).
  - Explanation of the Unit 1 reactor containment vessel internal survey (March 29).
- The following information is being continually conveyed through the website in order to convey the current conditions at the Fukushima Daiichi NPS.
  - "Road to Decommissioning" update (March 8).
  - "I will answer your questions" update (March 10).
  - Fixed point photo album to visually convey the status of progress of field work (continually updated).
  - In order to provide information on the environmental impact around the Fukushima Daiichi NPS, data from miscellaneous solid waste incinerator facility building exhaust stack monitors, site border dust monitors, and port entrance seawater radiation monitors is continuously updated.
- Information is continually disseminated through the TEPCO Facebook page
  - Posts are made about improvements made to the working environment and the progress with Fukushima Daiichi reactor decommissioning in order to dispel rumors that "Fukushima Daiichi NPS = dangerous worksite" (number of posts made during the fourth quarter: 14, total: 77).

Photos from March 11 (from Facebook)

  - Posts introducing safety measures at Kashiwazaki-Kariwa (posts made during the fourth quarter: 2, total: 17)
  - RC Series posts about the current state of conditions at the Fukushima Daiichi NPS (number of posts made during the fourth quarter: 2, total: 24)
- On January 12, we started conveying information through TEPCO's official smart phone app that enables users to receive messages from the TEPCO Group as well as messages about earthquakes, rain clouds, and power outages. This app has enabled us to quickly convey information about the status of facilities at TEPCO nuclear power stations in the event of an earthquake, etc.
- We've also created a page on our website for a live video of "Today's Reactor Decommissioning Status" that can be viewed easily from a smart phone to convey information about the work being done at the Fukushima Daiichi NPS.

E: Disseminating information overseas

- Information disseminated about the Unit 1/2 PCV internal surveys:
  - Information about the series of Unit 2 PCV internal surveys conducted in January was disseminated in English, however some overseas tabloids mistakenly reported that as a result of the surveys high radiation levels were measured at the Fukushima Daiichi NPS and that radioactive material had been discharged outside the power station. We quickly corrected this information and made efforts to convey accurate information such as by sending an interview with FDEC President Masuda to leading media outlets

overseas. In light of this experience, when conducting the Unit 1 PCV internal survey we conveyed in advance information about the possibility of measuring high radiation levels and the impact on the external environment, and actively conveyed information to stakeholders, such as by giving advanced briefings to the embassies of various nations.

- There is particular interest abroad about our robot survey initiatives. Therefore, we created a video in English that focuses on the feelings of the Toshiba engineers involved in developing the self-propelled survey device used to perform the internal survey of the Unit 2 PCV and posted it on Facebook. Compared to the viewer rate of typical videos put on Facebook of 1,000-1,500 people/video, this video was viewed by approximately 15,000 people and was played more than 1 million times.

- Conveying information through overseas media outlets
  - In continuation from last year the documentary on Fukushima aired on the Discovery Channel on CS is still being made. This documentary that conveys the current status of recovery efforts and efforts to return Fukushima residents to their homes in conjunction with changes and the progress of work at the Fukushima Daiichi NPS is being aired in 15 Asian countries* in addition to Japan. We believe that getting as many media outlets as possible to convey what steps are being taken to return Fukushima to the way it was in a multifaceted manner contributes to dispelling bad rumors and we plan to continue to take advantage of these opportunities in the future.

Program title: “Fukushima on the frontline A New Hope (first aired March 11)

(*Countries/regions in which the documentary is airing: Japan, Taiwan, Malaysia, Philippines, Thailand, Brunei, Cambodia, Hong Kong, Indonesia, Singapore, Myanmar, Papua New Guinea, Macao, Mongolia, Vietnam, Korea)

  - In consideration of continuing discussions to eliminate the Taiwanese ban on food product imports from five prefectures, including Fukushima, we got Taiwanese Public Television to do a story on the status of ocean radiation level monitoring and the current conditions at the Fukushima Daiichi NPS. The story that aired showed that we were engaging in strict monitoring and showed work being done in the chemical analysis building as well as ocean water sampling done in the port (February 6).

- Conveying information in an easy-to-understand manner and leveraging social networking services
  - Information continues to be conveyed to more than 700 intellectuals and representatives of the media in foreign countries via an email magazine. During the fourth quarter, much information was conveyed about the PCV internal surveys implemented using robots and on the sixth anniversary of 3.11 (number of messages sent during the fourth quarter: 7, total: 13).
  - Information continues to be conveyed via Facebook and Twitter. Consideration of the great interest in videos, we post videos that are a compilation of photographs and also send news alerts to members of the media.
    - Facebook posts during the third quarter: 26, cumulative total: 102, tweets: 110, cumulative total: 420

- Along with the results of seawater sampling, the status of the land-side impermeable wall, the status of the storage and treatment of accumulated water inside buildings, and data on worker exposure, etc., which continue to be disclosed on the English version of our website, we have also started posting plant parameter changes in real time (water levels, pressure, temperature, etc.) (March 30).

- Interaction with foreign embassies in Tokyo
  - Risk communicators continue to visit foreign embassies in Tokyo to give briefings. During the fourth quarter briefings were given at the embassies of the United States, Australia, Korea, and Taiwan.
- On March 1 a tour of the Fukushima Daiichi NPS was given to representatives from the British Embassy in Tokyo. The ambassador commented that, “the workers engaged in decommissioning are playing an important role, and I can see that much progress has been made with recovery. England will continue to support the decommissioning process and we hope to continue to work closely together.”

F: Internal communication

- In order to come together and fulfill our responsibilities to Fukushima, more opportunities are being developed to provide information within the holdings company and to each core company, and also interact with the Nuclear Power Division.
  - As we approach the sixth anniversary of the March 11 disaster, a panel poster has been created to convey the status of Fukushima Daiichi decommissioning and activities to promote recovery efforts in order to cultivate a sense of unity amongst group employees. This poster has been posted at approximately 140 locations in each office, on the front lines in the field, and even in the Head Office. Furthermore, at the new main building at Fukushima Daiichi, President Hirose directly addressed to the employees and contractors working at the Fukushima Daiichi NPS to talk about his feelings toward recovery and reactor decommissioning, and the Head Office General Manager of the Nuclear Power and Plant Siting Division Anegawa also directly conveyed his feelings about improving nuclear safety to the employees of the Nuclear Power Division. Furthermore, group discussions were held in each office to face the facts of the accident, learn carefully from it, and remind each and every employee that they must continually think about what they can do to help Fukushima recover in order to increase a sense of mission and fulfill our responsibilities.

In-house panel posters (three in a set)

- Comments from FDEC President Masuda on the status of Fukushima Daiichi NPS

reactor decommissioning work were posted on the company's intranet (February 27).

- The contents of newspaper and television stories concerning TEPCO, and explanations about decommissioning work are being aired on the company's internal television system (fourth quarter: 14 stories, cumulative total: 54 stories).
- The TV program "*Tepu-Damashi*" shown on the company's internal television system that focuses on the conviction of employees did a special on new employees that have given their all to decommissioning work at the Fukushima Daiichi NPS.
- Information on the progress of Fukushima Daiichi NPS decommissioning is also now being included in the group newsletter. Contents to date has included explanations of the internal survey of the Fukushima Daiichi NPS Unit 2 PCV, current conditions at the Fukushima Daiichi NPS, the opinion exchanges held between FDEC President Masuda and young employees, and an interview with Fukushima Revitalization Headquarters President Ishizaki.

[Measure 4-3. Promote and Support Risk Communication Activities

A: Questionnaire on information disclosure

- In order to obtain an objective assessment from society of TEPCO's communication activities, a questionnaire was distributed to those parties receiving the information conveyed by TEPCO, namely, the people of the Tokyo metropolis, Fukushima, local governments in Niigata, commercial organizations, consumer organizations, and the employees of foreign embassies in Japan.

  <Questionnaire overview>

  - Replies were anonymous
  - Reply period: September 12, 2016 through November 4, 2016
  - Total number of replies received: 168 (reply rate: 72%)

  [Assessment Results]

- Respondents were asked to evaluate the degree to which TEPCO's communication activities have improved based on a seven-step scale from -3 to +3 (no change = 0) from the perspective of, "compared to one year ago, to what extent has TEPCO's approach to communication improved?"

1. The average assessment for all areas of the quality/quantity of information conveyed in regards to Fukushima Daiichi NPS reactor decommissioning work, nuclear power safety reforms, and accident/troubles, was +0.9[20] thereby showing an "improving trend."

	Tokyo metropolis	Fukushima	Niigata	Overseas	All areas
Total assessment points	+0.6	+1.0	+1.0	+1.0	**+0.9**
Total number of responders	47	61	55	5	168

2. The average assessment for all areas of the awareness/approach to corporate communications/public hearing activities by TEPCO was +0.9 thereby showing an "improving trend."

	Tokyo metropolis	Fukushima	Niigata	Overseas	All areas
Total assessment points	+0.8	+0.7	+1.0	+1.1	**+0.9**
Total number of responders	47	61	55	5	168

[20] Corrected from +1.0 as noted in the Q3 Special Report values.

[Assessment results from comments section of questionnaire]

- The assessment received of TEPCO's communication activities is as follows:
  - Diagrams, photographs, and videos are being used in the dissemination of information thereby making information easy-to-understand and information is being disseminated frequently using many different types of tools (1 FOR ALL JAPAN website, Monthly 1F newsletter).
  - Added value, such as explanations and quicker dissemination of information, is required to make further improvements.
  - There are still a lot of technical terms being used making explanations difficult to understand by the layman, so materials that are easier to understand need to be created for local residents.

B: Gathering knowledge from overseas

- In order to provide support for decommissioning in the communications field and improve not only the information conveyed to local residents but also the ability to promote dialogue, since May 2016 we have held monthly "Fukushima-West Cumbria Study" sessions during which we mutually learn from Sellafield Ltd. in the UK.
  - 7th Session [Initiatives and Strategies related to Sellafield's Printed Materials] (January 23)

    Information on "Sellafield Magazine" issued by Sellafield, Ltd. was presented, such as how the magazine has developed since it was first issued, content selection based upon feedback from readers and employees, the well-designed layout, and the usefulness of editing guidelines created in-house. This information will be referenced going forward as TEPCO creates communication tools.
  - 8th Session [Video content on the Fukushima Daiichi Nuclear Power Station] (March 27)

    The video created by TECO entitled "The Fukushima Daiichi Nuclear Power Station Today ~From That Day into the Future~" was shown. Sellafield, Ltd. commented that, "the video would be easier to understand if more statistics were used," and "it would be better if the video focused more on the work environment," and these comments have been reflected in the guidelines for worker website content and monthly newsletters.
- Members of the regional information committee (an organization that serves to disclose information to residents of the local community) from Manche, France were given a tour of the Fukushima Daiichi NPS. The committee commented that, "the initiatives engaged in to date shall serve as an innovative turning point for the development of nuclear safety." We plan to use this event as an opportunity to communicate with the city of La Hague, which has a reprocessing facility.

C: Improving the ability of PR managers to handle risks through media training

- In order to improve the ability of PR managers to handle risks, instructors from outside the company are continually invited to provide training on how to handle cases of risk while referring to events that have occurred at other companies (fourth quarter: 20 participants, cumulative total: 79 participants).

(2) Primary measures going forward

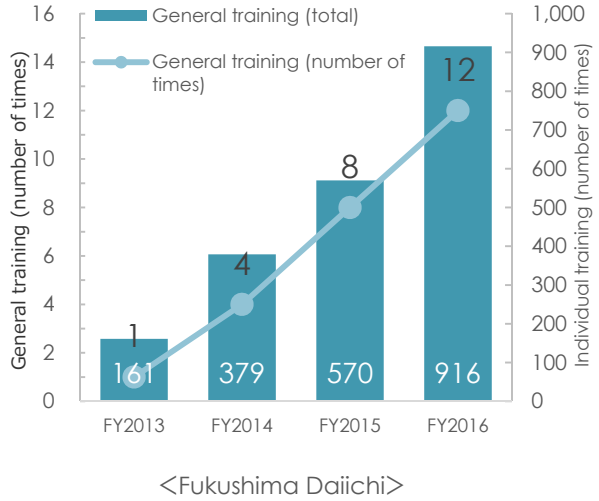
- Questionnaires on information disclosure will continue to be distributed in order to assess the quality/quantity of information disseminated, and the significance/company approach to corporate indications and public hearing activities. The questionnaire will also be distributed to a wider segment of the population.
- We are also deliberating providing communications training to all employees since weaknesses in how information is shared internally were identified as underlying contributors to the Kashiwazaki-Kariwa NPS seismic isolated building problem.

2.6 Measure 5. Enhancement of Power Station and Head Office Emergency Response Capabilities

(1) Fourth Quarter Achievements

[Enhance the Emergency Response Capabilities (Organizational) of Power Stations and the Head Office]

- In accordance with the Mid- to Long-Term Plan formulated in March of last year, TEPCO has been conducting emergency response training and general training that addresses issues identified during general training at each power station, the core meltdown problem, and the status of New Regulatory Requirements compliance reviews under way at the Kashiwazaki-Kariwa NPS.
- Training on handling simultaneous disasters caused by an earthquake was held at the Fukushima Daiichi NPS, Fukushima Daini NPS and the Head Office. Under the guidance of the Head Office the effectiveness of mechanisms for ascertaining/sharing information on the impact of radiation, and reflecting this information in countermeasures was confirmed.
- At the Kashiwazaki- Kariwa NPS, training was conducted on moving to the Unit 5 Technical Support Center (TSC) in light of the relocation of the TSC from the Unit 3 to Unit 5 in conjunction with New Regulatory Requirements compliance reviews for Units 6 and 7. The effectiveness of relocating to the unit 5 TSC was confirmed by measuring the time it took to arrive at the center via multiple access routes from evacuation locations on high ground.
- We are continually conducting individual and general training sessions in order to improve the emergency response skills and operability of departments in times of emergency. The number of times training sessions were held at each power station are shown in the charts below.



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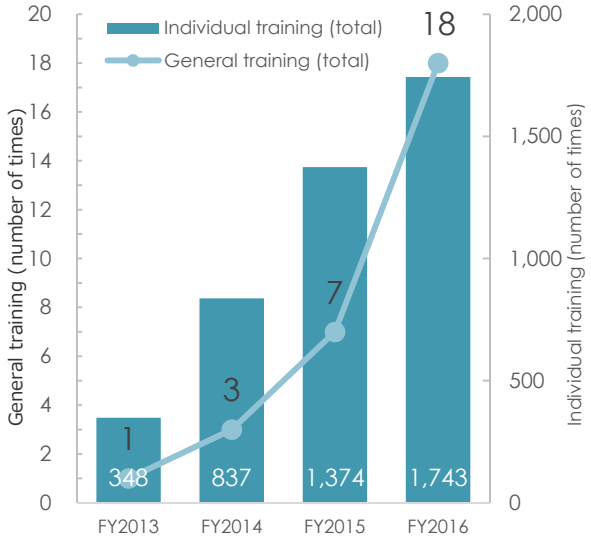

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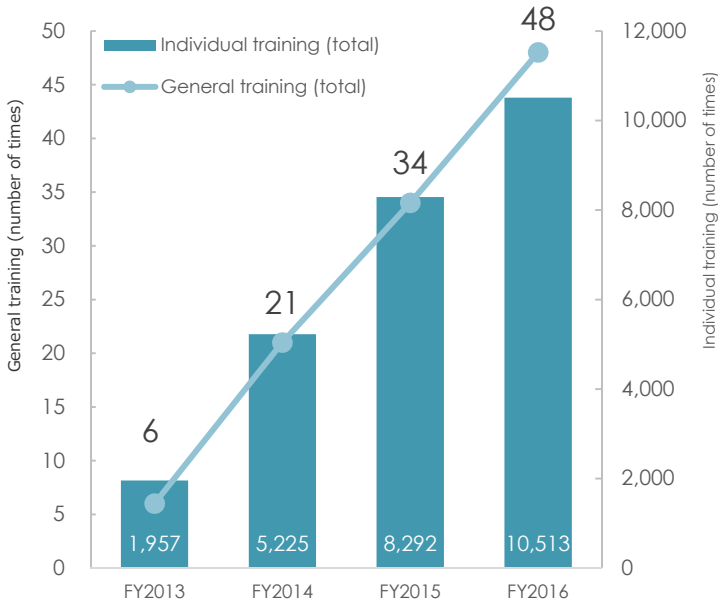


<Kashiwazaki-Kariwa>

- Fukushima Daiichi NPS
  - Joint training was held with the Fukushima Daiichi NPS, Fukushima Daini NPS and the Head Office on March 28.
  - At the Fukushima Daiichi NPS. Training on station blackouts caused by an earthquake was conducted. Training focused on how the power station responded to a station blackout by deliberating repair procedures that consider the impact of equipment that has shut down and deciding on countermeasures at “Objective Setting Meetings.”
  - The hindering of TSC operations caused by the large number of personnel that participated in the objective setting meeting, which was identified as a problem during the last training session, was rectified by limiting the number of participants thereby allowing a continual and uninterrupted emergency response.
  - Furthermore, the important information from Fukushima Daini and information on extent of damage at the Fukushima Daini NPS were shared with the Head Office via an IT system thereby allowing the Fukushima Daiichi NPS to ascertain impact and make changes to evacuation routes in accordance with rising readings at Fukushima Daini monitoring posts.
  - An issue to address going forward is installing additional equipment to ensure that site dust monitors have power and will not be rendered inoperable by a station blackout. Furthermore, the roles of team leaders under the supervision of the field countermeasures supervisor will be clarified so as to relieve the burden on the field countermeasures supervisor who is responsible for taking command of the entire plant response and to which an overwhelming amount of information was given during training.


Power station emergency response center Objectives setting meeting

- Fukushima Daini NPS
  - General training was held on January 26, February 23, and March 28.
  - At the general training session held in January, training was implemented using a scenario in which an earthquake caused a station blackout at night on a weekday. Since the scenario played out at night, after the accident occurred the officer in charge assembled personnel and a situation in which personnel gradually assembled was simulated. Difficulties were seen with choosing the right time to share information amidst an escalating disaster, and personnel that arrived late on the scene were not able to sufficiently ascertain the conditions of the accident. Training on responding to an accident at night and during holidays will be repeated in order to strengthen the response.
  - At the training session held in March, training was held on simultaneous disasters stemming from an earthquake occurring at the Fukushima Daiichi NPS and the Fukushima Daini NPS as part of group company training. It was assumed that an accident occurred at the Fukushima Daini that resulted in damage to the spent fuel pool and a decrease in water levels. At the objectives setting meeting countermeasures were formulated to restore water levels amidst rising radiation levels. Decisions were shared at the right time with the Fukushima Daiichi NPS and the Head Office via an IT system. And, Head Office liaisons were assigned to gather necessary information and provided to the Head Office in order to share information with the Head Office smoothly.
- Kashiwazaki-Kariwa NPS
  - General training was implemented on January 27, February 24, and March 11.
  - During general training in February, it was assumed that an earthquake had simultaneously caused damage to both Units 6 and 7. At Unit 6, a station blackout resulted in loss of reactor cooling water injection function thereby causing core damage, and during training the decision was made to filter vent of the PCV.
  - At Unit 7, the scenario was that a loss of coolant outside the reactor containment vessel resulted in a leak of primary coolant into the reactor building, after which release of the blowout panels resulted in an external discharge of radioactive materials. When inoperability of the ordinary fax line was simulated, there was some time after the commencement training during which alternate means of communication were not accurately conveyed, and the notification form was not received in a timely manner by the Head Office, which is an issue that needs to be addressed.

General training (February 24)

- During training in March, training on moving to the Unit 5 Emergency Response Center, evacuating to high ground from the main building and assembling personnel from Kashiwazaki City and Kariwa Village was conducted.
- During training on moving to the Unit 5 Emergency Response Center, access routes were confirmed and the amount of time required to relocate on foot was measured (100 participants). Trainees started from the evacuation area on high ground and split up into two groups to take two different routes. Even though 90 minutes had been allotted to arrive, in reality trainees taking the paved route required only 28 minutes to arrive at the ERC, and trainees taking an unpaved route made the journey in 45 minutes.

Training on moving to the Unit 5 Emergency Response Center
(unpaved route: March 11)

- During training on evacuating to high ground from the main building, 698 people participated and the members in each group assembled while checking on the safety of each other. Everyone was able to evacuate in 33 minutes, which is less than the 60-minute time limit that had been set.

Training on evacuating to high ground
(March 11)

- During training on assembling personnel from Kashiwazaki City and Kariwa Village, trainees started at Energy Hall in Kashiwazaki City and split up into two groups each taking a different route. Another group from Kariwa Village took another route and the time required for it to arrive was measured. Three hours were allotted to each group to arrive and the groups from Kashiwazaki City arrived in one hour and 52 minutes (9.0 km), and one hour 52 minutes (9.8 km), while the group from Kariwa Village arrived in 46 minutes (4.2 km) thereby showing that personnel has more than enough time to assemble at the power station regardless of how bad road conditions are.

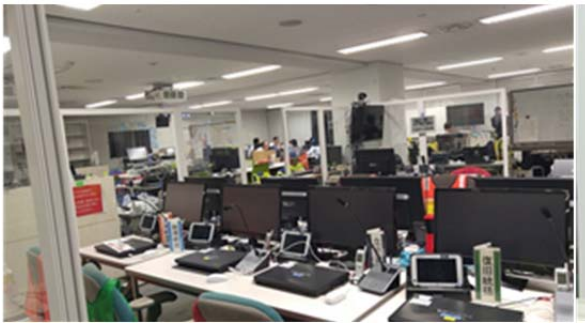
Training on assembling from Kashiwazaki City and Kariwa Village
(March 11)

- Head Office
  - Joint training was held with the Kashiwazaki-Kariwa NPS on February 24, and with the Fukushima Daiichi NPS and the Fukushima Daini NPS on March 28 as part of group company training.
  - During general training with the Kashiwazaki-Kariwa NPS in February, after the decision was made to filter vent the Unit 6 PCV, and objectives setting meeting was held to determine what to do after venting. However, after filtered venting of the PCV, objectives for the Head Office that differ from what had been previously discussed at objectives setting meetings as the role of the Head Office, namely to provide mid/long-term recovery support for the power station, assist with community resident evacuations, and handle the media, were set. Therefore, we will continue to repeatedly implement training and make improvements.
  - During joint training in March with the Fukushima Daiichi NPS and the Fukushima Daini NPS, general training on simultaneous disasters resulting from damage by an earthquake occurring off the coast of Fukushima Prefecture to both the Fukushima Daiichi NPS and the Fukushima Daini NPS was conducted as part of group company training. Training was held on coordinating with power grid companies in conjunction with the loss of off-site power to the Fukushima Daiichi NPS, and also coordination between corporate communications departments to hold a group company press conference and provide information to the Hamadori Power System Office in conjunction with the Clause 10 and Clause 15 notifications given in accordance with the Act on Special Measures Concerning Nuclear Emergency Preparedness (hereinafter referred to as, “Nuclear Emergency Act”).
  - An IT system was leveraged to share information on the results of objectives setting meetings held at the Head Office with the Fukushima Daiichi NPS and the Fukushima Daini NPS, and the use of COP[21] at Head Office objectives setting meetings was commenced. Decisions made at objectives setting meetings held at not only the Head Office, but also power stations, were saved in shared folders in an effort to construct a

[21] Common Operating Picture

mechanism for sharing important information. Furthermore, since the protective measures that each power station should implement change in accordance with the changes to accident conditions at the Fukushima Daiichi NPS and the Fukushima Daini NPS, the Head Office commander directly relayed Nuclear Emergency Act Clause 10 and Clause 15 notifications given by each power station and EAL[22] related to increases in radiation levels.

- In regards to the layout of the disaster response center, as with the disaster response center at Kashiwazaki-Kariwa, a glass partition was erected around the roundtable for the general managers and commander so as to prevent command/management from being hindered by noise and the constant common goal of people. Coordination between power grid company, corporate communications, and the Hamadori Power System Office was pretty good as was the provision of information from the Head Office to each power station. On the other hand, when sharing information within the disaster response center, the isolation of the general manager's seats hindered communication with team members so we will continue to make improvements to the layout.



Installed glass partitions

Isolated general manager's seats

(2) Primary future plans

- The Mid-/Long-Term Plan created as a fiscal year plan was to be revised during the fourth quarter, however it was decided to make revisions during the first quarter of FY2017 upon assessing the results of training to date.
- The power stations and the Head Office will continue to implement training on voicing instructions and replacing stand-ins. In particular, training and education required of personnel that will be transferred will be implemented prior to them taking up their new positions.

2.7 Measure 6. Development of Personnel for Enhancing Nuclear Safety

(1) Fourth Quarter Achievements

[Measure 6-1. Improve in-House Technical Skill to Prevent Severe Accidents]

- Maintenance Personnel Initiatives
  - Fukushima Daiichi NPS

    We are continually implementing training to develop in-house technical ability (training on the operation of power supply vehicles, temporary laying and connecting of hoses, and training on the use of heavy equipment, etc.) in order to improve the ability to respond to emergencies.

[22] Emergency Action Level

Training on laying and connecting temporary hoses
(Left: Moving and laying hoses, Right: Connecting flanges)

Crane operation training
(Left: Mobile crane operation, Right: Lowering loads)

- Fukushima Daini NPS

  In order to improve the ability to respond to emergencies we are conducting repetitive training drills with four teams (① debris removal/road repair,② generator replacement,③ temporary cable connecting,④ coolant pump repair). Additionally, we are leveraging the skills obtained through training to confirm the conditions of roads using unmanned aerial vehicles (“drones”), and also remove debris using a backhoe with a fork like attachment to simulate conditions that we would face after a tsunami. During drone training, live video images were sent to the seismic isolated building thereby enabling coordination between workers in the field and the TSC. We will continue training to develop creativity and innovation so as to be able to flexibly deal with a variety of circumstances.

Training on removing debris with heavy machinery Checking debris conditions with a UAV

Confirming photos taken with drones on a monitor in the seismic isolated building Technical Support Center

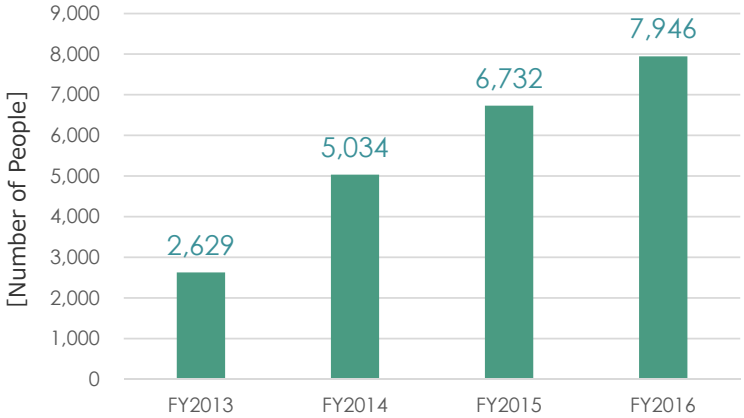
- Kashiwazaki-Kariwa NPS

  In order to improve the ability to respond to emergencies, we are conducting training on assembling and disassembling scaffolding, welding/cutting/grinding, gas turbine generator truck/power supply car operation, duct repair, forklift/Unic truck/heavy equipment operation, valve disassembly inspection, and horizontal pump disassembly inspection. Furthermore, we are expanding the scope of our emergency responsibilities by having materials and equipment for directly connecting high-voltage cables and terminal connections on hand and commencing training to acquire skills and improve structural understanding. We will continue to implement repetitive training to maintain and improve technical capability.

Valve disassembly inspection training (valve seat lapping)

Horizontal pump disassembly inspection training (casing lowering)

High voltage cable splicing training
(Left: Cable cutting/shield removal, Left: Splicing)



Trends in the number of maintenance personnel participating in in-house training
(Total for 1F, 2F, and KK)

- Operator initiatives
  - Fukushima Daiichi NPS

    Unit 5 and 6 operators have engaged in fire engine and power supply truck training since FY2014. As of the end of March, 41 operators had been certified on the operation of fire engines thereby exceeding our 34-operator goal (80% of the 41 operators in the field) (fill-rate: 120%, increase of one operator over the third quarter), and 41 operators had been certified on the operation of power supply cars (fill-rate: 120%, increase of two operators over the third quarter). The priority for Unit 1-4 operators is to acquire skill in operation management, such as the use of contaminated water treatment equipment, and spent fuel common pool equipment, etc.
  - Fukushima Daini NPS

    Training on fire engines and power supply cars commenced in FY2014. As of the end of March, 20 operators have been certified on the operation of fire engines thereby meeting our 22-operator goal (80% of the 27 operators in the field) (Fill-rate: 91%, decrease of one operator from the third quarter), and 27 operators had been certified on the operation of power supply cars (fill-rate: 123%, increase of one operator over the third quarter). The fill-rate for certified fire engine operators fell below 100% as a result of the transfer of operation shift team members, but fill-rate should be satisfied during the first quarter of FY2017.
  - Kashiwazaki-Kariwa NPS

    Fire engine and power supply car operation training commenced during FY2013. As of the end of March, 116 operators have been certified on the operation of fire engines thereby exceeding our 96-operator goal (80% of the 121 operators in the field) (Fill-rate: 120%, decrease of ten operators from the third quarter), and 113 operators had been certified on the operation of power supply cars (fill-rate: 117%, decrease of 6 operators over the third quarter). During power supply car training, in addition cultivating instructors within the operation shift team and conducting training on the normal start-up of power supply cars, training was also implemented on manual switching in the event of an intake exhaust damper malfunction. Efforts have also been made to cultivate certified instructors within operator training teams and as of the end of March, 150 instructors (increase of 10 operators from the third quarter) had been trained. Efforts are also being made to improve the ability of not only maintenance personnel but also operators to diagnose equipment troubles in conjunction with the increase in the number of operators that has occurred in order to handle emergencies. These operators have obtained internal certification on equipment diagnostics and are now continually sampling data for approximately 140 pieces of rotating equipment at Unit 7. This has led to an improvement in the abilities of field workers, such as the acquisition of a wide variety of knowledge related to equipment and also an increased interest in equipment status.

Initiatives to improve the in-house technical skill of operators (number of skill certifications)

Power Station	Fire Engine		Power Supply Truck	
	Number of skill certifications (compared with the last quarter)	Fill rate	Number of skill certifications (compared with the last quarter)	Fill rate
Fukushima Daiichi	41 people (+1)	120%	41 people (+2)	120%
Fukushima Daini	20 people (-1)	91%	27 people (+1)	123%
Kashiwazaki-Kariwa	116 people (-10)	120%	113 people (-6)	117%

[Measure 6-2. Improve Operational Specialization]

- Training and Assignment of System Engineers
  - 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. These monitoring activities also serve to identify areas in which reliability can be improved, which lead to overall improvements.
  - We currently have five system engineers and during the fourth quarter three out of these five engineers past skill confirmation interviews required to expand the scope of systems that they are in charge of, after which the total number of systems that these engineers are in charge from was increased[23] to total of 17. Going forward, training and education will be continued in order to expand the number of systems that these engineers are responsible for as well as secure and train more personnel in order to achieve our goal of having five system engineers for each reactor.

System engineer skill certification oral interview

- Establishing configuration management
  - 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

[23] The following five systems were added: reactor coolant recirculation system, boric acid cooling water injection system, high pressures substitute cooling water injection system, substitute power source equipment, containment vessel pressure relief systems. Up until the third quarter five engineers were in charge of the following 12 systems: residual heat removal system, reactor isolation and cooling system, emergency gas treatment system, main control room ventilation and air conditioning system, emergency diesel generator equipment, emergency diesel generator fuel transport system, condensate replenishing system, reactor auxiliary seawater cooling system, high-pressure reactor coolant injection system, reactor containment vessel, ventilation and air conditioning systems (local air-conditioners), and ventilation and air conditioning systems (reactor zones).

operated as designed. Deliberations continue on constructing a systematic process for maintaining and managing a state in which design requirements, actual equipment, and equipment schematics all match.

- During FY2016 deliberations continued on writing and maintaining TEPCO design guidelines for information related to design requirements, for which we had been overly dependent upon station manufacturers to obtain. With the help of exceptional engineers from operators in the United States who have already made these preparations, we completed a draft of these design guidelines. Going forward we will write design guidelines for safety system equipment starting with equipment that is subject to New Regulatory Requirements compliance inspections.
- Exceptional engineers from operators in the United States that already have exceptional processes in place are also providing support as we move forward with deliberating configuration management and we have created management procedures. Detailed design of systems for which these procedures are to be used as also been completed. Going forward, these systems will be developed, put into trial operation along with procedures, and put them into use in conjunction with opening of the Nuclear Engineering Center.

[Measure 6-3. Maintain and Improve Technical Skills Necessary for Operations]

- Revising Education & Training Programs for the Field Skill Certification System
  - The content of education and training to develop nuclear technologies (safety), which has been newly added as a skill certification category, has been developed in the following areas in order to maintain the advanced skills required in the field of nuclear safety and also cultivate personnel that can instruct younger generations. Training under these revisions commenced in February.
    - Nuclear safety overview, reactor principles
    - Safety design
    - The safety equipment and safety functions of nuclear power facilities
    - Probabilistic risk assessments (PRA)
    - Handling events that exceed to design standards
  - The revision of training objectives, training materials, and test questions has been completed in order to implement training from FY2017 that is more systematic and that more accurately resembles actual work in the four fields that have conventionally been subject to certification (operations, maintenance work, radiation & chemical control and fuel). Training based upon these revisions will commence and continual improvements will be made to training materials and test problems while incorporating the opinions of line departments and considering the results of training.
- Improvement activities by CFAM[24]s and SFAM[25]s
  - CFAMs and SFAMs began ascertaining excellence achieved in other countries, identifying key issues to be resolved, and formulating and implementing improvements for each field of expertise (April 2015). Since mid-fiscal 2015, TEPCO has invited expert teams from overseas to provide advice and guidance, on full-time basis, about activities that CFAMs and SFAMs engage in, and we have been working to accelerate improvements. TEPCO's Management Model Project, which began in July 2016, entered Phase II in September and we are engaged in action plans aimed at resolving issues in the areas of operation management, maintenance management, human resource development, radiation control, engineering, improvement promotion, etc. These action plans are carried out through cooperation between dedicated project team members and CFAM/SFAM.
  - In December 2016, the "CFAM/SFAM work guide", which organizes expectations and

[24] Corporate Functional Area Manager: Leader at the Head Office that aims to achieve the world's highest level of excellence for each aspect of power station operation.

[25] Site Functional Area Manager: CFAM counterpart at power stations

implementation items of activities of CFAM/SFAM, was written. Activities have be carried out in accordance with this guide since January, and reports will be made to management in a timely manner.

- New employee training
  - End-term group training for new employees assigned to the Nuclear Power Division (Fukushima Daiichi NPS: 37, Fukushima Daini NPS: 14, Kashiwazaki-Kariwa NPS: 50) was conducted from February 28 to March 3rd at the Fukushima stations, and from February 27 through March 13 at the Kashiwazaki-Kariwa NPS.
  - End-term group training focused on reactor safety education, isolating equipment for field equipment work, engineering basics, and danger prediction/experience training.
  - In conjunction with this, the reflection on this fiscal year's new employee training was implemented based upon opinions from new employees and the group managers of the departments to which they belong and opinions received during training observation. Whereas all were generally satisfied with the content of training, the following improvements to next fiscal year's new employee training are being considered in order to make training more helpful to new employees.
    - Improve knowledge of plant systems
    - Further develop field skill training

Training on handling high voltage and special high voltage electrical equipment

Training on predicting danger

[Measure 6-4. Understanding the Basics of Nuclear Safety]

- Deploying experts
  - As a lesson learned from the non-conformances with separating cables under the floor of the main control rooms at the Kashiwazaki-Kariwa NPS, we have deployed experts with intimate knowledge of equipment design conditions in order to perform a double check of equipment safety in addition to that performed by the managing department.
  - The skill of these experts is confirmed through interviews and reports on their knowledge pertaining to design conditions and technical guidelines, as well as their experience with these guidelines, and as of the end of the fourth quarter experts in total of 51 fields have been deployed.
  - Meanwhile, it has been determined that the conditions for formulating countermeasures for the insufficient separation of cables underneath the main control room floors have been identified in 30 fields; 20 fields that harbor the potential for malfunctions stemming from common factors and causing ripple effects, and an additional 10 fields, such as safety-related electrical/instrument control equipment that is highly susceptible to equipment changes, in which experts engage in a review process for examining the impact on plant safety of equipment changes, which is functioning sufficiently. Going forward, we will acquire safety design review experts in a planned manner.
  - Experts for other fields will be trained in a systematic manner upon assigning them as

engineers for each dedicated field in preparation for opening of the Nuclear Engineering Center.

- Learning the Basis for Safety Design and Developing In-House Experts
  - As part of on-the-job training for daily operations, TEPCO has used the intranet to provide teaching materials to all personnel in the Nuclear Power Division to learn the important points of safety design as well as key information from previous operation experience ("connection between safety design and daily operations," "lessons learned from the Fukushima Nuclear Accident," etc.) so that personnel can study in their assigned offices.
  - TEPCO is continuing with preparations to open the Nuclear Engineering Center for systematically training design engineers [26], system engineers [27] and program engineers[28] in order to increase the technical capabilities of the entire Nuclear Power Division in the field of engineering in particular. Consideration is being given to training each type of engineer with the requirement that they also possess expert skills.

[Measure 6-5. Improvement of Management Ability]

- Since FY2015, TEPCO has been providing training for middle managers from the standpoint that middle-managers need to be aware of, and have the ability to, thoroughly fulfill their responsibilities jointly with nuclear power leaders while remaining sufficiently aware of their own responsibilities to nuclear safety.
- Group Manager Training
  - Training for group managers and shift supervisors (section manager level) is provided so that they can understand and acquire the "behaviors" that embody nuclear safety culture as well as the values that are to be steadfastly maintained as a leader and necessary for improving nuclear safety. During the fourth quarter, training was provided to 33 current group managers and shift supervisors in January (total of 178 personnel underwent training during FY2016).
- Training for Power Station General Managers
  - Training has been provided to power station General Managers to once again gain greater awareness of their role and mission as a "General Manager" in charge of about 250 people, and accelerate nuclear safety reforms. During FY2016, 15 new general managers and the 25 general managers that have been in their positions for more than two years underwent training.

Lecture by the General Manager of the Nuclear Power & Plant Siting Division

Group discussion

[26] Engineers responsible for planning, designing, and introducing equipment with high reliability, and for taking the lead in required design management.

[27] Engineers responsible for maintaining and improving system performance and reliability, and for proposing and taking the lead in monitoring and maintenance activities.

[28] Engineers responsible for the integrity of operation of specific technical fields (example: managing the wall thickness of pipes subject to corrosion), and leading related activities.

[Measure 6-6. Improve Systems for Human Resource Development and Education & Training]

- Status of Nuclear Education and Training Center activities
  - The mission of the Nuclear Education and Training Center is to cultivate personnel that can, “contribute to continually achieving unparalleled safety by providing the world’s highest level of education, training programs and a training environment for cultivating personnel.
- Status of Development of SAT-Based Education and Training Programs
  - The Nuclear Education and Training Center will adopt the Systematic Approach to Training (SAT), which is recognized as a best practice internationally, for providing education and training programs necessary for human resource development throughout the entire Nuclear Power Division.
  - Revisions have been completed in the fields of operations, maintenance, nuclear safety, radiation control and chemical management, and fuel management, with the objective of beginning training in FY2017. Going forward, we will implement training based on the revised content, and then continually make improvements to training materials and test questions based upon the results of training while also incorporating the opinions of line departments.
  - As new education/training programs we have commenced training on the ability to promote dialogue through writing in order to learn how to write easy-to-understand documents, training on Ordinance on Standards for Permission for Installation as part of nuclear safety education in light of the cable non-conformances, and simulator experience training for all employees to enable them to learn about plant behavior.
- Introduction of the Nuclear Human Resource Development Management System
  - In order to guarantee that data that serves as the foundation for developing human resources over the long-term is managed appropriately, we have decided to newly introduce a Nuclear Human Resource Development Management System for managing education/training performance as well as individual skills and certifications. Preparations are currently underway in regards to system functions setting, data preparation and data transfer with the aim of commencing use of the system during FY2017.

(2) Primary Future Plans

[Measure 6-2. Improve Operational Specialization]

- The training of system engineers shall continue with the objective of assigning five engineers to each reactor.
- The configuration management system will be developed, put into trial operation along with procedures, and put them into use in conjunction with opening of the Nuclear Engineering Center.

[Measure 6-3. Maintain and Improve Technical Skills Necessary for Operations]

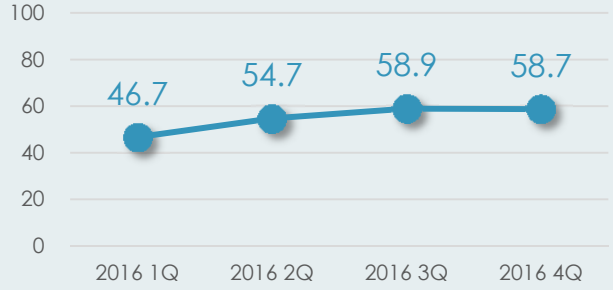
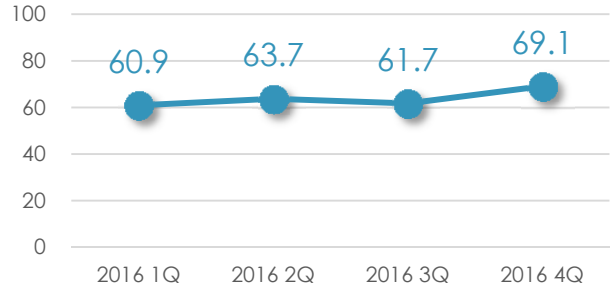
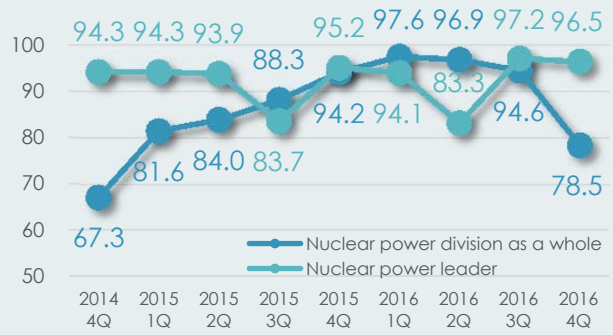
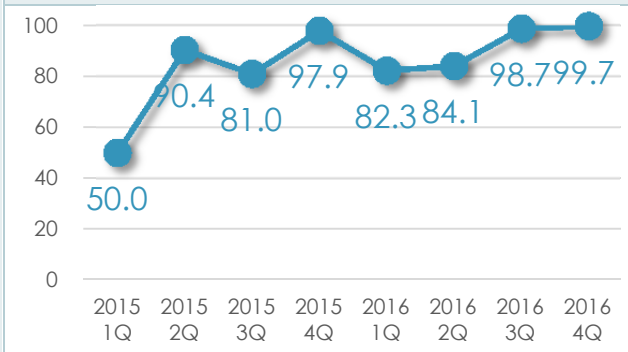
- During this fiscal year, we will commence education and training program for field skills/certification in the areas of operations, maintenance work, radiation & chemical control and fuel that were revised during FY2016.

[Measure 6-6. Improve Systems for Human Resource Development and Education & Training]

- Education and training programs for operations, maintenance, nuclear safety, radiation control and chemical management, and fuel management prepared during this fiscal year shall be implemented starting in FY2017 and continually improved.

2.8 Evaluation of the Degree of Achievement of Nuclear Safety Reform

(1) Status of nuclear safety reform KPI/PI

<table>
<tr><th colspan="2">Nuclear Safety Reform KPI</th><th>FY 2017 Q4 performance</th></tr>
<tr><td rowspan="5">Safety awareness KPI</td><td>Behavior of nuclear power leaders
[Target: increasing trend]
 
</td><td>58.7 points</td></tr>
<tr><tr><td>Improve safety awareness throughout the entire Nuclear Power Division
[Target: increasing trend]
 
</td><td>69.1 points</td></tr>
<tr><td>Reference: Traits [Target: 70 points or higher]
 
</td><td>78.5 points (entire Nuclear Power Division)
96.5 points (nuclear power leaders)
* KPI for the entire division were lowered since group retrospection implementation rate showed a slight decreasing tendency</td></tr>
<tr><td>Reference: M&M [Target: 70 points or higher]</td><td>99.7 points</td></tr>
<tr><td> 
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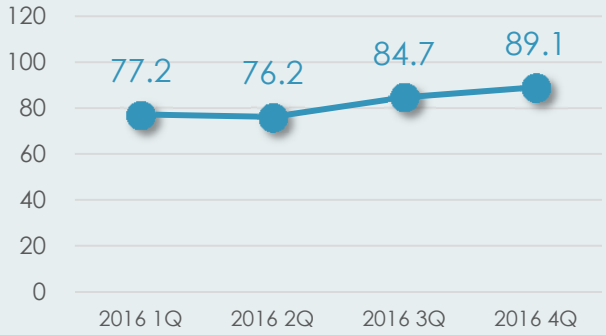
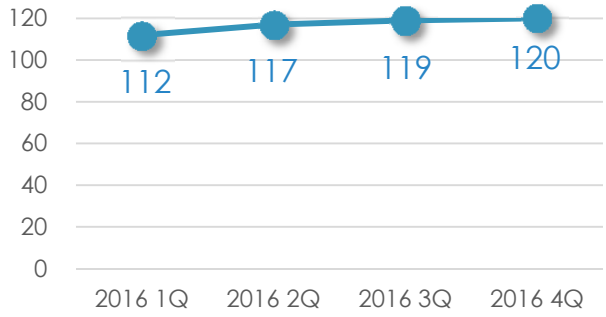
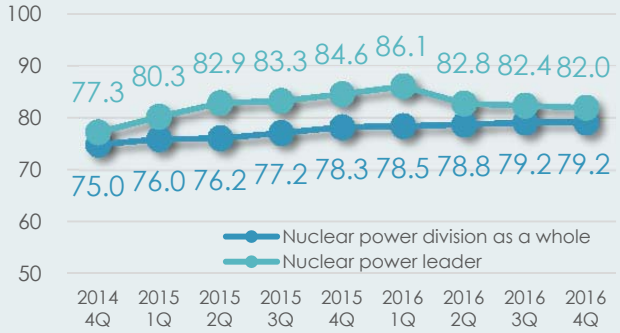
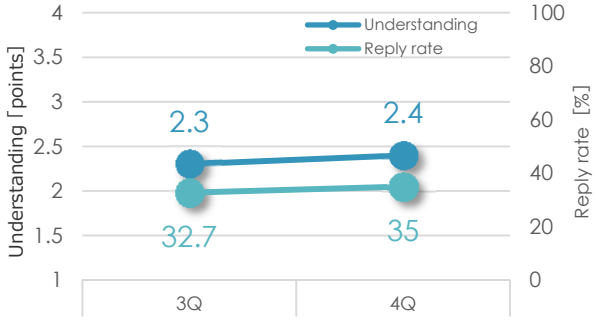
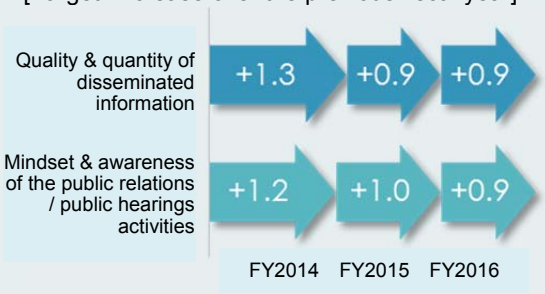
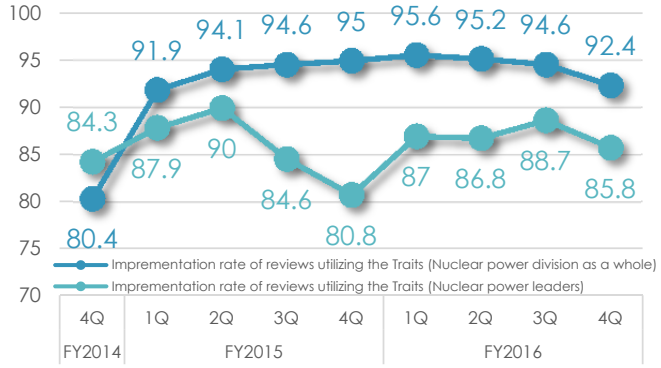
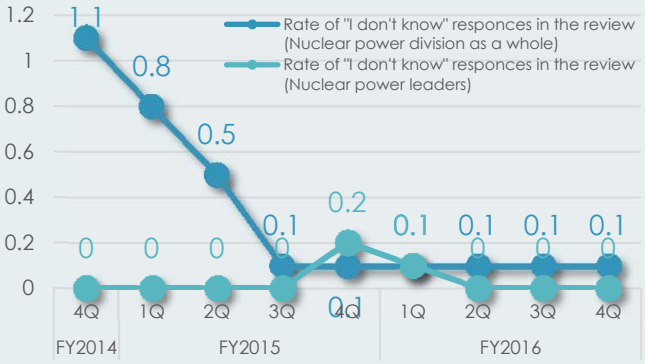
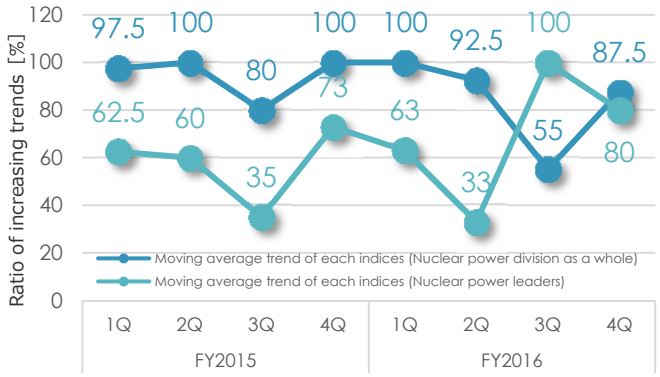
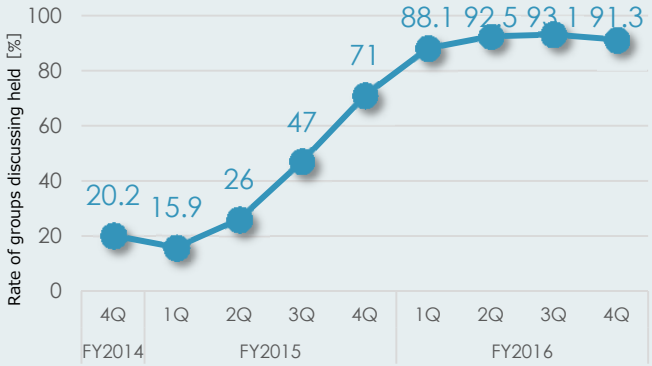
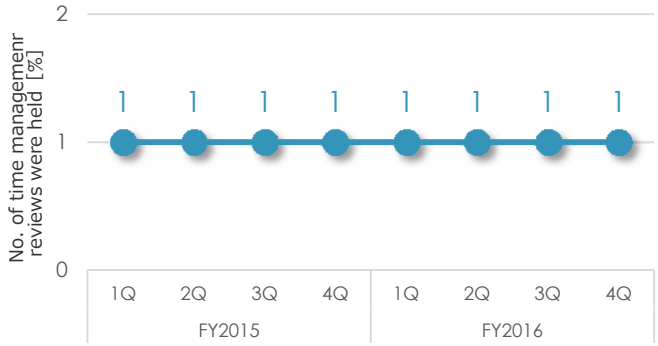
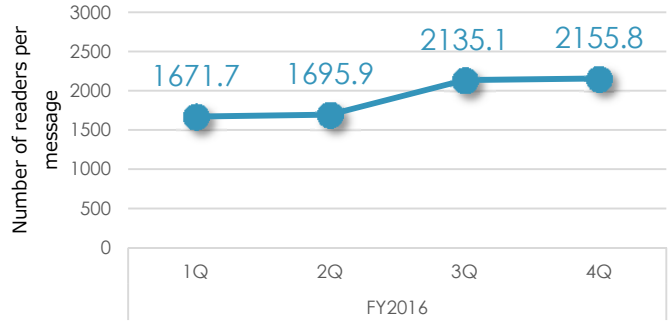
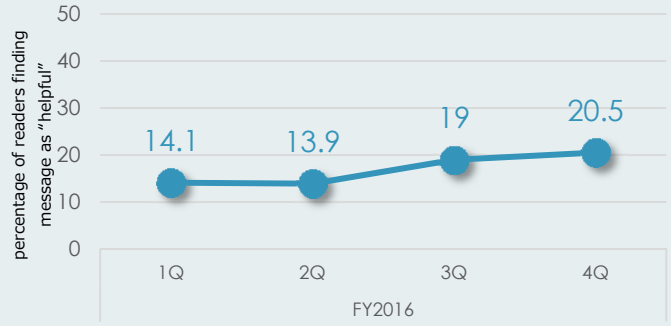
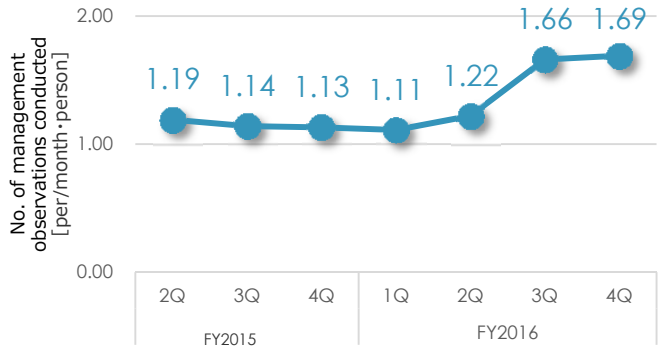
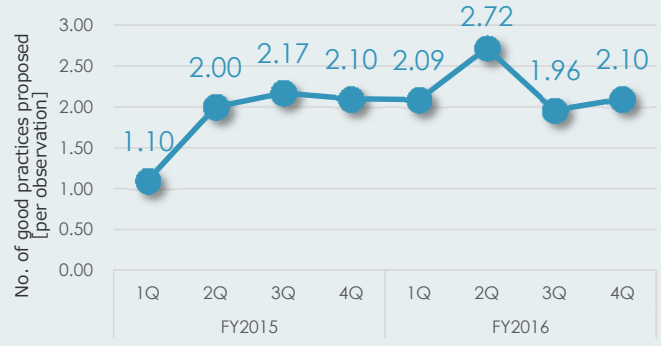
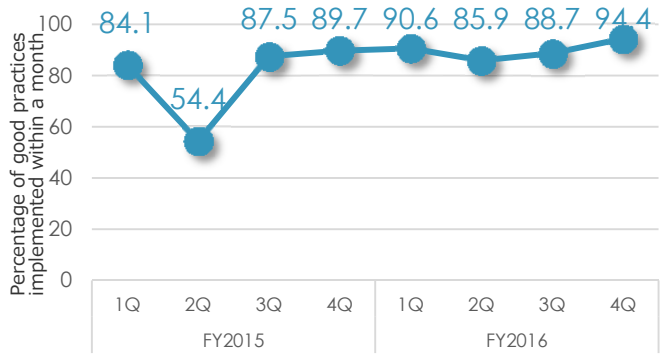
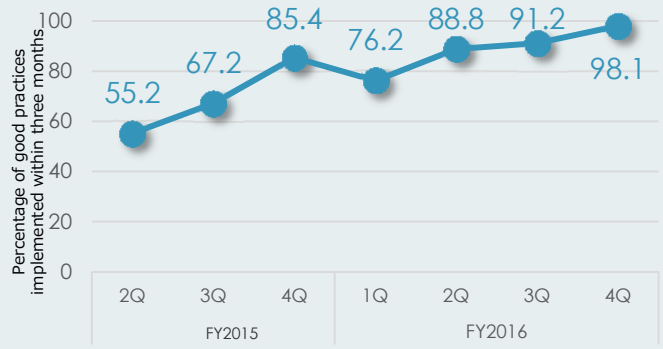
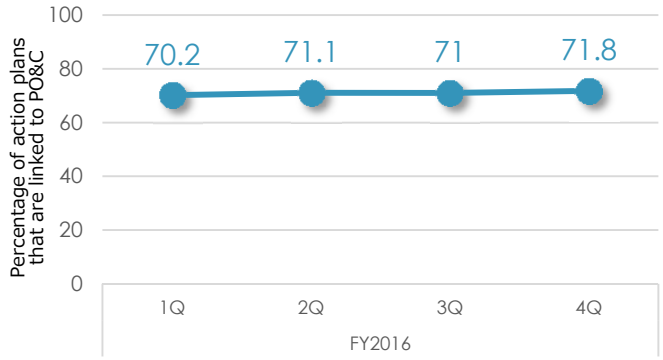
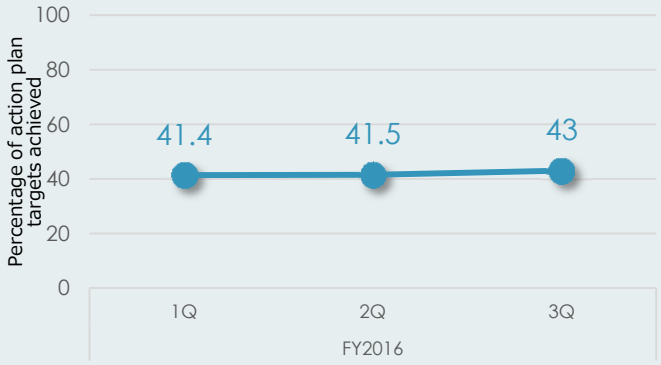
	Nuclear Safety Reform KPI	FY 2017 Q4 performance
Technological capability KPIs	During times of normalcy [Target: 100 points or higher by the end of FY2016] 	89.1 points
	During times of emergency [Target: 120 points or higher by the end of FY2016] 	120 points
Ability to promote dialogue KPIs	Internal 1 Internal Communication [Target: Increasing trend] 	79.2 points (entire Nuclear Power Division) 82.0 points (nuclear power leaders)
	Internal 2 Comprehension of messages from nuclear power leaders (Measurement commenced in Q3) Response rate[Target: More than 75%] Degree of understanding[Target: 2 points or higher] 	Response rate: 35.0% Degree of understanding: 2.4 points

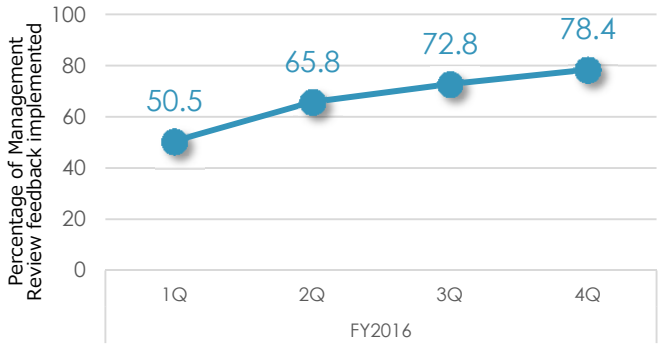
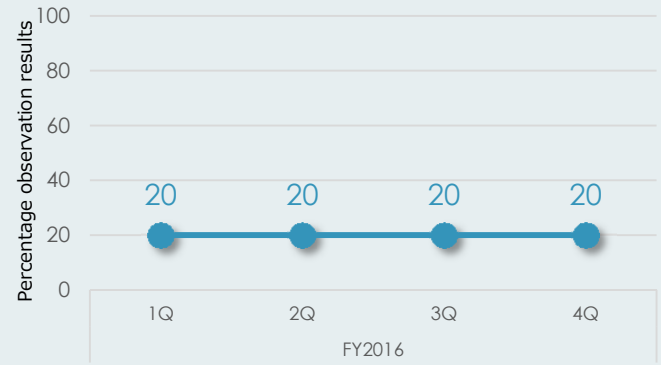
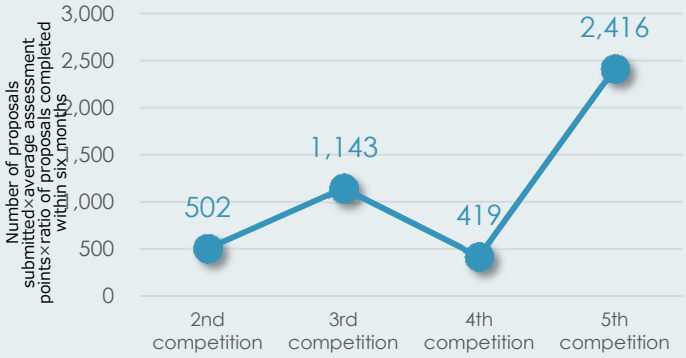
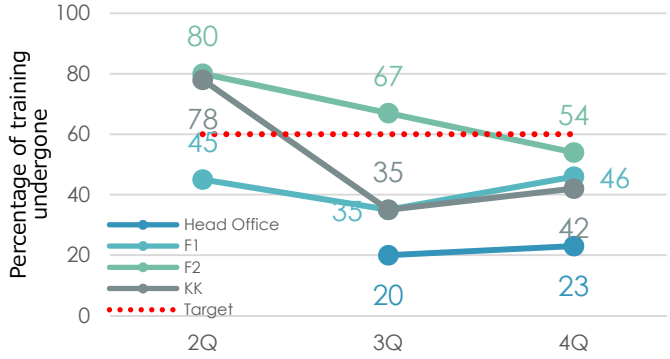
Nuclear Safety Reform KPI	FY 2017 Q4 performance
External assessment of information disseminated [Target: Increase over the previous fiscal year]  	<FY 2016 (compared to FY 2015)> Quality and quantity of information communicated: +0.9 points Stance and awareness of listening to and providing information to the public: +0.9 points

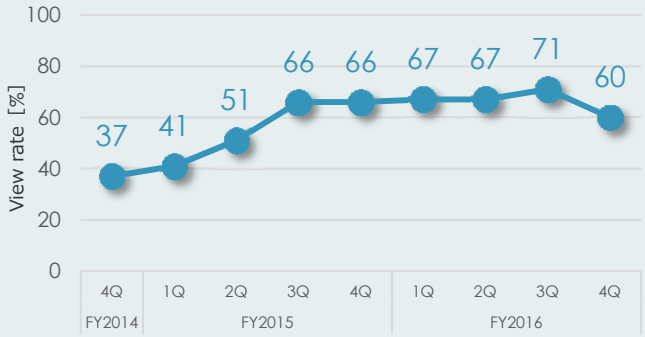
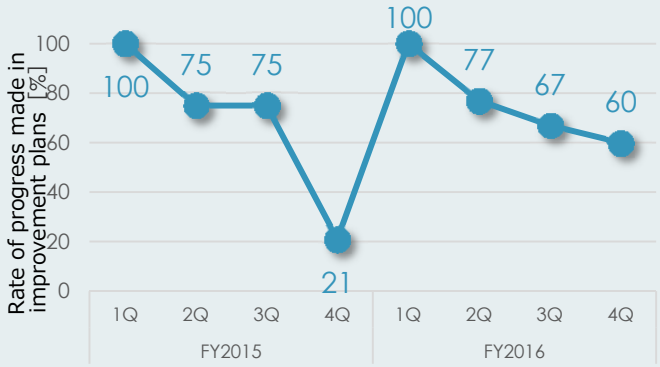
Nuclear safety Reform PI	FY 2016 Q4 achievements *1	Target
Measures 1, 2		
1. Rate of retrospective reviews conducted using the traits  	Overall: 92.4% Nuclear power leaders: 85.8%	100% (excluding deployments, temporary transfers or long-term recuperation)
2. Rate of “I don’t know” responses voiced during retrospective reviews  	Overall: 0.1% Nuclear power leaders : 0%	10% or less

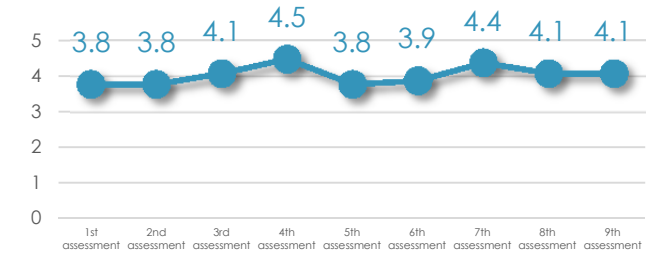
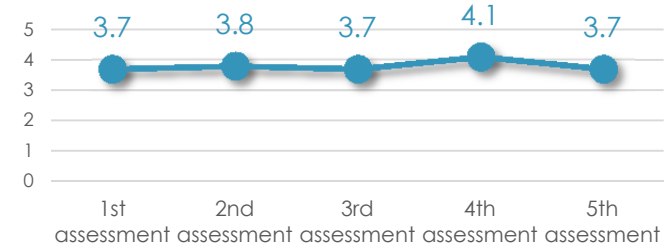
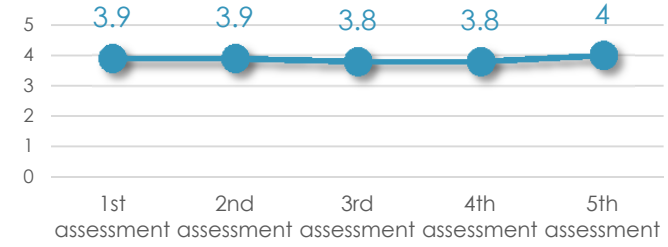
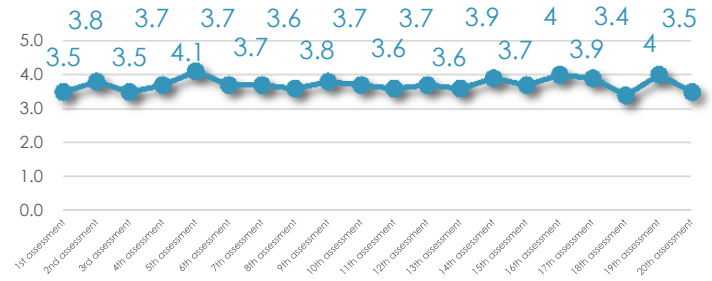
Nuclear safety Reform PI	FY 2016 Q4 achievements *1	Target
3. Moving average trend of indices (percentage of indices showing an increasing trend) 	Overall: 87.5% Nuclear power leaders :80%	70% or higher
4. Rate of groups discussing the results of retrospective reviews 	91.3%	Increasing trend (Retrospective review results discussed once or more per cycle)
5. Number of reviews conducted by management regarding results of retrospective reviews 	Once per quarter/ department * Q4 review examined during the safety meeting October 13	Once per quarter/ department (at each power station)
6. Communication of messages about nuclear safety by nuclear power leaders	Two times or more/month	Two times or more/ month

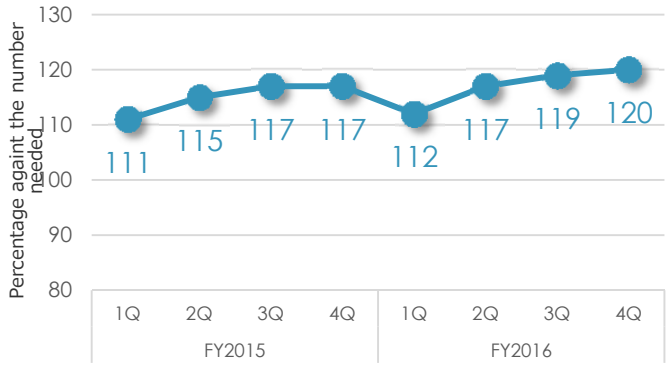
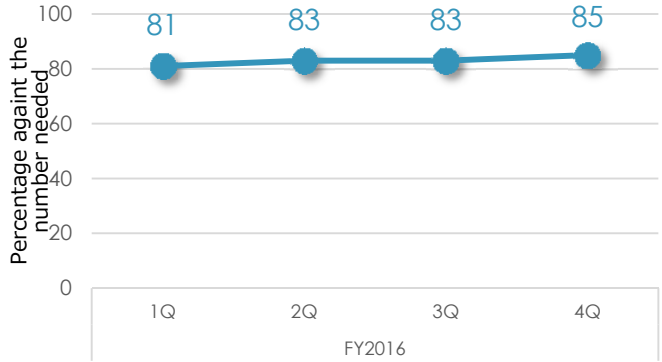
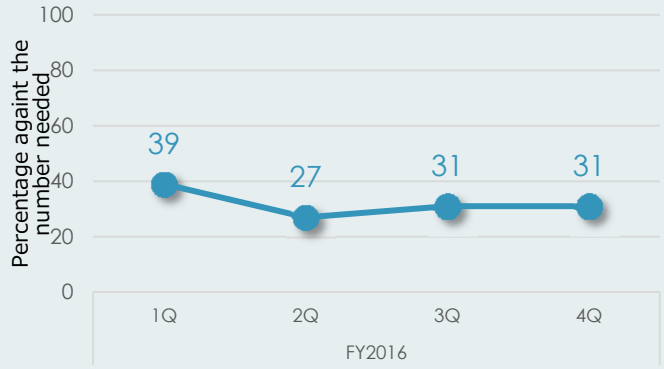
Nuclear safety Reform PI	FY 2016 Q4 achievements *1	Target
7. Number of readers per message 	Increasing trend/ 2155.8 people (67%) (as of the end of February)	Positive increase in number of readers per message/ 1,600 people or more
8. Average percentage of readers finding message as “helpful” 	Increasing trend/20.5% (as of the end of February)	Positive increase in average percentage finding message “helpful”/ 50% or more
9. Number of power station management observations conducted by management 	1.69 times	Numerical target set by each department
10. Number of good practices or key issues identified through management observation 	2.1/ observation	1 or more/ observation

Nuclear safety Reform PI	FY 2016 Q4 achievements *1	Target
11. Rate of good practices conveyed to other departments or issues improved within one month 	94.4%	70% or higher
12. Rate of good practices conveyed to the departments or issues improved within three months 	98.1%	100%
13. Ratio of action plans under operation plans that are linked to Measures 3, 5, 6, or PO&C and for which quarterly quantitative targets are set 	71.8 points	70 points or more
14. Ratio of action plan targets achieved under operation plans 	43 points (Q3 achievements)	50 points or more (50 points for progress as planned)

Nuclear safety Reform PI	FY 2016 Q4 achievements *1	Target
15. Rate of MO feedback 	78.4%	100%
16. Percentage of departments reviewing observation results of management observations 	20%	1/quarter per organization (at each power station)
Measure 3		
1. Number of proposals submitted to the Safety Improvement Proposal Competition multiplied by the average number of points assessed multiplied by the ratio of outstanding proposals completed within six months 	4th competition: 2,416 points	1,500 points or more
2. Rate of important OE training undergone 	Head Office: 23% Fukushima Daiichi NPS: 46% Fukushima Daini: 54% Kashiwazaki-Kariwa: 42%	60% or more for management (measurements began in Q2)

Nuclear safety Reform PI	FY 2016 Q4 achievements *1	Target
3. Rate of views of new OE information 	60%	60% or higher
4. Hazard analysis implementation	Completed	Completed at KK (hazard analysis began in Q2 at 1F)
5. Rate of progress made in hazard improvement plans 	60%	Plan progress rate: 100%
Measure 4		
1. Assessment of the quality and quantity of information communicated about Fukushima Daiichi NPS decommissioning work, nuclear safety reforms, and accidents/problems, etc.	+0.9 points	Positive trend
2. Assessment of TEPCO's perception and stance toward public relations and public hearings	+0.9 points	Positive trend
Measure 5		

Nuclear safety Reform PI	FY 2016 Q4 achievements *1	Target
1. Self-assessment based on PO&C emergency response areas (EP.1-3) **Head Office**  **F1**  **F2**  **KK**  	Head Office Feb. 4.1 points Mar. 4.1 points Fukushima Daiichi NPS: Mar. 3.7 points Fukushima Daini NPS: Jan. 4.1 points Feb. 4.0 points Mar. 4.1 points Kashiwazaki-Kariwa NPS: Jan. 3.4 points Feb. 4.0 points Mar. 3.5 points	Average of 4 or more points assessed on a 5-tiered scale *2

Measure 6		
1. Number of emergency responders acquiring in-house skill certifications for fire engines, power supply vehicles, cable connecting, radiation surveying, wheel loaders, unic cranes, etc. 	120%*3	Secure 120% of the number needed for each power station by the end of FY 2017
2. Number of certified system engineers (SAE)	5	5/reactor
3. Number of engineers trained in seismic resistance, PRA, fire protection, chemical management or other specializations	65%	Rate of training plans achieved: 100%
4. Number of personnel acquiring in-house skill certifications for operations, maintenance, safety, etc.	106%	Rate of training plans achieved: 100%
5. Number of personnel acquiring external certifications specified as essential by TEPCO, including Class 1 electrician, Class 4 hazardous material handler, oxygen deficiency, etc. (approximately 15 certifications) 	85%	Rate of all personnel or number needed in each field by the end of FY 2017
6. Number of personnel acquiring external certifications recommended by TEPCO, including high-pressure gas production safety, construction machinery operation, etc. (approximately 15 certifications) 	31%	30% or higher for each field by the end of FY 2017
7. Number of personnel acquiring external certifications, including licensed reactor engineer, Class 1 radiation senior operator, technician (reactor and radiation fields), etc.	91%	Rate of training plans achieved: 100%

*1: Values shown are as of the end of March 2017 unless otherwise specified

*2: Assessments corresponding to the degree of training difficulty

*3: The difference between conditions at the Fukushima Daiichi NPS and those at the Fukushima Daini NPS and Kashiwazaki-Kariwa NPS have been taken into account, and Fukushima Daiichi NPS is not included in this tabulation because the required amounts are under review.

(2) Reassessment of Nuclear Safety Reform KPIs and PIs

KPIs are reassessed just as before, the KPI and PI values are not only assessed as high or low, but:

- If they are high (target achieved), then our aim is to make them even higher.
- If they are low (target not achieved), then we analyze the causes and make improvements.
- In both cases, we also assess whether or not the KPI or PI is effective in measuring the degree to which nuclear safety reforms have been brought to fruition.

In addition, more effective improvement activities will be implemented, and KPIs and PIs reassessed and target values increased as necessary. The PI for the Measure 3 Competition to Improve the Ability to Make Safety Proposals has been achieved, so the method for cackling PI will be revised in order to make it easier to monitor the effectiveness of this initiative.

3. IMPORTANT NUCLEAR SAFETY REFORM PLAN ISSUES THAT NEED TO BE ADDRESSED DURING FY2017

3.1 Handling of Recommendations from the Nuclear Reform Monitoring Committee

(1) Review result of the Nuclear Reform Monitoring Committee on the Self-Assessment of the Nuclear Safety Reform Plan

In FY2016, the past three years since the implementation of the Nuclear Safety Reform Plan were reviewed in order to perform a self-assessment of the Nuclear Safety Reform Plan and bring about future improvements. The results of the self-assessment were reported to the Nuclear Reform Monitoring Committee at its 11th meeting held on September 2, 2016.

The Nuclear Reform Monitoring Committee reviewed the results of the self-assessment and presented its results during the 12th meeting of the Nuclear Reform Monitoring Committee (January 30, 2017).

Nuclear Reform monitoring committee findings

- TEPCO has made significant progress but must not become complacent as it continues to strive to be an excellent nuclear operator.
- TEPCO should continue diligent implementation of the Nuclear Safety Reform Plan, instill a strong safety culture throughout the organization, and become an operator that provides 'safety' and 'peace of mind' above operations.
- Based on the results of the self-assessment, TEPCO is encouraged to take further actions for the safety culture alignment at all levels of the organization, human resource development and enhancement of communications.

The following are details suggestions from the Nuclear Reform Monitoring Committee[29]:

1. Consistent efforts should be made to build a strong nuclear safety culture and instill the nuclear safety culture in an organizational culture.
2. The need for formal training and/or professional facilitation for the managers should be evaluated to instill a strong safety culture in the organization. A comprehensive approach should be considered for the training (even for the training with technical focus) incorporating other management expectations. Training and qualification programs should also be reviewed relative to the top industry programs/standards. An integrated plan that addresses resources and other needs for effectively conducting (e.g., developing, instructing, attending) the training would be beneficial.
3. Considering the large number of contractors/workers on site, a safety culture program should be developed to the same standards being implemented for TEPCO personnel reflecting the relationship between individual contractors and the power plant.
4. Alignment of the activities is necessary for the organization as a whole. Internal communication of key information should be strengthened. Once developed, any initiatives should be steadily implemented. Their implementation should be monitored and accountable for planned/anticipated progress.
5. Performance improvement activities (e.g. OE, CAP, benchmarking, self-assessment) and the training/qualification program should be better integrated into the business process

[29] See the following URL for the full document:
http://www.nrmc.jp/report/detail/__icsFiles/afieldfile/2017/02/02/5J.pdf

considering the characteristics of individual power stations (while assuring the alignment).

6. The knowledge about nuclear power plant operation among leadership should be enhanced and the role of operation personnel should be examined from the aspect of “operational focus”. Engineering capacity and “engineer’s conscience” as well as the understanding of operation should be enhanced within the organization.
7. Benchmarking for nuclear safety, risk management, radiation protection and/or communications should be considered for Fukushima Daiichi, while the site is radiologically complex and very unique.
8. NSOO is continuously working to improve its efficiency and effectiveness in raising the standards of TEPCO’s nuclear safety. It should improve the clarity with which it assesses its data to create actions. NSOO should also improve the rigor with which it ensures that these actions are completed.
9. The The Social Communication Office is expected to consistently carry out its role to win back the trust from stakeholders and take a proactive role in this function within the organization. In order to build an effective communication structure, the Social Communication Office should clearly state the expectations and requirements for the Risk Communicators for both normal and emergency situations. Communication drills should be repeatedly conducted and serious retrospection should be taken to assure the smooth transition of modal changes from normal to emergency situations. Communication practices should be further improved through benchmarking the practices at nuclear power plants overseas.

(2) Handling of the recommendations from the Nuclear Reform Monitoring Committee

The review results from the Nuclear Reform Monitoring Committee contained nine proposals and four remarks. TEPCO was already aware of all the issues mentioned and is in the process of implementing improvements, but we have determined that the following issues require further strengthening:

3. Construct nuclear safety culture in unity with contractors

4. Develop internal communication in order to cultivate a sense of unity within the organization

9. Decelop a communication framework that is effective both in times of normalcy and emergency

Action plans that focus on these three areas will be created and the status of implementation monitored.

Issue	Action Plan
Construct nuclear safety culture in unity with contractors	• Strive to permeate the 10 traits while engaging in direct dialogue with contractors about safety. Also, don’t engage in these actions with all parties simultaneously but rather select contractors to start with and gradually expand these efforts.
Develop internal communication in order to cultivate a sense of unity within the organization	[Implement change management] • Leverage the change management mechanism in order to thoroughly convey directions in conjunction with the direction of activities. [Develop internal communication] • Create internal communications teams that contain external experts • Create and implement action plans through team discussions and benchmarking with other companies
Develop a communication framework that is effective both in times of normalcy and emergency	• Implement training on communication during emergencies ・ Assign an assistant Director of External Communication to the Fukushima Daiichi NPS. ・ Benchmark with overseas nuclear operators

3.2 Initiatives Since the Self-Assessment

The following action plans were created and efforts to accelerate reforms commenced because the results of the self-assessment implemented in the first half of FY2016 revealed weaknesses in the fields of organizational governance and human resource development.

a. Reforms by nuclear power leaders (governance enhancement)
   - Daily “questioning” by upper management
   - Enhance mechanisms for confirming the status of execution of instructions and commands

b. Acquire the world’s highest level of technological capability and management ability (improve technological capability)
   - Strengthening the framework for education and training by establishing the Nuclear Education and Training Center
   - Focused rebuilding of a systematic education and training program from a long-term perspective

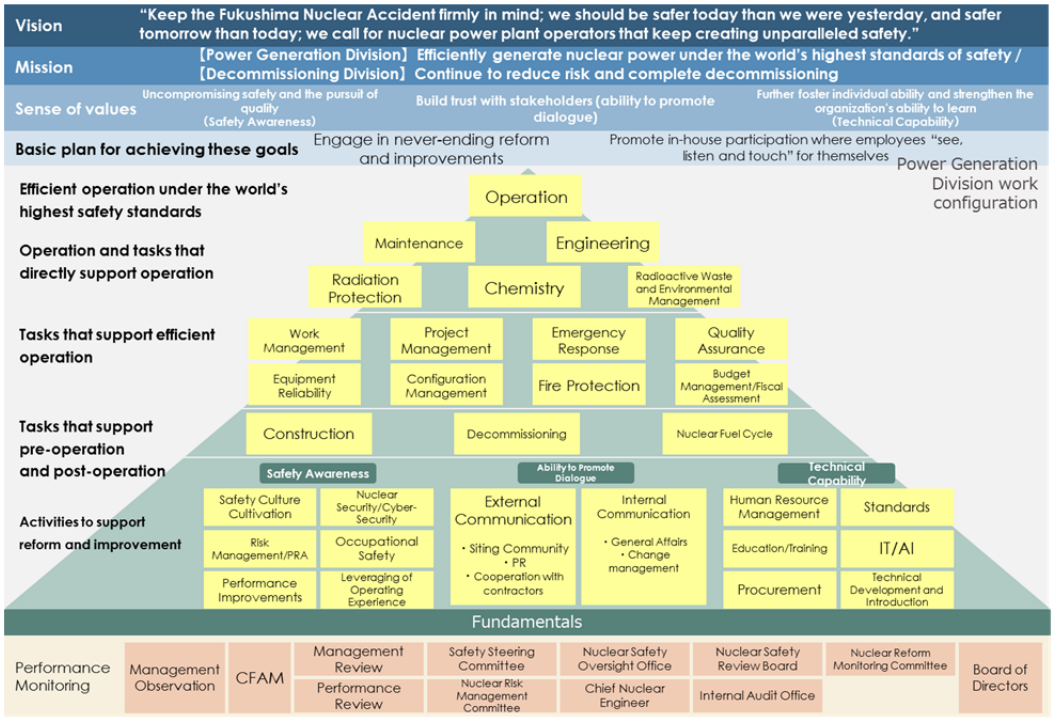
However, in the review received from the Nuclear Reform Monitoring Committee on January 30, it was pointed out that there are weaknesses with aligning the initiatives of the organization as a whole and also developing internal communication required to achieve this in addition to the weaknesses or areas for which improvements must be accelerated that TEPCO was already aware of. TEPCO’s failure to provide adequate explanations at the 442nd New Regulatory Requirements compliance review meeting for Kashiwazaki-Kariwa Units 6 and 7 held on February 14 is an excellent example of an incident resulting from a “silo effect” inside TEPCO and a lack of internal communication.

(1) Improvements implemented in light of the self-assessment results

a. Strengthening governance and internal communication

In order to strengthen governance, we are making improvements to management because it is important that “everyone from nuclear power leaders to the workers on the front lines in the field can engage in their duties with the same objectives and intentions regardless of department or status,” and that “we monitor and make corrections to the status of progress of these duties.”

To enable everyone in the organization to have a common understanding about the objectives of the entire organization and each other’s roles, we have created a Management Model that shows the relationship between each individual’s duties and nuclear safety reforms, and also clearly shows the organization’s vision, mission, sense of values, and basic policies.



Nuclear Power Division Management Model

Each and every individual and the entire organization can now see how their own duties are positioned and what the objectives of the entire organization are by sharing this management model. As a result, the strengthening and development of mutual communication required to achieve our objectives is promoted and the “silo effect” can be eliminated.

b. Improving technological capability

Education and training programs are being developed based upon SAT at the Nuclear Education and Training Center that was officially established on December 19, 2016 as part of efforts to improve individual technological capability during human resource development.

The basic policy for reconstructing and implementing these education and training programs is as follows:

i. To provide an education and training program for the staff of the Nuclear Power Division to enable continuous learning
ii. To have each Managing Department cooperate with the Education and Training Department and improve the education and training programs
iii. To create a map and improve visualization of the Nuclear Power Division's education and training system, and to share the map with the entire Nuclear Power Division staff
iv. To create a "Lesson Plan" describing the learning objectives, points that must be taught in lectures, points for setting the examination questions, and so on for each education and training program, and to ensure the education and training quality by sharing the plan with the lecturers
v. To improve the skill level of the lecturers by encouraging friendly competition between them through education and training to improve the lecturers' guidance skills and observation of each other's lectures

At the same time, we are moving forward with deliberations on the establishment of the Nuclear Engineering Center which will integrate engineering functions in order to enhance the technological capability of the organization. The Nuclear Engineering Center will be the base for the introduction of highly reliable equipment, the optimization of maintenance, the provision of technical solutions to equipment troubles, the development of the latest technology, and the sharing of knowledge.

(2) Revisions to FY 2017 nuclear safety reform KPI/PI

In order to avoid redundant data sampling/assessment work, nuclear safety reform KPI/PI that contribute to improving “safety awareness,” “technological capability,” and the “ability to promote dialogue” were identified from performance indicators (PI) for each field shown in the management model.

Nuclear Safety Reform KPI

KPI	Target	Notes
Safety awareness		
Safety awareness KPI (nuclear power leaders) [Change]	70 points	
Safety awareness KPI (entire Nuclear Power Division) [Change]	70 points	
Technological capability		
Technological capability KPI (in times of normalcy) [Continued]	100 points	
Technological capability KPI (thin times of emergency) [Continued]	100 points	
Ability to promote dialogue		
Ability to promote dialogue KPI (internal) [Change]	70 points	
Ability to promote dialogue KPI (external) [Continued]	Increase over last fiscal year	Integration of the quality/quantity of information disseminated and the

KPI	Target	Notes
		company's approach to an awareness of public relations and public hearing

Nuclear Safety Reform PI (elements that comprise KPI)

PI	Target	Notes
Safety awareness		
Nuclear power leaders		
<Safety-1> Rate of implementation of retrospection leveraging the traits [Continued]	100%	
<Safety-2> number of times emails have been sent by nuclear power leaders in order to share information [New]	More than once a week	
<Safety-3> number of times nuclear power leaders participate in preparedness training	More than twice a year	
<Safety-4> Number of times nuclear power leaders go into the field (to engage in management observation or exchange opinions with workers) [New]	More than twice a month	
<Safety-5> Number of benchmarked issues for which nuclear power leaders are responsible for putting into practice that have been put into practice [New]	More than four a year	
Entire Nuclear Power Division		
<Safety-6> Percentage of groups that discuss the results of trait retrospection [Continued]	100%	
<Safety-7> percentage of messages from nuclear power leaders that are read immediately [Continued]	More than 80%	
<Safety-8> Number of times managers engage in management observation [Continued]	Target values to be set by the department	
<Safety-9> Good MO rate (Percentage of reports that include things that PICO has pointed out as being good MO from MO results) [Change]	More than 50%	Measurement will begin at the Fukushima Daiichi NPS after the assignment of PICO
<Safety-10> Percentage of corrective measures completed before deadline [New]	100%	
<Safety-11> Number of recurring GII or higher nonconformances [New]	0	
Technological capability		
During times of normalcy		
<Engineering-1> Number of skilled workers trained in the Operations Department [New]	More than 100% of the number required	
<Engineering-2> Number of skilled workers trained in the Maintenance Department [New]	More than 100% of the number required	
<Engineering-3> Number of skilled workers trained in the Engineering Department [New]	More than 100% of the number required	
<Engineering-4> Number of skilled workers trained in the Radiation and Chemistry Department [New]	More than 100% of the number required	
<Engineering-5> Number of skilled workers trained in the Fuel Department [New]	More than 100% of the number required	
<Engineering-6> Number of skilled workers trained in the Safety Department [New]	More than 100% of the number required	
<Engineering-7> Number of personnel that have external certifications such as Licensed Reactor Engineer (LRE), Class 1 Chief Radiation Handler, Engineer (Nuclear and Radiation Dept.), etc. [Continued]	Training objective achievement rate: 100%	
<Engineering-8> Participation rate in important OE training [Continued]	More than 60% of managers	
<Engineering-9> View rate of newly arrived OE information [Continued]	More than 75%	
During times of emergency		

PI	Target	Notes
<Engineering-10> Number of emergency response personnel certified in-house on the operation of fire engines, power supply vehcles, cable connections, radiation surveys, wheel loaders, and unic trucks [Continued]	More than 120% of the necessary number at each power station	
<Engineering-11> Percentage of “A” assessments given during emergency response training [Change]	More than 60%	
Ability to promote dialogue		
Internal		
<Dialogue-1> Percentage of employees that feel that messages from nuclear power leaders are “helpful” [Continued]	More than 50%	Transition from safety awareness to the ability to promote dialogue
<Dialogue-2> Response rate to questionnaire on the information conveyed by nuclear power leaders [Continued]	More than 70%	
<Dialogue-3> Degree of understanding of information conveyed by nuclear power leaders [Continued]	More than 2.5 points	
External		
<Dialogue-4> Quality/quantity of disseminated information, questionnaire results	Increase over last fiscal year	
<Dialogue-5> Stance on, awareness of, public relations and public hearing	Increase over last fiscal year	

CONCLUSION

During the fourth quarter of FY2016 safety measures implemented at each power station have proceeded smoothly in accordance with work plans. At the Fukushima Daiichi NPS, all sections of the land-side impermeable wall except one are being frozen and the project has entered its final stage. The rate of flow of groundwater and rainwater into buildings, which used to be approximately 400m³ per day, has steadily decreased and the three-month average is now approximately 120m³ per day thereby showing that the impermeable wall is having an effect at suppressing the amount of contaminated water generated.

At the Kashiwazaki-Kariwa NPS, the Nuclear Regulation Authority conducted its third inspection on February 16 and New Regulatory Requirements compliance inspections for Units 6 and 7 continue. On the other hand, inspection of the seismic resistance of the seismic isolated building resulted in criticism of TEPCO's handling of inspections to date and a loss of trust of not only the residents of Niigata Prefecture but also society as a whole. We deeply regret having caused this situation and based on the lessons we have learned from it, TEPCO will be more prudent in its handling of the remaining compliance inspections and also leverage the lessons we have learned when making work plan changes, conducting pre-operation inspections, and completing all of the required paperwork, such as changes to the technical specifications, going forward.

Furthermore, in regards to the Nuclear Safety Reform Plan (Management Aspects), TEPCO will continue to prioritize the strengthening of governance throughout the entire organization and the development of human resources. In particular, aligning the direction of initiatives throughout the entire organization, and developing internal communication in order to achieve this are urgent issues that must be addressed by creating action plans and confirming the implementation status and results of these plans.

Through our determination to, "**Keep the Fukushima Nuclear Accident firmly in mind; we should be safer today than we were yesterday, and safer tomorrow than today; we call for nuclear power plant operations that keeps creating unparalleled safety**," TEPCO will continue to advance nuclear safety reforms while subjecting our organization to objective assessments by the Nuclear Reform Monitoring Committee. We are more than happy to hear any comments or opinions you may have about these reforms. Visit our website for more information.

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