Nuclear Safety Reform Plan
Progress Report

(2nd Quarter, 2014)

November 5, 2014

Tokyo Electric Power Company,
Incorporated

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Introduction

We would like to take this opportunity to deeply apologize again that the nuclear accident in Fukushima NPS and the recent contaminated water problem have caused tremendous trouble and concern among the residents in the vicinity and in the society at large. At TEPCO, we remain committed going forward at all levels to do our very best in realizing “rapid and smooth fulfillment of compensation”, “accelerated revitalization in Fukushima”, “promotion of steady decommissioning”, and “thorough implementation of nuclear safety”.

We compiled the “Summary of Fukushima Nuclear Accident and Nuclear Safety Reform Plan” (hereinafter, “Nuclear Safety Reform Plan”) on March 29, 2013, and we are promoting nuclear safety reform in accordance with the Plan. It is our policy to confirm and publicize the status of our progress each quarter. The current report includes the statements on progress during the 2nd quarter of FY2014 (i.e., July - September 2014[1]).

[1] Hereinafter, descriptions of the date without indicating the year refer to dates in 2014.

1. Progress of safety measures at each NPS

1.1 Fukushima Daiichi NPS

(1) Cross-Departmental Problem Solving by Project System

To overcome the unprecedented challenge of successfully completing decommissioning and contaminated water countermeasures that no other country in the world has ever experienced, it is imperative to concentrate the wisdom and power of people all over the country. Toward that end, three people were invited as vice presidents of the Fukushima Daiichi D & D Engineering Company from nuclear power plant manufacturers. They are expected to show leadership on site drawing on their wealth of experience in nuclear power technology, the sophisticated technology owned by each manufacturer, and their global scale knowledge.

Advising and instructing on-site workers regarding installation of high-performance multi-nuclide removal equipment

Checking operation status of tank installation in J4 area

Advising and instructing staff members in office

In Fukushima Daiichi NPS (referred to as “the Fukushima Daiichi” below), it is difficult to leverage the experience and expertise accumulated during the long period of

engagement in conventional plant construction and operations. Nuclear safety calls for management and approaches that are different from those used for Fukushima Daini NPS (referred to as “the Fukushima Daini” below) or Kashiwazaki Kariwa NPS (referred to as “the Kashiwazaki Kariwa” below). Therefore, to ensure flexible handling of diverse challenges associated with the decommissioning works, fifteen projects in five different areas (contaminated water countermeasures, fuel removal from spent fuel pool, cooling and removal of debris fuel, waste disposal countermeasures, and improvement of infrastructure) were designated in April this year for each challenge, and we are currently engaged in the pursuit of these projects. In addition, a new regulation standard response and investigation project was established in August in the field of the new regulation standard response, and has been operating since then.

Three vice presidents are in charge of projects such as “removal of fuel from the spent fuel pool”, “removal of the debris”, and “disposal of the contaminated water”. The disposal of the contaminated water is an urgent issue, the vice presidents themselves hosted a meeting and are positively working to resolve the issue. They go to the production factories of the facility to instruct and give advice such as directly notifying them of our requests and expected items using their relationships with the manufacturers where they are from.

These approaches have enabled cross-disciplinary problem solving and sharing of issues in the organization including the management level as well as the instruction of their countermeasures.

Continuing from the previous period, we will promote plan-based implementation of the most important agenda, including trench water sealing, additional installation of tanks, and stable operation of the multi-nuclide removal equipment (ALPS) under the project management system in conformance with safety requirements.

(2) Fuel removal from the Unit 4 spent fuel pool

Fuel removal from the spent fuel pool located on the top level of reactor buildings in Units 1-4 is one of the most important efforts to decrease the risks associated with the Fukushima Daiichi NPS. The removed fuels are transferred into a “shared pool” located in a different building within the site, where removed fuels are stored in a centralized manner.

In Unit 4, removal of fuels stored in a spent fuel pool adjacent to the reactor started on November 18, 2013. Although the fuel removal operation had been interrupted in July due to the periodic inspection of the ceiling cranes and the fuel handling machines, the operation was restarted on September 4 (The fuel removal operation is anticipated to be completed at the end of this year as it was planned in the beginning).

As of September 29, the removal of 22 units out of 202 units of new fuel that have been stored in the spent fuel pool and 1,232 units (about 92%) of 1,331 units of the spent fuel

was completed, and the risk has been reduced as it was planned.

Further, the plan was changed to transfer the new fuel to Unit 6 because the procurement of the storage cask was partially delayed and the free space of the shared pool became insufficient.

Status of fuel removal

Loading of transportation container from on-site to trailer

(3) Approaches to address contaminated water problem

In the Fukushima Daiichi, about 400 tons of underground water per days flows into the building and become contaminated water.

Based on three basic policies of “removing the contamination source”, “not letting water close to the contamination source”, and “not letting the contaminated water leak”, the following countermeasures are being carried out on the issues of the contaminated water flowing into the port of the power station and leaking from the tank.

- Expansion of the contaminated water purification facility
- Installation of more tanks for storing the contaminated water
- Bypassing underground water
- Pumping of underground water by a sub drain
- Frozen soil water sealing wall
- Removal of retained water from the seawater piping trench of Units 2 and 3,
- etc.

<Expansion of Contaminated Water Purification Facility>

In order to process the contaminated water accumulated in the Fukushima Daiichi early, an extended multi-nuclide removal facility was installed that improved the operating experience of the multi-nuclide removal equipment that was already installed to improve the process ability. In the extended multi-nuclide removal equipment, a system test (hot test) using the contaminated water started in system A on September 17, and the test operation has been smoothly carried out. In system B, the inspection before use was

completed on September 25. Therefore, the system test started on September 27. Further, the process will be started in system C as soon as it is ready.

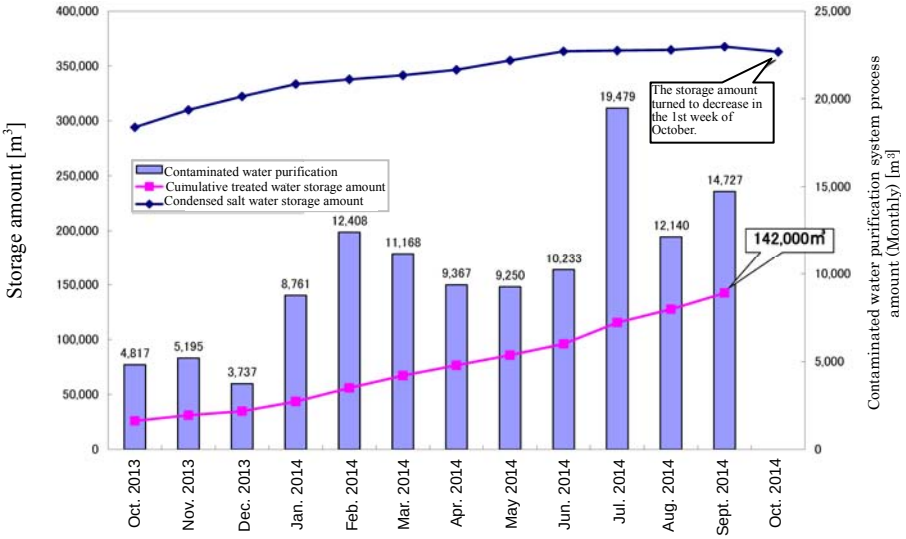
The operation of installing the high-performance multi-nuclide removal equipment (a granted project of the Ministry of Economy, Trade and Industry), has been carried out so that a large amount of the generated waste can be reduced compared to the multi-nuclide removal facility that was already installed, and the test operation of the high-performance multi-nuclide removal equipment has started in October 18.

Further, in order to reduce the concentration of strontium contained in the contaminated water that has accumulated, a mobile type strontium removal system was installed to reduce the risk of a possible leak, the on-site boundary dose, and the radiation exposure of the workers on patrol.

Installation of extended multi-nuclide removal equipment

Installation of high-performance multi-nuclide removal equipment

The amount of contaminated water processed by contaminated water purification system reaches to about 142,000 m^3 (about 40% of the contaminated water in storage) as shown in the figure below.

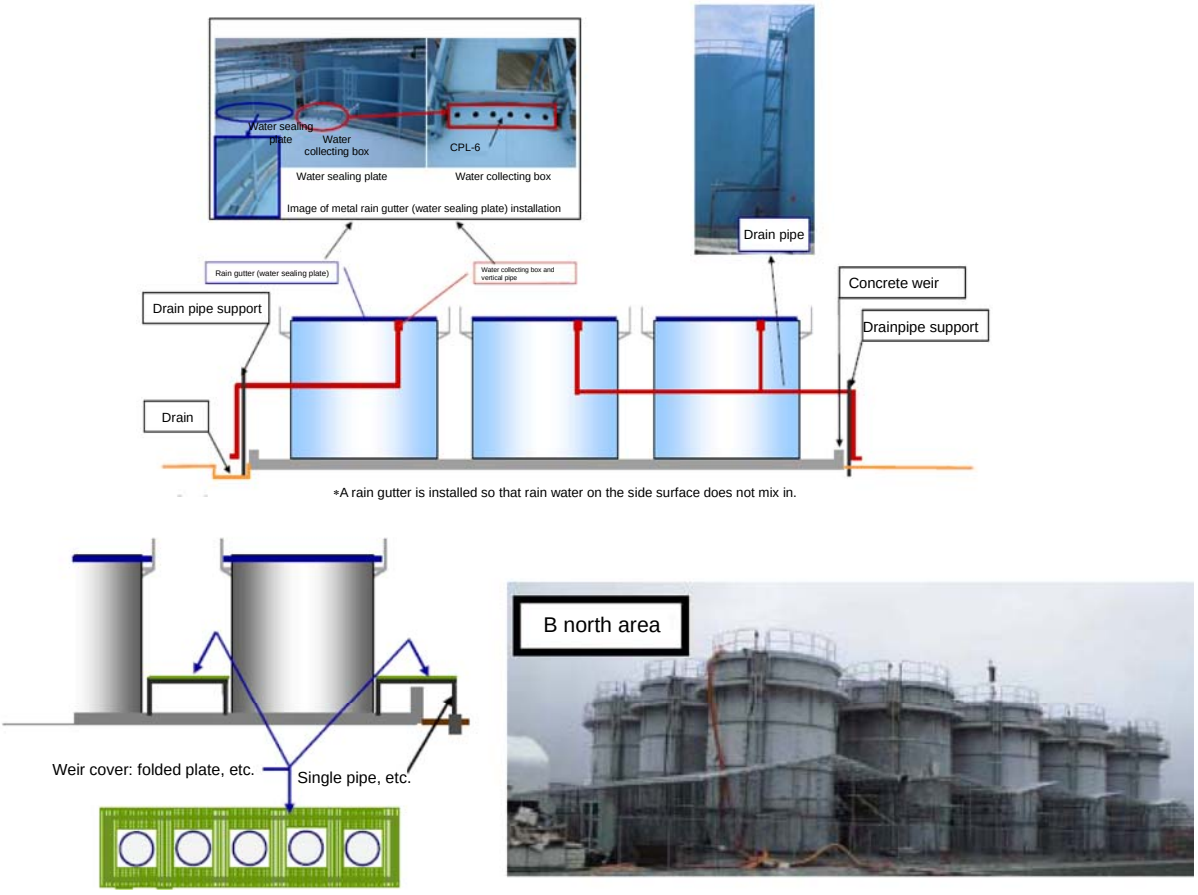


Changes in amount of contaminated water processed by contaminated water purification system.

(out flow rate)

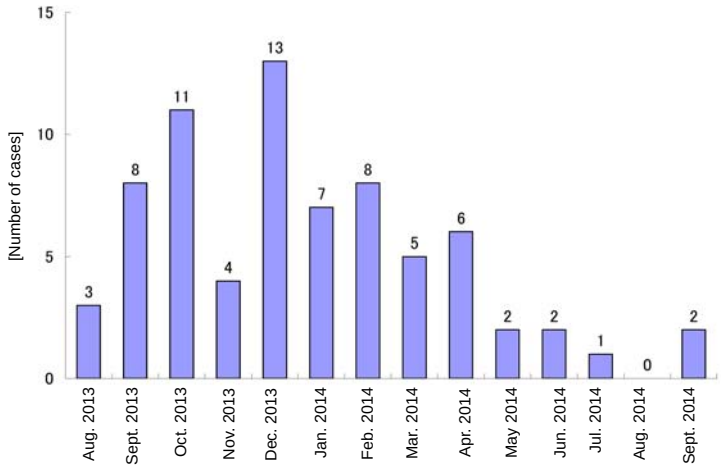
<Installation of More Tanks for Storing Contaminated Water>

- In the southern part of the site, steel cylinder tanks with low leakage risk are to be installed instead of flange type tanks. Also, it is planned to replace the existing angular-shaped tanks with new steel cylinder tanks, because storage efficiency of these existing tanks is poor.
- Procurement of tanks is being accelerated to maintain adequate storage capacity in addition to the essential total storage capacity.
- Possibility of replacing the flange type tanks is examined currently to decrease leakage risk.
- Rain gutters have been installed to control intrusion of rain water into weirs, and weir covers (ceiling material) are being installed (priority is given to the existing tank area).
- To be prepared for potential leakage of stored contaminated water from tanks, implementation of a double structure of tank weirs and coating inside weirs is almost completed.



Installation of weir covers (ceiling material)

As mentioned above, since "Leakage of approximately 300 tons of contaminated water from flange-type tank in H4 tank area" was identified on August 19, 2013, the countermeasure against the contaminated water leakage has been reinforced at all levels of the company. When the operation mode of the drain valve for tank weir was switched to be routinely "closed", the number of leakage cases was increased temporarily because the capacity for processing rainwater in the weir was insufficient. By steady implementation of the countermeasures, however, water leakage troubles are decreasing (including the leakage other than the contaminated water) (See graph below).



Changes in water leakage trouble cases

< Bypassing Underground Water >

Underground water bypass is an approach to reduced underground water flowing into the building by pumping up the underground water flowing from mountain side (west) to sea side (east) on the power station site before it enters into the buildings and reducing the underground water level.

Since May 21, underground water pumped up in the mountainside of the building has been discharged intermittently and the water level of groundwater has been decreased gradually.

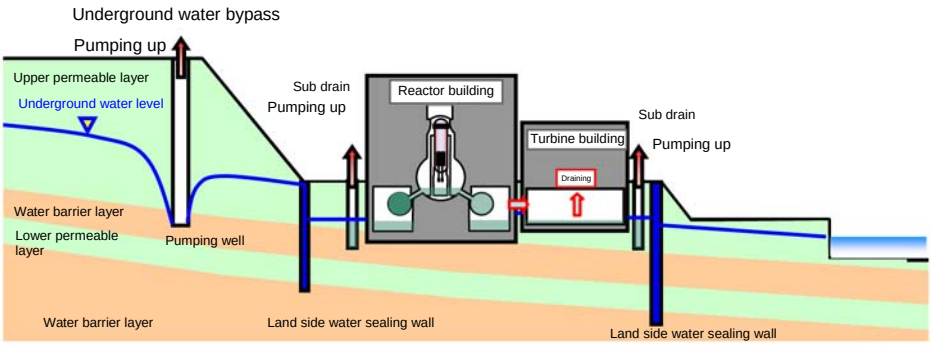
Before discharging the water, a stringent operation target (tritium level of 1500Bq/L versus the 60,000Bq/L based on regulatory announcement) was established. The pumped up underground water was discharged 24 times by September 28 after confirming that the tritium level is lower than this operation target (Total amount of discharged underground water: Approximately 39,000t).

Currently, 300 to 350 m^3 per day of underground water are pumped by bypassing the underground water. The water level of the observation pit was confirmed to be lower after about 2 to 3 months from the start of the operation, and the flow of underground water into the building tends to gradually decrease. From the data that have been obtained until now, the flow of underground water into the building is evaluated, and it decreases about 100 to 300 m^3 per day than before. When the waterproofing construction effect of the high temperature incinerator is considered to be about 50 m^3 per day, the effect of bypassing the underground water is evaluated to be about 50 to 80 m^3 per day.

< Pumping of Underground water by Sub Drain>

An approach has been made to reduce the flow of underground water going into the building by lowering the underground water level around the building by bypassing the underground water. However, in order to reduce the flow further, the underground water will be pumped from a well (sub drain) near the building to further directly lower the

underground water level around the building. The underground water from the sub drain contains radioactive materials from the rainwater that makes contact with the debris, etc. on the ground surface contaminated from the accident mixing in the underground water. Therefore, a special purification facility was installed to reduce the concentration of the radioactive materials to about 1/1,000 to 1/10,000. The underground water processed in the purification facility will be drained to the port after it is checked to satisfy the set water quality standards. However, the draining will be carried out after we gain an understanding of the relevant authorities, the parties concerning fishery, etc.



Schematic drawing of underground water bypass and sub drain

<Frozen Soil Water Sealing Wall>

The frozen soil water sealing wall is a technology to prevent the intrusion of underground water into buildings by generating frozen water sealing walls around the building by freezing underground water using chiller piping (depth: approximately 30m). Chiller pipes are installed at approximately 1m intervals surrounding the reactor buildings and turbine buildings of Units 1-4. A demonstration test (freezing test) was started on March 14 and successful freezing was observed.

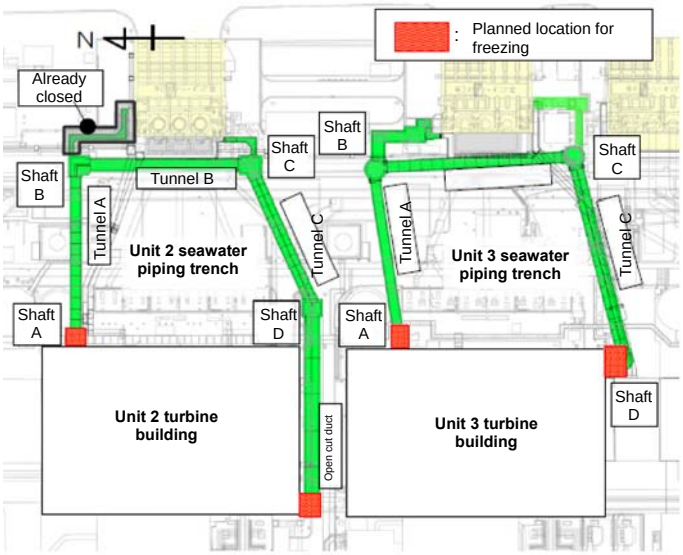
In the northwest area of Unit 1, excavation work for installing the chiller pipes was started on June 2, and the excavation work for 462 pipes and the installation of 103 pipes out of 1,545 chiller pipes has been completed aiming to begin freezing within the year 2014. Further, the installation of a freezing machine to freeze the ground has been carried out, and the installation of 13 machines out of 30 machines was completed (as of September 23).

The underground water flowing from upstream to the peripheral of Units 1 to 4 takes a detour by the frozen soil water sealing wall in the land side and flows out to the ocean. With this, the amount of underground water that flows into the peripheral of Units 1 to 4 is expected to decrease largely.

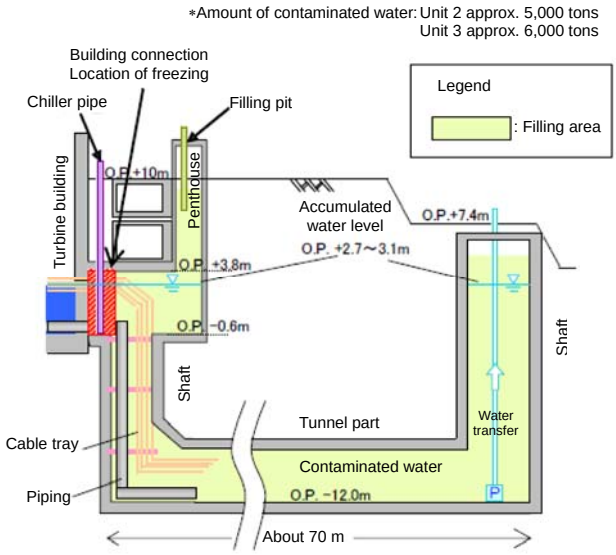
Flow of underground water after installation of frozen soil water Sealing Walls

< Removal of Retained Water from Seawater Piping Trench of Units 2 and 3>

In order to remove the contaminated water accumulated in the seawater piping trenches of Units 2 and 3, it is necessary to perform water sealing in the connection between the turbine building and the seawater piping trenches. Therefore, construction has been started to waterproof by freezing water around it with the chiller piping and packers (nylon bags). However, the presence of the cable tray and the like in the installation location of the water sealing wall causes disturbance to packer insertion, and the migration of water between turbine buildings inhibits successful freezing. Measures to promote freezing have been carried out such as installation of more chiller pipes using ice and dry ice, and an operation to suppress the change of the water level. As a result of checking by measuring the temperature and the flow rate and using a camera, the growth of ice was observed, and it was confirmed that the freezing process has begun. Further, the vicinity of the cable tray part near the turbine building has been considered to be a main flow path. Therefore, spaces in this part will be narrowed and filled to promote the freezing process. Further, draining and blocking of the trenches is being considered.



Planned location for freezing

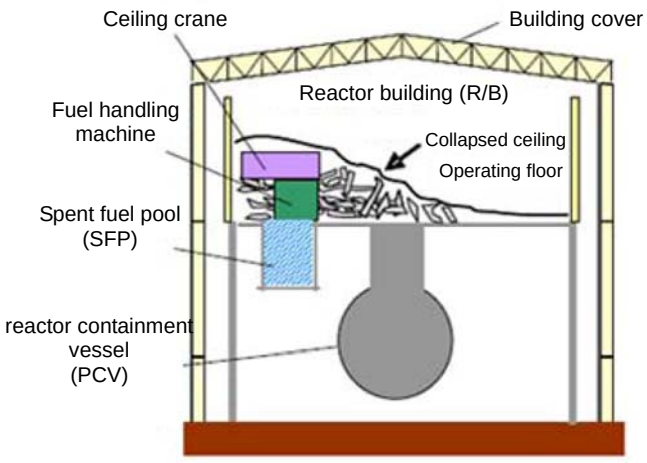


Cross-section of seawater piping trench of Unit 2

(4) Dismantling of Building Cover of Unit 1

The building cover was installed to suppress the scattering of radioactive materials in October 2011. However, debris has been scattered on the operating floor of the top part of the reactor building even at present.

In order to reduce the risk of the entire power station by promptly removing the fuel in the spent fuel pool, it is necessary to remove the debris on the operating floor. Therefore, the building cover was necessarily dismantled. In order to decrease the wind flow going into the operating floor besides spraying a scattering inhibitor, the dismantling of the building cover was carried out steadily by monitoring the concentration of radioactive materials using dust monitors on the operating floor and near the reactor building while sufficiently carrying out the measures to prevent scattering such as installation of a balloon to block the hatch (opening) of the 3rd floor of the reactor building and sucking sand and dust scattered on the collapsed ceiling before dismantling the wall panel.



Illustrated cross-section of Cover

Debris and dust sucking machine

(5) Approaches to improve the working environment

- Installation of temporary ex-site rest station

  A temporary rest station that can accommodate approximately 1000 people was constructed on the west side of the access control facility. Operation of the rest station started on April 7. A permanent large-scale rest facility that can accommodate about 1,200 people has been currently under construction, and will be completed in March 2015.

Temporary rest station

On-site large-scale rest facility that is under construction

- Transfer of power station staff to a new office building
- Prior to the main office building planned to be completed by the end of FY2015, the construction of a new office building was built on the Fukushima Daiichi NPS site so as to ensure information sharing and rapid response to trouble. The transfer of a part of the staff had started from July 22, and completed in October. With this, the time that the staff has to go to the site is largely reduced[2].

Exterior of new office building

Working room of new office building

[2] For example, it took about 1 hour from Fukushima Daini to go to the seismic isolated building. It has been reduced to about 15 min (wait time for a shuttle bus has been considered) from the new office building.

(6) Benchmarking of overseas cases

An agreement was made with Sellafield Ltd. (UK), which is working on the decommissioning of its nuclear reactors and radioactive waste-related facilities to exchange information on both operational and technological aspects. Both parties signed the Declaration for Cooperation on May 1 that described the significance and purpose of the Agreement. Further, the information exchange agreement was concluded (disclosed on September 30) from the specific agreed upon items in the following four fields.

- Site operation and management
- Environment monitoring
- Radiation protection
- Project management and design engineering

Prior to this conclusion, Mr. Clarke, CEO of the Nuclear Decommissioning Authority (NDA[3]), inspected Fukushima Daiichi, and it has been confirmed that we both can contribute to accomplishing our goal by learning the similar issues from each other. From now on, we will promote steady decommissioning for the facilities of both, through active information exchange regarding the issues both companies are working on.

Inspection by Mr. Clarke, CEO

(7) Formulations of Seismic Motion and Tsunami for Examination

Since the earthquake, the earthquake resistance of buildings, facilities, etc., has been checked to adhere to the "current standard seismic motion and the seismic motion that is equivalent to the 2011 earthquake off the Pacific coast of Tohoku." Further, measures have been carried out such as the installation of temporary flooding embankments for an "outer rise Tsunami" and nuclear reactor water injection to a "Tsunami that is equivalent to the 2011 earthquake off the Pacific coast of Tohoku."

[3] Nuclear Decommissioning Authority: A public organization that formulates the comprehensive strategies, etc. regarding the decommissioning of the nuclear facilities in England. The NDA concluded a contract with Sellafield Ltd. regarding the operation and management of the decommissioning site.

Further, with the characteristics of Fukushima Daiichi, risk reduction measures have been carried out based on the following points of view.

○ Reduction and removal of the radioactive substances
- Reduction and removal of the contaminated water, removal of the spent fuel, and removal of the fuel debris (fuel that melted down by the accident)
- Carrying out the appropriate protection measures depending on the period of the removal

○ Approaching preferentially from a relatively large risk
- Approaching preferentially from the response to the fuel debris, the spent fuel, and the contaminated water

○ Using transportable facilities in addition to the permanent facilities
- The transportable facilities have a high flexibility, and they are capable of responding to the interruption of functions due to various causes.
- Acquiring fire engines, power supply cars, etc. to inject water for cooling

Because the policy of the Nuclear Regulation Authority was devoted this time to promoting an examination on protection from a larger earthquake and Tsunami, the seismic motion and Tsunami chosen for the examination were formulated under the severest conditions in a power station, based on the knowledge after the 2011 earthquake off the Pacific coast of Tohoku and a new regulation standard and its formulation was reported to the Secretariat of the Nuclear Regulation Authority. The formulation results of the seismic motion and Tsunami for the examination are as in the table below (disclosed in October 3).

<Result of formulation of seismic motion for examination Horizontal direction Maximum acceleration value (gal)>

This time		2011 off the Pacific coast of Tohoku Earthquake	Conventional	
Seismic motion 1 for examination	900	675	Standard seismic motion Ss-1	450
Seismic motion 2 for examination	722		Standard seismic motion Ss-2	600
			Standard seismic motion Ss-3	450

* 1 is set based on the evaluation result of the impacting earthquake. In addition to this, the evaluation result, which is obtained by using a detailed method for the earthquake that is set based on the 2011 off the Pacific coast of Tohoku Earthquake, was separately set as 2.

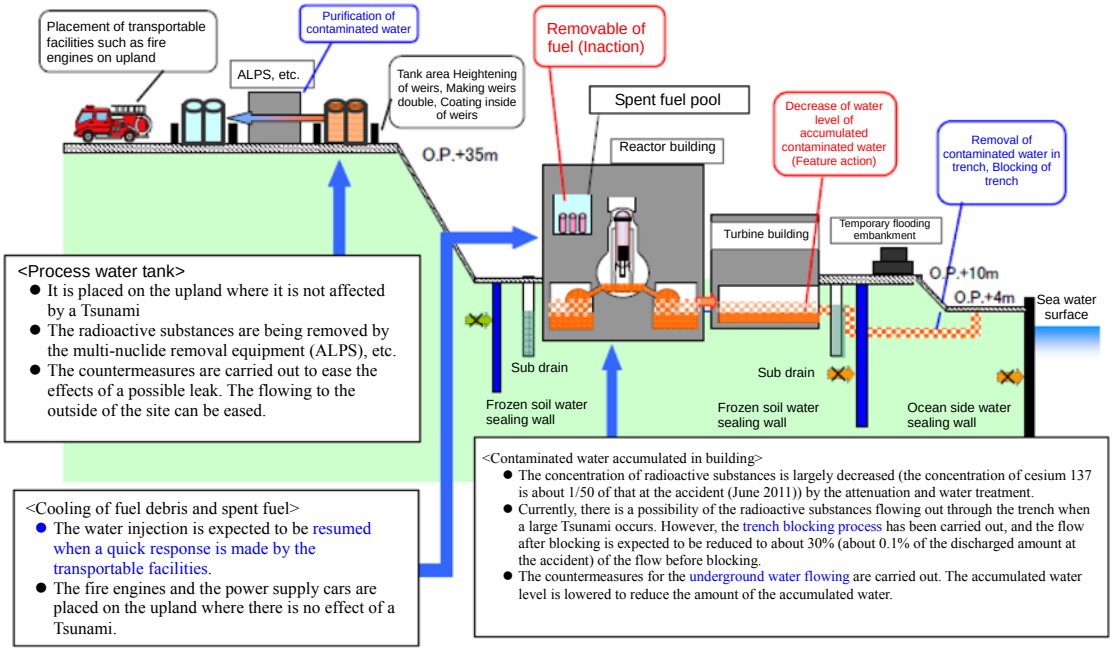
<Result of formulation of Tsunami (m)>

	This time	2011 Off the Pacific coast Tohoku Earthquake	Conventional
Highest water level	O.P.+26.3 Coast on the north side of the site	O.P.+15.5 Units 1 to 4	O.P.+6.1 Intake pump of Unit 6

Results of Formulation of Seismic Motion and Tsunami for Examination at Fukushima Daiichi

The measures that have been carried out at Fukushima Daiichi will be continuously promoted, and further risk reduction will be attempted. At the same time, the protection measures against a larger earthquake and Tsunami will also be carried out based on the results of discussions in the Commission on Supervision and Evaluation of the Specified Nuclear Facilities (established by the Nuclear Regulation Authority.)

On the other hand, the countermeasures that are effective for an earthquake and Tsunami have been carried out as shown in the figure below. From now on, an evaluation based on the seismic motion and Tsunami for examination will be carried out, and the measures to improve the reliability will be examined and carried out by giving priority to the location that is considered to be relatively weak.



Responses based on seismic motion and tsunami for examination in Fukushima Daiichi

(8) Current Status of Investigation on Unconfirmed / Unresolved Issues in Fukushima Nuclear Accident

The current status of investigation on the unconfirmed / unresolved issues was publicized[4] on August 6 as "The 2nd Progress Report." The investigation on the unconfirmed / unresolved issues will be continuously carried out by analyzing and reevaluating the records and data, investigating the site, etc., and the result will be properly publicized [accordingly].

[4] Refer to the press release on TEPCO's homepage.

1.2 Fukushima Daini NPS

(1) Inspection Inside Unit 1 Reactor

In Fukushima Daini, the fuel in the reactor is transferred to the spent fuel pool based on the standpoint of simplifying equipment maintenance, and the transfer of the fuel in Units 1, 2 and 4 has been completed.

Among these units, an inspection was performed on the structural substances in the reactor of Unit 1 in which the transfer of fuel was completed on July 10, and it was confirmed there was no abnormality (August 7).

Inspection of the structural substances in the reactor
(Lowering an underwater camera into the reactor)

(2) Inspection of External Power Supply (Power Incoming to Facility from Transmission Line to Power Station)

In Fukushima Daini, the inspection of the external power supply (2 lines) that is one of the important components was carried out from July 2 to July 3 to ensure the cold shutdown to be maintained, and it was confirmed that there was no abnormality.

The inspection was carried out this time by stopping one line at a time. However, a case was assumed in advance that one line might also be stopped due to troubles, etc. caused by the accident while another line was inspected, and a power supply would be secured by using an emergency diesel generator, a gas turbine generator car and a power supply car; securing of a work force; and strengthening of the communication system; etc. for the troubles caused by the accident were examined more thoroughly than before.

Inspection of the power supply line of 66,000 volts

(3) Support for the Decommissioning of Fukushima Daiichi

1) Preparation for Covering Seabed Soil Within the Port

As measures of preventing radioactive substances from spreading, operations have been carried out at Fukushima Daiichi such as the installation of a plant producing a covering material that is to be laid on the seabed within the port, and the production of the covering material has been carried out.

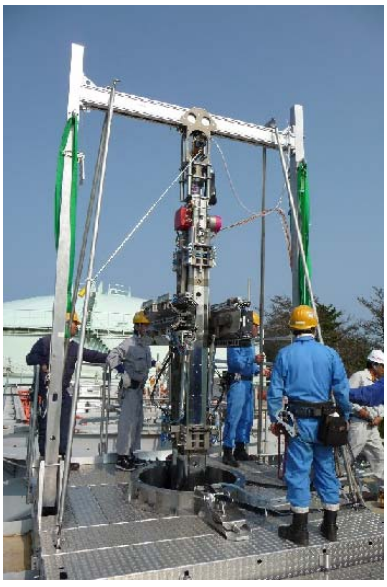
Loading the covering material into a ship

Plant producing the covering material (Whole view)

2) Training and Demonstration Test (Mock-Up) of Repairing of Flange Type Tank

The training of workers and a demonstration test (mock-up) have been performed for repairing the connection surface at the bottom of the tank, which have been considered to be countermeasures for leakage from the assembly-type flange tank in Fukushima Daiichi, using the same type of tank[5] that is installed at Fukushima Daini. From the results, the foreknowledge of the risky locations during the actual operation and its countermeasures have been checked by the TEPCO employees and the workers who would be affected in the operation procedure.

Flange type tank where the demonstration test is performed



Training for repairing the flange on the bottom of the tank

[5] After the Fukushima Nuclear Accident, two flange type tanks were installed and operated at Fukushima Daini to temporarily store the seawater that entered the building(the seawater that was stored was transferred to a water surge suppression tank, and these two tanks are currently empty).

These approaches at Fukushima Daini have been adopted as part of the safe and steady decommissioning operations at Fukushima Daiichi.

(4) Formulation of Seismic Motion and Tsunami Considering New Regulation Standards

Countermeasures will also be taken at Fukushima Daini in the same manner as Fukushima Daiichi by formulating the size of the seismic motion and the height of the tsunami under the severest conditions for the power station.

The plans that are formulated this time of the seismic motion and tsunami in which the new regulation standard in the Fukushima Daini is considered are as shown in the table below (publicized on October 3).

<Result of the formulation of the seismic motion for examination Horizontal direction Maximum acceleration value (gal)>

This time		2011 off the Pacific coast of Tohoku Earthquake	Conventional	
Seismic motion	900	427	Standard seismic motion Ss-1	450
Seismic motion	556		Standard seismic motion Ss-2	600
			Standard seismic motion Ss-3	450

* 1 is set based on the evaluation result of the impacting earthquake. In addition to this, the evaluation result, which is obtained by using a detailed method of the earthquake that is set based on the 2011 off the Pacific coast of Tohoku Earthquake, was separately set as 2.

<Result of Formulation of Tsunami (m)>

	This time	2011 Off the Pacific coast Tohoku Earthquake	Conventional
Highest water level	O.P.+27.5 Front surface of the reactor intake of Unit 1	O.P.+15.9 South side of Unit 1	O.P.+5.0 Near the heat exchanger building

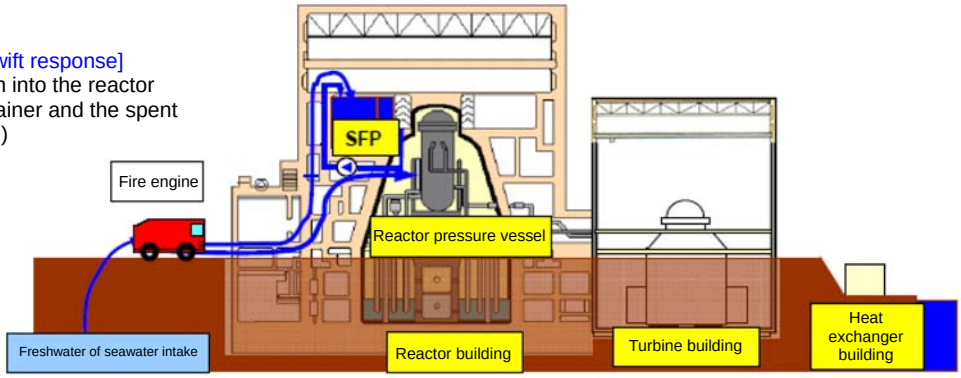
Results of the formulation of the seismic motion and tsunami in which the new regulation standard in the Fukushima Daini is considered

The earthquake resistance of the reactor building, the spent fuel pool, and the reactor pressure vessel has been confirmed for the seismic motion and tsunami in which the new regulation standards are considered.

Because it has been more than 3 years since the power station was stopped, the decay heat of the fuel is small, and there is enough time until the temperatures of the spent fuel pool and the reactor increase. However, the procedure is determined so that the integrity of fuel can be secured by injecting water from a fire engine, and this training has been carried out.

Because a cold shutdown of Fukushima Daini will be maintained for now, the enhancement of the functions of water injection and removal of the heat in the spent fuel pool will be examined and carried out by giving a priority to the measures to further improve the reliability of the fuel cooling when the operation is stopped.

[Image of the swift response]
Water injection into the reactor pressure container and the spent fuel pool (SFP)



Securing the safety regarding the fuel cooling in the Fukushima Daini

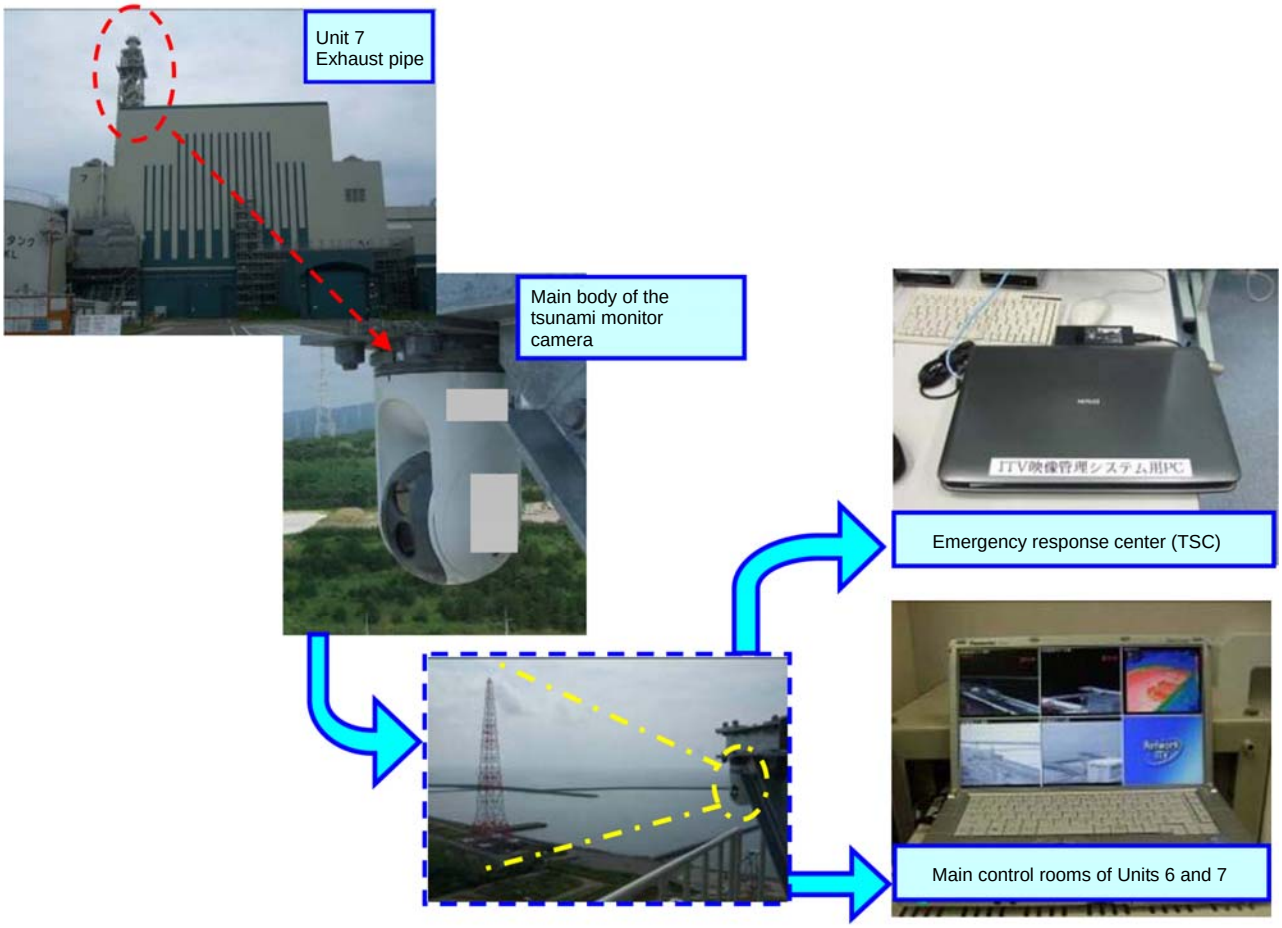
1.3 Kashiwazaki Kariwa NPS

(1) Status of safety measures implementation

Kashiwazaki Kariwa is promoting various safety measures by reflecting the lessons learned from the Fukushima Nuclear Accident including the following: measures to prevent flooding caused by tsunamis; measures to secure the power source and cooling function; measures to prevent the escalation of an accident.

The main progress in the 2nd quarter of FY2014 includes completion of the installation of a tsunami monitor camera on the Ominato side (side of Units 5 to 7) (July 31). With this, it became possible to directly confirm the status of an incoming tsunami from the main control room and the emergency response center.

As for construction to decrease the exposure dose of the operators in a severe accident, that has been carried out in the environmental improvement of the main control room of Units 6 and 7, the construction of shielding around the main control room (gallery room) as a temporary shelter was completed (September 26), and the exposure dose of the operators when the filter vent is operated can be suppressed to the "100 mSv or less in 7 days" that is required in the new regulation standards.



Installation of a tsunami monitor camera

(Tsunami monitoring in the emergency response room and the main control room

(2) Additional geological research

The additional research on the geological features inside and outside of the site that was started in February is continuously being carried out.

A boring operation was completed at 5 out of 6 locations outside of the power station site, and the evaluation has begun. For the excavation of shafts that has been carried out at the power station site, the excavation of 3 shafts in the side of Units 5 to 7 was completed by June 30, and is currently under evaluation. The excavation of one shaft on the side of Units 1 to 4 has started from July 9, and preparation for excavating a lateral shaft has been carried out by continuously performing construction for water sealing, etc.

The excavation of trenches outside of the site has started from September 8. The on-site operation of the subsurface prospecting was completed (July 22) for all 4 of the measurement lines, and the analysis has been carried out.

We will further perform the analysis and the evaluation of the collected data in parallel to the on-site operation, and make responses flexibly while making a report to the Nuclear Regulation Authority on the appropriate timing.

Operation of examining the shaft in the side of Units 1 to 4

(3) Response to Facility Handling Specified Major Accident, etc.

A facility handling a specified major accident, etc.[6] that is to follow the new regulation standards is required to have them installed within 5 years, and the preparation construction will start in October for Kashiwazaki Kariwa.

The construction will be performed while an inspection by the Nuclear Regulation Authority takes place.

Further, a “safety facility construction center (about 50 people including people handling two

[6] The facility is required to have a function of the pressure reduction operation of the reactor cooling material pressure boundary, a function of cooling the center of the melt reactor in the reactor, and functions of cooling and reducing pressure in the containment vessel. From the viewpoint of the protection of nuclear substances, the facility is not disclosed.

positions)" is to be installed in the power station (August 1) upon the construction of the main facility, and the construction will be carried out steadily toward completion by July 2018.

(4) Further approaches to improve safety

Along with the promotion of introducing the safety improvement measures for Kashiwazaki Kariwa Units 6 and 7, we are promoting the initiatives based on the lessons learned from the Fukushima Nuclear Accident to achieve a higher level of safety.

1) Development of highly heat resistant seal material

A silicon seal material is used in the top head flange and hutches of the reactor containment vessel. In addition to the seal material, a high heat resistant seal material (refer to as a backup seal material below) that can be applied onto the flange surface has been developed.

In order to check that the backup seal material can be resistant to the severe environment at the accident, a test was performed to check the air-tightness of the seal material by exposing it to high temperature and steam and irradiating it with radiation, and the seal material was confirmed to have a seal function even in an environment in which the temperature exceeds 200°C.

With this, the heat resistance of the function of sealing in a containment vessel is considered to be enhanced by applying a backup seal material in addition to the current seal material, and this investigation has been carried out for use in an actual machine.

2) Comprehensive understanding of risks

The probabilistic risk analysis (PRA[7]) has been carried out in Kashiwazaki Kariwa Units 6 and 7 as preceding plants. In addition to the evaluation of internal and external events (earthquake and tsunami) that has been carried out, a preparation has been carried out for internal flooding and internal fire evaluations which have never been performed domestically, while receiving support from a consulting company in the U.S.

The evaluations of the internal events and tsunami in the current state of the plant were completed, and in which internal events. in a state where the plant was just installed, the evaluation of an earthquake and tsunami, and various severe accident countermeasures that have been discussed were considered.

As a result, it was quantitatively confirmed for the internal events and the tsunami that there is has been large risk reduction effect in the countermeasures until now.

For an earthquake, the evaluation of the state of the current plant has been carried out.

For interior flooding, besides the analysis, etc. of causes that become necessary

7 Probabilistic Risk Analysis

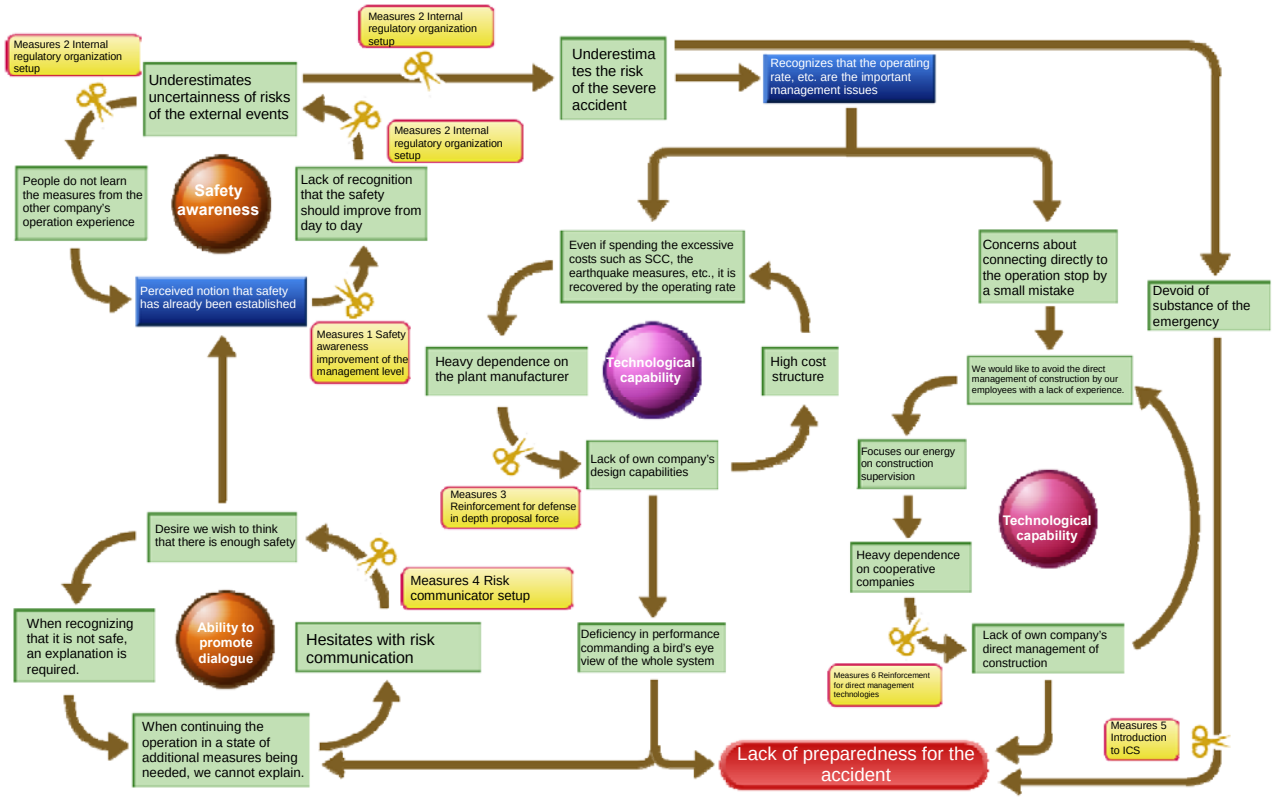
information for the evaluation, the accident sequence, and human errors have been carried out, and the specifications of the same evaluation contents for internal fire have been carried out as well.

Further, the investigation and the analysis have been carried out on external events other than an earthquake and tsunami. Specifically, effects have been evaluated for 20 man-induced events in addition to 40 natural events other than an earthquake and tsunami. At the same time, further detailed evaluation of effects has been carried out for wind (typhoon), tornados, snow, low temperature, thunder, and volcanos, and necessary safety measures have been carried out.

2. Progress Review for Nuclear Safety Reform Plan (In terms of management)

As to the progress review of the Nuclear Safety Reform Plan (in terms of management), we summarized these as, “Implementation of the 2nd quarter” and “Future plan” by every 6 measures in order to cut off “Negative chains,” so to speak, that engender the structural problems that the nuclear power division has.

Shutdown of the “Negative chain,” in which preparedness for the accident was lacking



This time, the progress status for each measure has started being reported using an evaluation index for the measure that is available first from the progress report. Each measure has been progressing by solving its own issues. The review and the addition of the evaluation index, and the target setting are carried out, and the nuclear safety reform plan is accelerated by turning the PDCA cycle in a short period.

Further, we, who aim for the world’s top level nuclear safety, the KPI, the target value, and a milestone were set in the 3rd quarter of FY2014 to measure the degree of actualization of the nuclear safety reform, and evaluate the degree of target achievement for every milestone. Especially, it will have been 2 years by the end of this year since the reform plan was formulated. Therefore, the progress of the reform plan, and its achievement will be confirmed.

2.1 Countermeasure 1 Reform from the management level

(1) Implementation of 2nd Quarter

- In order to promote safety awareness, the general manager of the Nuclear Power and Plant Sitting Division, the president of the Fukushima Daiichi D & D Engineering Company, the general manager and construction manager of each power station, and the director of the headquarters are working hard to send messages through such means as a morning assembly, the beginning of various types of meetings and an intranet.
- For the activities to foster a safety culture, 7 principles have been decided so far, and the actions have been made based on these principles. However, these principles are not merely "principles" that are often considered to be okay if the learning from the Fukushima Nuclear Accident has been reproduced clearly and the principles have been memorized. Our purpose is to clearly show and make the principles into actual actions and behaviors in daily life, and we changed "principles" to be "10 Traits and 40 behaviors of a Healthy Nuclear Culture" while referring to "Traits of a Healthy Nuclear Safety Culture[8]" of WANO[9]/INPO[10] that has been the international standard.

[8] The present document is not publicized. However, the same kind of document has been publicized from U.S.NRC as NUREG-2165.
[9] World Association of Nuclear Operation
[10] Institute of Nuclear Power Operations

Former 7 principles	New 10 traits
1. All employees shall be aware of participating in nuclear safety.	1. Each individual's responsibility
2. A leader shall take the initiative to carry out the principles of a safety culture.	2. Questioning attitude
3. A reliable relationship shall be fostered between relevant parties within and outside the company.	3. Communication for enhancing the safety
4. Decisions shall be made by making nuclear safety the maximum priority.	4. Leader's sense of values and actions toward the safety
5. A risk that is intrinsic to the nuclear power generation shall be strongly recognized.	5. Decision making[11]
6. The attitude of constant questioning shall be encouraged.	6. Work environment where each person is respected
7. One shall systematically learn every day.	7. Continuous Learning
	8. Specifying and solving the problems
	9. Environment where one can express concerns
	10. Planning and managing[12] the work

The new 10 traits are categorized as follows: 1 to 3 are the individual's commitments, 4 to 6 are the leaders' commitments, and 7 to 10 are carried out under the initiative of the management system.

- As a result of monitoring the expectation items of the general manager of the Nuclear Power and Plant Siting Division and the president of the Fukushima Daiichi D & D Engineering Company and the pervading state of the Nuclear Safety Reform Plan, it was found that there are many indications, such as "the number of messages sent from the nuclear power leaders has increased regarding safety and risk." However, there are still indications such as "the contents are abstract" and "the messages are not

[11] The securing of nuclear safety and the decision making that affects the securing of nuclear safety must be considered systematically, strictly and thoroughly.
[12] The work shall be planned and managed so that safety can be maintained.

enough." Further, for the Nuclear Safety Reform Plan, there were opinions such as "the picture of the nuclear safety that we are aiming at is not clear" and "there is a large variation in the current recognition level." For these indications and opinions, the improvement will be carried out by supporting the intention and the plan of the nuclear power leaders by the Secretary General of Nuclear Reform Special Task Force (referred to as a TF office below) directly having a conversation with all fronts at the site and by working on self evaluation using the 10 Traits and PO&C[13].

- In the TF office, a direct conversation with all fronts at the site began in August. The target of the Nuclear Safety Reform Plan, the relationship with daily business, etc. are repeatedly explained, and support is carried out to confirm and solve the issues.

Conversation by the TF office

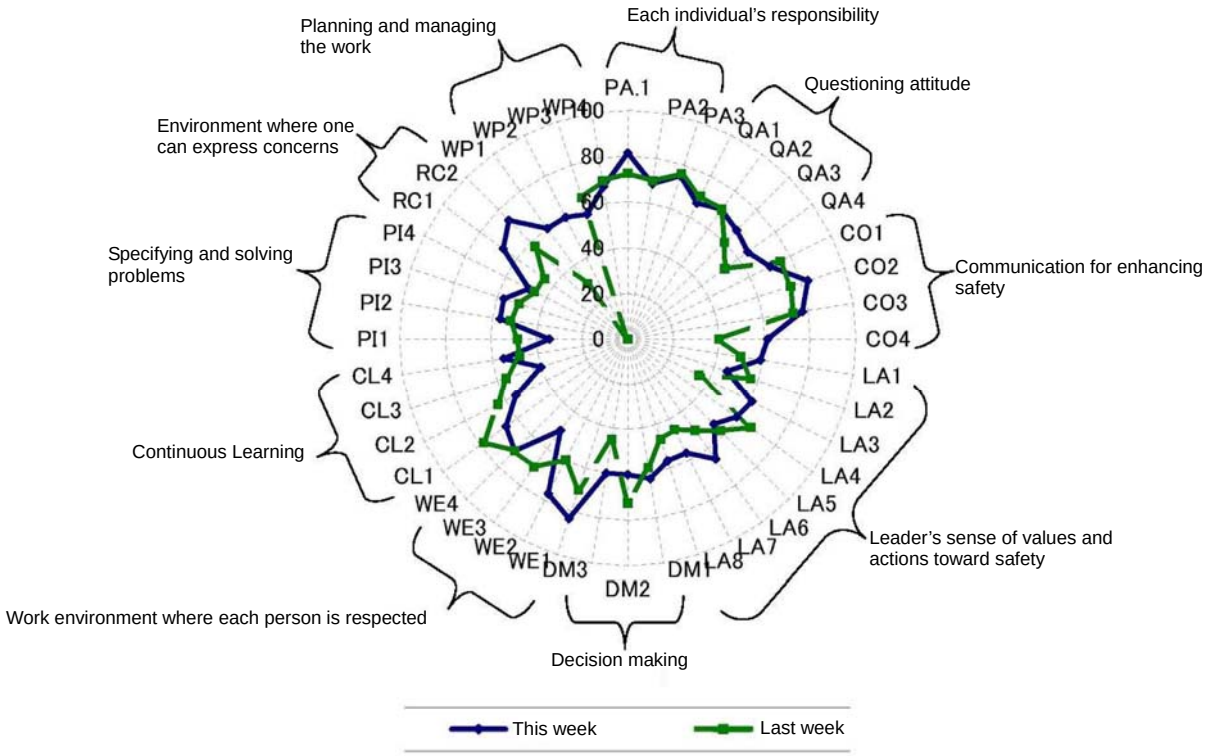
- Based on the 10 Traits and the PO&C, a target organization and a target state of an individual will be set, and specific examples of action indicated by the 10 Traits and the PO&C and herself/himself will be compared and evaluated. The tools for performing the comparison and the evaluation will be prepared and a test run will be carried out in the 2nd quarter, and the operation will begin in the 3rd quarter.

We are intending that these activities themselves become a sort of training so that the self evaluation and the looking back can become a habit. One example from the results of the test run of the self evaluation based on the 10 Traits is shown. Each person performed a self evaluation for each of 40 behaviors belonging to the 10 Traits with a frequency of one every two weeks[14]. Each organization repeatedly had

[13] Performance Objectives & Criteria (target and standards of the performance formulated by WANO, non-publicized)

[14] The self evaluation is performed on a scale of one to ten for "understanding the importance of following the standards to maintain nuclear safety and of fulfilling her/his responsibility so as to satisfy the standards" in PA. 1, for example. This process is carried out for all of the 40 behaviors, the results are summed up for each organization and the weaknesses are perceived.

discussions on the improvement measures toward an ideal attitude by looking back at our specific behaviors, using the total results per organization.



Self evaluation result based on the 10 Traits and the 40 behaviors
(example of the total results per organization)

- In order to improve the governance of the nuclear safety, the establishment of "Nuclear Power Division Management Policies[15]" has started, and at the same time, a benchmark was carried out in the 1st quarter regarding the management system of Exelon Corporation (USA) as a good example from overseas. From now on, the objective of the benchmark will be extended to other companies besides Exelon Corporation, and a differential analysis of the management will be considered.

15 It has been established to further specify the expectation items of the nuclear power leaders.

- As the evaluation of the effectiveness regarding the training of the nuclear power leaders, "360 degrees evaluation regarding the action index[16]" has been carried out before. The "self evaluation using the 10 Traits" that will be carried out from now on is at the same level or more[17] of the previous evaluation. Therefore, a more effective method will be examined using the latter evaluation, and the operation is aiming to start during the 3rd quarter.
- The training (knowledge of the facilities that is necessary to make Fukushima Daiichi steady and conduct risk communication) of the target persons in the Fukushima Daiichi D & D Engineering Company was carried out (July 7 and 24, August 28, and September 1) for enhancing the knowledge regarding the safety that is necessary for the nuclear power leaders.

Training of the target persons of the Fukushima Daiichi D & D Engineering Company

- The training (risk communication) of the target persons in Kashiwazaki Kariwa was carried out (September 3) for enhancing the knowledge regarding the safety that is necessary for the nuclear power leaders.

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[16] 5 action indexes

1) The improvement toward continuous safety is placed to be the most prior management issue.
2) The preparation of the deep layer protection shall be encouraged with the fact that the design does not come out as it was planned in mind.
3) The risk of the natural phenomena shall be faced humbly and shall not be underestimated.
4) We shall work on developing the technical force to improve the safety, and evaluate new challenges that have been made even they failed.
5) We shall honestly announce the remained risk of the nuclear power to the society, and shall not force relief easily.

[17] The number of evaluation items will be changed from 5 items to 40 items, and the frequency of the evaluation will be changed from every quarter to every two weeks.


Training of the target persons at Kashiwazaki Kariwa

(2) Future Plan

The general manager of the Nuclear Power and Plant Siting Division and the president of the Fukushima Daiichi D & D Engineering Company will be turning the PDCA cycle to realize the goals according to "Nuclear Power Division Management Policies" while sufficiently paying attention to the management for change.

In addition, activities of comparing and evaluating the specified examples of action shown by the 10 Traits and the PO&C and herself/himself will begin in the 3rd quarter. Based on this evaluation result, the weaknesses of the individual and the organization will be comprehended and a Key Performance Indicator (KPI) will be set that is considered to be effective to improve the activities. The year 2014 is an introduction period for these activities, and a Key Performance Indicator (KPI) is considered in which an understanding of the 10 Traits spreads and the feedback becomes a habit.

2.2 Countermeasure 2 Monitoring/support reinforcement at the management level

(1) Implementation of the 2nd quarter

- Approach of Nuclear Safety Oversight Office (NSOO)

The opinions of Nuclear Safety Oversight Office (NSOO) based on monitoring for the past few months are as follows.

A. Holistic View

A.1 Leadership

Since the division of nuclear into two businesses, NSOO has observed an increase in safety awareness amongst the senior leadership with much more interest, challenge, involvement and passion for safety.

The senior leadership have a healthy interest and make good challenges on safety. Their recent interest in excessive overtime working, despite the program pressures, is good. The creation of action plan demands for the executive has driven some safety improvements in the nuclear businesses.

In addition the President's Safety Steering Meeting is developing into a lively and effective forum for the nuclear executive to focus on the strategic safety issues. There is still a lot of work to do to maximize the effectiveness of the new nuclear business structure and NSOO expects the SSM to oversee this.

A.2 Governance and Control of Safety

The appointment of Heads of Safety Assurance at the senior level (reporting directly to the President and CDO) is strengthening safety within TEPCO. However, there is still a lot to do to properly define the posts, resource them and enable the post holders to drive the necessary improvements in safety.

As the new businesses have developed NSOO observes that the place where is to share information and to make a decision related to safety has not been clarified and been ambiguous. New committees and meetings have been created and there is a lack of clarity as to where decisions are taken and the role of each meeting. NSOO have advised that safety related decisions should be taken only in meetings properly constituted and managed for that purpose. In addition, NSOO believes that these discussions and the result should be compiles as the engineering review documentation and the process in which the final approval is received should be re-build.

CDO recognized these problems and started to consider improvement. NSOO will continue to monitor that that is the case.

NSOO has previously commented on the lack of Key Performance Indicators (KPI) in TEPCO. KPIs are now being developed by the two businesses. This is a positive move which will enable the leadership to better understand the safety performance and where safety needs to be improved.

TEPCO is short of resource and capability across many fields which inevitably could affect safety. NSOO has previously recommended that there should be an assessment of the safety related roles that TEPCO needs to maintain.

A.3 Learning

TEPCO has improved its capability to analyse non conformances (NC), events, accidents and safety information (OE) from outside the company. However, the final step of converting all the information and knowledge into learning which would improve our standards or prevent a recurrence of an accident is still weak. The Executive now understands this issue and will work through the SSM to analyse and improve learning.

A.4 Emergency Preparedness

The efforts to train in Command and Control of emergencies at KK are impressive and the site is now approaching world class standards in emergency management.

At 1F and 2F a lot of training is done in the field in dealing with such as water supplies and fire protection. However, insufficient site level training in Command and Control has taken place. The management have acknowledged this and are making plans for improvement despite their heavy schedule.

B. Site Specific Issues

B.1 Fukushima Daiichi

B.1.1 Industrial Safety Accidents

There have been several accidents at 1F over the last months. The direct causes of these events are different but there are similarities in the root causes. One common root cause is Work Control. An NSOO team has assessed the work control process by interviewing middle managers and observing prejob briefs and training. Work Control is adequately managed across a lot of the site although the work load is very high. However in some area the work control is fragmented and the system is severely stressed by the high workload and the number of new staff with little or no experience of working to nuclear standards. Also, the training for these contract supervisors which is specific to the work at 1F site is not adequate.

NSOO also observe that the demanding work schedule is a contributory factor in some cases and this has to be addressed at site and corporate so that we meet the schedule where possible, but only with the appropriate level of safety built in.

The 1F management is aware of these findings and has made similar observations themselves. The challenge is to improve the situation so that the demanding workload can be met without having more accidents. We see that the 1F station superintendent is making strong efforts to correct this situation and implement stronger work control.

B.1.2 Nuclear Safety at 1F

NSOO has previously commented on the lack of a proper safety framework for decisions and approval at 1F. The requirement for such a safety framework is now one of the 10 actions on the executive from the Board. However the framework has not yet been defined. In the meantime NSOO is concerned that work with important nuclear safety implications is not being assessed and approved at the correct level and NSOO has had to intervene in some cases.

The CDO and Site Superintendent are aware of our views but progress is slow.

The Site Superintendent has proposed that the nuclear safety aspects and the industrial

safety aspects of projects should be separated. NSOO agrees and advises that the project should be responsible for the nuclear safety case and held accountable if it is inadequate. The approval route for nuclear safety cases should be reconsidered to make it more rigorous.

B.1.3 Radiation Protection

NSOO is impressed with recent improvements in the control of radiation exposure at 1F. The creation of procedures for assessing dose during work planning and for implementing ALARA during design, work planning and work control is commendable. The doses at 1F are inevitably high but radiation dose must be treated with caution and the current improvements give us expectation that the dose to the workforce will now steadily decrease.

B.2 Fukushima Daini

We see a workforce that is good but suffering from having no mission for their site. This has made it difficult for recent initiatives in safety culture improvement to penetrate the work force.

On the other hand, in our limited observation of Daini, we observed that there were some safety issues which needed to be improved but the group in charge were making effort for the improvement aggressively. We felt that their safety awareness level had been improved.

B.3 Kashiwazaki Kariwa

The NSOO KK team has focused on safety aspects of reactor start up such as the implementation of safety enhancement, maintenance of equipment during the prolonged shutdown and the readiness of staff for start up.

The senior leader's drive for improved safety standards and culture at KK is impressive as is the safety motivation of the new CNO in the Generating Business.

Although there is still a lot of work to do to complete the enhancements, issue the relevant procedures and train the staff how to use the procedures, these are conducted according to the plan and NSOO has not identified any safety related problems that would prevent restart of units 6 and 7 (assuming the NRA approve the enhancements).

NSOO will continue to monitor the readiness for start up.

- Self-Evaluation of NSOO

NSOO carries out a self-evaluation as follows on the installation and the activities of NSOO that were planned in Countermeasure 2 of the Nuclear Safety Reform Plan.

NSOO Project Performance - Overview

NSOO development is to program, our recommendations are being implemented and NSOO is making a positive difference to TEPCO nuclear safety.

Project Performance

NSOO's role is to assess nuclear safety to prevent accidents and enhance TEPCO safety performance to be world class. The business plan has 3 stages;

1.	Procuring and training staff	May 2013 – Sept 2013
2.	Regular advice to sites and the Board	Oct 2013 – Oct 2014
3.	Refinement of NSOO to world class	Nov 2014 – Dec 2015

The first 2 stages are complete. NSOO is 95% to target against project milestones for setting up NSOO and reporting to the Board. NSOO staff are competent and trained using INPO and WANO courses, internal training and the help of overseas mentors. Regular assessments are carried out and reports made to site staff and the Board. The slight delay against reporting is because the program was diverted to monitor progress against the safety action plan for the Board and monitor work control at 1F.

Performance against KPIs

In the last year NSOO have made 40 recommendations to the site and business staff of which

6 have been completely implemented

30 are accepted and in progress

4 are not progressing

In addition NSOO has made a series of reports to the Board in which it has made several value and behaviour based recommendations. The Board has accepted and acted upon these recommendations. As well as enforcing their own safety value based behaviour, the Board has imposed 10 key recommendations from the plan on the nuclear executive. They are implementing the 10 actions.

The TEPCO NSOO has taken part in benchmarking and workshops with US and European oversight functions. Based on this and his own experience, the Head of NSOO judges this to be a credible performance in the first year of Oversight. NSOO is having a positive influence on the nuclear safety performance of TEPCO. For example, the leadership behaviour, the challenge in nuclear safety committees, and the mechanisms for controlling and reducing radiation doses to the workforce have all improved. TEPCO has also set up a panel of international nuclear safety experts and in the coming months they will review the NSOO performance and results to test this conclusion. The results of this evaluation will be reported to the Monitoring Committee.

- Approaches to address suggestions / proposals from Nuclear Safety Oversight Office
  - The executive officers implemented the following improvements:
    - Based on the proposals of the Nuclear Safety Oversight Office, the status of progress of the action plan ordered from the board of directors to the executive officers was reported in the board of directors meeting on August 27. The board of directors ordered again an evaluation of the implementation status of the action plan of the executive directors by the Nuclear Safety Oversight Office.
    - A "Safety Steering Meeting" was held on July 18, and the management of change was discussed associated with the establishment of the Fukushima Daiichi D & D Engineering Company . It was evaluated that the effect of constructing a project system has increased for solving the issues in a cross organizational manner, etc. On the other hand, it was determined that an evaluation is necessary whether or not there is a new risk being generated and whether or not nuclear safety is strengthened further due to the organizational change. Because the Safety Steering Meeting has the advantage of discussing one or two topics intensively with a small number of members in its management[18], it will be held every quarter.
    - In Fukushima Daiichi, based on the items that were recommended by the Nuclear Safety Oversight Office, a system of reducing the exposure dose has been devised to make the ALARA that is the principle of the radiation protection concrete. From now on, the optimization of the technological measures, such as shielding and remote operation, will be incorporated in the construction plan in which a certain amount or more of the dose will be expected.
  - Based on "a change management guide" created from the proposal of the Nuclear Safety Oversight Office, the PDCA cycle for a large change of management has been used while creating the change management plan. It has currently been applied for the approach of the self-evaluation using the Traits and the PO&C. However, it is necessary to expand the approach that is applied from now on.

(2) Future plan

The Nuclear Safety Oversight Office will, based upon the instructions from the Board of Directors, evaluate the implementation status of the action plans directed by the Board of Directors to the executive officers and report the evaluation results sometime in October. In addition, the Nuclear Safety Oversight Office will continue oversight activities and suggestions /proposals for important activities in terms of nuclear safety.

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[18] There are 5 members in the Safety Steering Meeting, and they are the president (a chair of the meeting), the general manager of the Nuclear Power and Plant Sitting Division, the president of the Fukushima Daiichi D & D Engineering Company who also serves as the CDO, the Safety Management (an executive officer), and the head of the Nuclear Safety Oversight Office (an observer).

The Board of Directors will, in consideration of the evaluation results of the implementation status of the action plans by the Nuclear Safety Oversight Office, give instructions for necessary measures to the Board of Directors and the executive officers. The executive officers will, taking into account the suggestions/proposals from the Nuclear Safety Oversight Office, accelerate the speed of the improvement in an effort to promote the Nuclear Safety Reform Plan steadily.

2.3 Countermeasure 3 Reinforcement for the defense in-depth proposal forces

(1) Implementation of the 2nd quarter

- Competition of reinforcing the safety improvement proposal force

○ Among 12 excellent proposals in FY2013, eleven proposals were reported in the 4th Quarter Report in FY2013 that they would be realized one by one within six months. Among these, the following three proposals were realized during the 2nd quarter of FY2014 (a total of eight proposals in FY2014[19]). We will make improvements to accelerate the realization of the proposals.

- In order to implement planned maintenance and extend the service life of equipment and facilities by understanding the condition of electric installations, the boundary sample of rust used by the Distribution Division that determines the level of corrosion is used for the periodic patrol inspection on the electric installations within the plant (Fukushima Daiichi).
- Taking into account the experiences gained and verification tests carried out at Fukushima Daini after the Tohoku-Pacific Ocean Earthquake, a procedure (flowchart) was developed for restoring the pump at the earliest date possible that had been penetrated by seawater, by means of flushing of the bearing of the pump. (Fukushima Daini)
- In order to more accurately understand the state of submersion in case that a particular place where critical equipment and facilities are installed for securing nuclear safety is flooded with water, a simple measure was installed (Kashiwazaki Kariwa).

[19] 12 excellent proposals were selected in 2013FY. For one of them, a separate countermeasure will be implemented based upon the needs of each Fukushima Daiichi and Kashiwazaki Kariwa , so the number of countermeasures is 13 in total. Nine proposals have been realized so far (1 in 2013FY; 5 in the 1st quarter of 2014FY; 3 in the 2nd quarter of 2014FY; 1 examination withdrawn; 3 remaining proposals).

Use of a boundary sample of rust for electric installations (Fukushima Daiichi) (Patrol inspection)

Establishment of restoration procedure for the pump penetrated by seawater (Fukushima Daini) (Cover (clear) temporarily placed for simulation of submersion

Installation of a simple measure for understanding the level of submersion (Kashiwazaki Kariwa)
(Water level indicator placed on the lowermost underground floor of the building)

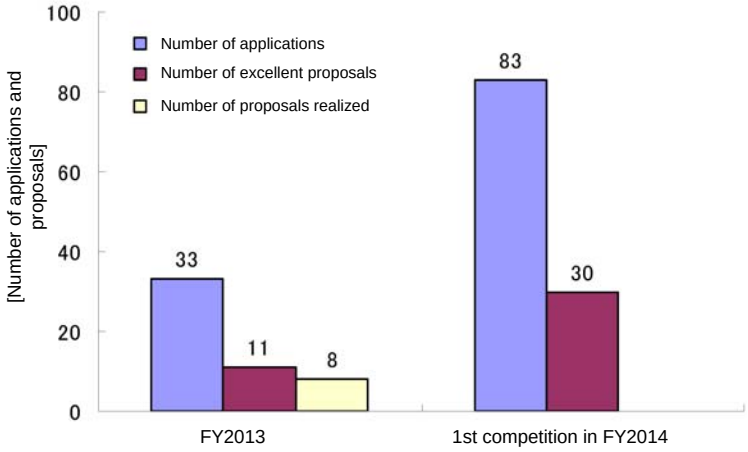
With respect to the improvement of the pumping power (capacity and pressure) for fire engines aiming at enhancing the water injection function into the reactors (Kashiwazaki Kariwa), there is limitation to the modification for improvement of the power of an on-board pump and the possibility of realization is proved to be slim as a result of the detailed design, therefore, we decided to consider another countermeasure and therefore not to consider this proposal.

○For the first competition in FY2014, 30 applications out of 83 in total were selected as excellent proposals. Some of the excellent proposals are as follows:

- Mounting of searchlights on the operational vehicles, aiming at improving nighttime visibility at the site (Fukushima Daiichi)
- Establishment of power supply means from the power source vehicle in the event of loss of power in the intake pump room in Kidogawa, aiming at securing fresh water in emergency situations (Fukushima Daini)

・Deployment of an equipment/material carrying trailer always mounted with a transformer, aiming at shortening the time required for the installation of a substitute heat exchanger to be used in the event of loss of all AC power supplies (Kashiwazaki Kariwa)

○ The following are the numbers of applications, excellent proposals, and proposals realized for previous competitions:



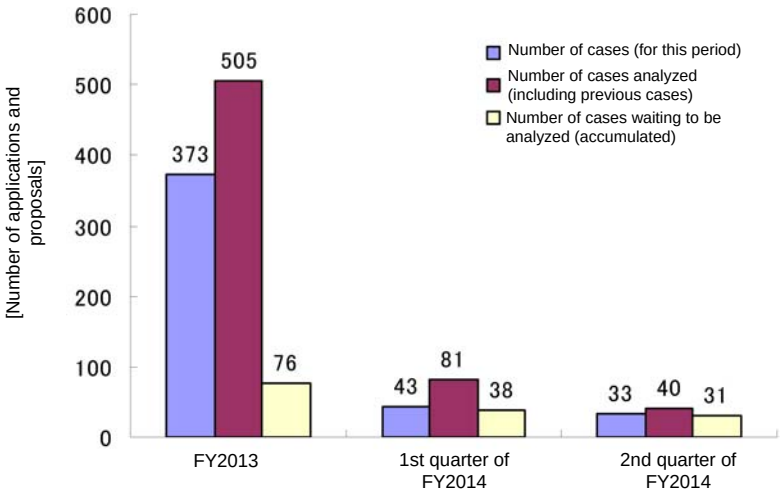
Number of proposals realized as of end of September

Number of applications, excellent proposals, and proposals realized for the competition of reinforcing the safety improvement proposal force

➢ Use of Information of domestic and international Operation Experiences (OE)

○ Analysis was completed for 40 OE information collected during the 2nd quarter of FY2014. Among them, two cases were judged as requiring impact evaluation. Among the OE information judged as requiring impact evaluation, a total of eight cases are still to be completed at the moment that will be taken care of systematically.

○ The following is the amount of OE information that has been collected and analyzed. Analysis of OE information, including the cases that have been accumulated, is also ongoing, and the number of cases waiting to be analyzed is decreasing smoothly.



Vigorous analysis work implemented in FY2013, including the previous cases waiting to be analyzed in accordance with the Nuclear Safety Reform Plan, significantly reduced the number of cases waiting to be analyzed.

Status of collection and analysis of operation experience information

○ Operational guidelines were established for the collection, analysis, and use of OE information. By establishing analysis perspectives, matters to be considered, and steps as operational guidelines; the provisions currently depending on the analyst's knowledge, experience, and discretion, such as impact evaluation of OE information; will be clearly stipulated in writing: secure reflection and promotion of the use of OE information is expected.

○ While accessibility has been improved with new OE information posted on the special section of the internal intranet, starting from June viewing frequency is still low and therefore we need to make more efforts to promote the use of the intranet.

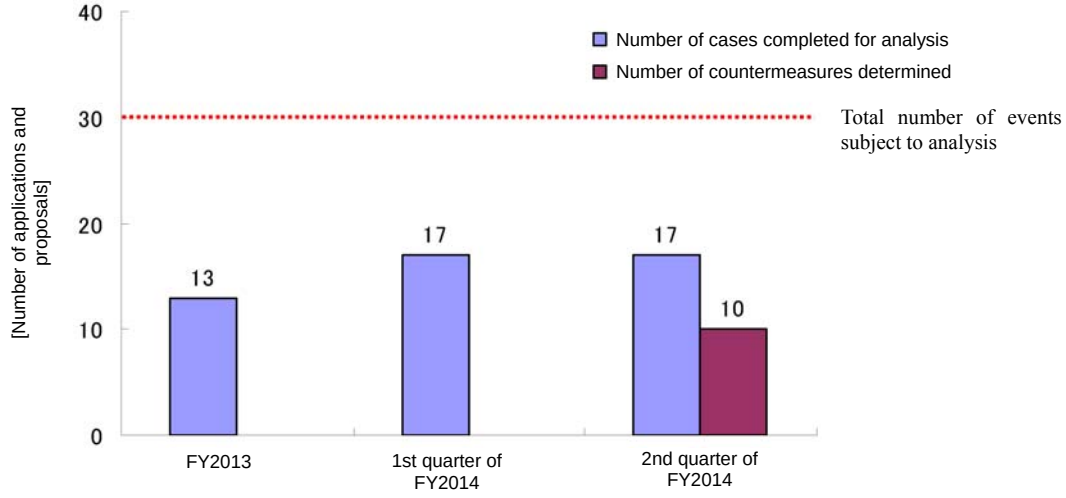
➢ Hazard analysis

○ Impacts on nuclear power stations have been analyzed in the event of any hazard beyond the design base with regard to approximately 30 events selected one by one as the scope of analysis.

○ In the 2nd quarter, decision-making for the implementation of countermeasures for the analyzed events is focused on, and specific countermeasures were examined by a dedicated team established within the "Nuclear Power Risk Management Committee". During the 2nd quarter, four meetings were held and specific countermeasures for seven cases (a total of 10), such as a magnetic storm, were determined. Examples of the countermeasures are as follows:

- A magnetic storm may affect the transformer which is necessary for receiving power from an external power supply, so an examination was started with respect to the means of external procurement of fuel oil necessary for long-term operation of the emergency diesel generator after being struck by a disaster.
- In order to improve the reliability for monitoring the plant parameters, an examination was started, from the perspective of securing diversity, with respect to additional analog gauges in addition to the existing digital gauges.

○ The following is the status of analysis. Analysis of all the events collected in this period will be completed by the end of FY2014 and corresponding countermeasures will be determined.



Progress status of hazard analysis

➢ Safety review

In Kashiwazaki Kariwa, an assumption of specific external events and impact evaluation was made based upon FY 2014 Plan, in preparation for external events that may cause serious impact due to the uncertainty of occurrence frequency. Also, specific review standpoints and methods for various activities within the power plant, such as an emergency response drill, were organized and compiled.

In Fukushima Daiichi, an examination was undertaken to introduce the safety review considering the risk that should be taken into account based upon the actual conditions.

In Fukushima Daini, an examination was undertaken to introduce the safety review based on the achievements in Kashiwazaki Kariwa and the standard reviews implemented in the power plants reflecting the specific situation of each power station.

➢ Review of the role of manuals for Headquarters and power stations

For the manuals, a distinction should be made between the requirements to be complied with (Headquarters), the know-how/procedures (power station), and reflection of know-how and change of procedure in the manuals should be made easier on the side of power station where the work is actually carried out; therefore, improvements of the manuals for the six major business areas[20] will start and are scheduled to be completed by the end of this year.

[20] Six areas: operator management, radiation management, radioactive waste management, fuel management, maintenance management, and disaster prevention (emergency response)

- Introduction of IT in the maintenance work process

  To realize introduction of MAXIMO20[21] (Phase 2), a system for rationalization of the entire maintenance process (IT-based systematization of a series of works, such as development of audit plan, procurement, inspection, acceptance and the like) will be developed by the first half of FY2016, with each process being examined in detail. In the 2nd quarter of FY2014, the workflow was examined and necessary roles and issues arising in case of application were identified, in a bid to develop a new operational procedure complying with the US standard business flow.

(2) Future plan

- Competition of reinforcing the safety improvement proposal force

  In the first competition in FY2014, there were 83 applications, the number of which more than doubled compared to 33 applications in 2013FY, but we will consider reviewing the requirements for proposals to further increase the number of applications.

  In addition to the number of proposals, improvement of the ability to make proposals and the ability to achieve countermeasures will be quantified so as to be set as KPI (Key Performance Indicator).

- Use of Information of domestic and international Operation Experiences (OE)

  We believe that the secure use, deployment, and establishment of OE information should not depend on a single countermeasure but instead multiple countermeasures should be taken at the same time and therefore we will put them together into a roadmap. The following three points are taken into account for this purpose:

  - Development of the awareness that OE information is important and useful
  - Development of the ability to learn a lesson from OE information that can apply to actual business operations[22]
  - Development of a mechanism to allow prompt sharing of OE information

- Hazard analysis

  In discussing the countermeaures in team meetings, impact modes have been broken down into patterns (e.g.: impact of tsunami caused by an earthquake and impact of tsunami caused by collision of a meteor with the ocean, etc.); therefore, we will put together all countermeasures considering the analysis results of all the events after preferentially analysing the remaining events out of 30. In addition, we will from time to time review the countermeasures determined by the dedicated team in the “Nuclear Power Risk Management Committee”.

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[21] IT solution for achieving a strategic asset management

[22] Difference of systems and facilities and models of equipment should not be referenced to easily determine information to be excluded from the scope of impact evaluation. Ability to examine countermeasures and background factors by focusing not only on causes but also on results

- Safety review

  In Kashiwazaki Kariwa, review will continue according to the annual plan. In Fukushima Daiichi and Fukushima Daini, the system and implementation method for each safety review will be examined and the first review is scheduled for the end of FY2014.

  Also, the effectiveness of the safety review will be evaluated to define the difference with the other review activities, while an operational framework will be considered that would contribute to the continuous improvement of nuclear safety.

- Review of the role of manuals for Headquarters and power stations

  Revisions are being made to the manuals in line with the purpose of improvement. A monitoring method is being considered to confirm that the desired effectiveness is achieved when the revised manuals are used.

- Introduction of IT in the maintenance work process

  The workflow will be continuously examined in detail for the new operational procedure, while an examination of a specific scope of application, including the cooperation with related peripheral sytems and cooperative corporations, will start. The outline of the new maintenance work process will be completed by the end of this year, aiming at the start of system development and data maintenance in April 2015. For the range of portions of the new operational procedure for which system development is not required but is applicable will be reflected as required.

2.4 Countermeasure 4 Enrichment of risk communication activities

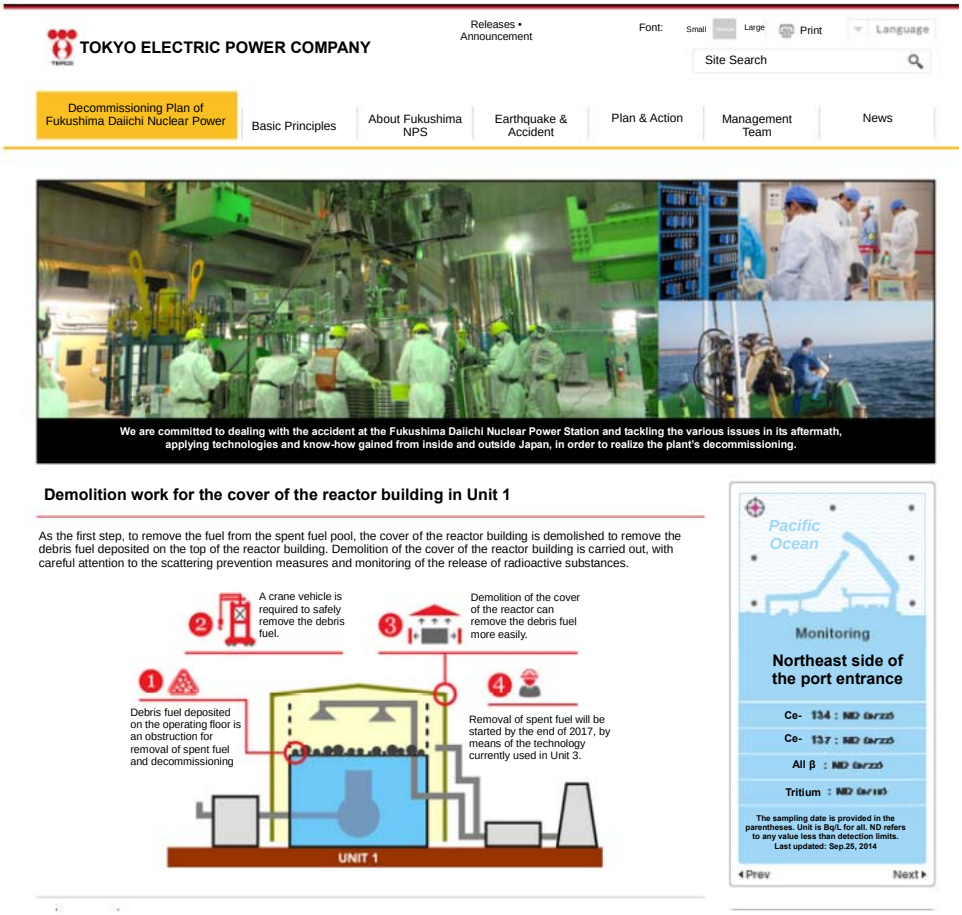
(1) Implementation of the 2nd quarter

- As a continuation from the previous period, risk information in the Nuclear Power Division was collected and the recommendation was given to the management level and Nuclear Power Division about the publicizing of risks and the detailing policy related to the countermeasures.
- Communication with siting communities
  - In the Decommissioning /Contaminated Water Countermeasure Fukushima Council[23] (4th meeting: August 25), how the information on problems is released, if any, appropriately and on a timely basis and the status of the approach to the positive communication of information regarding the Decommissioning/Contaminated Water Countermeasure was explained.
  - For the progress status of each decommissioning activity and related issues

[23] Launched in February this year; members are: the chairperson (Senior Vice Minister of Economy, Trade and Industry), Fukushima Prefecture and surrounding local governments, relevant local groups and experts, regulatory authorities, Secretariat of Decommissioning/Contaminated Water Countermeasure Team, and TEPCO

other than the problems, a system was established to allow the Public Relations Division and the Community Response Division to work together with the Technical Division to promptly grasp information and provide necessary information to the communities and people living in those communities, appropriately and on a timely basis (risk communicators allocated to the key spots for sharing of information between the Technical Division and the Public Relations Division).

- Communication with siting communities and people in the society
  - A special section for decommissioning was newly developed on our homepage. Our stance and efforts towards decommissioning is conveyed and the progress of the decommissioning activities and contaminated water processing, which is too technical and difficult to understand, is explained in an easy-to-understand manner by means of photos and CG videos. In the 2nd quarter, three video were delivered: “Use of robots”, “Approach to contaminated water (difference between trench frozen water sealing and land-side water sealing wall work)”, and “Scattering prevention measures for radioactive substances during the debris removal work aiming at removal of the spent fuel from Unit 1”.
  - Starting in July, a weekly regular press conference was simultaneously broadcasted from three locations: J Village – Fukushima City – Headquarters, in an attempt to deliver integrated, easy-to-understand information from the place near the decommissioning site.

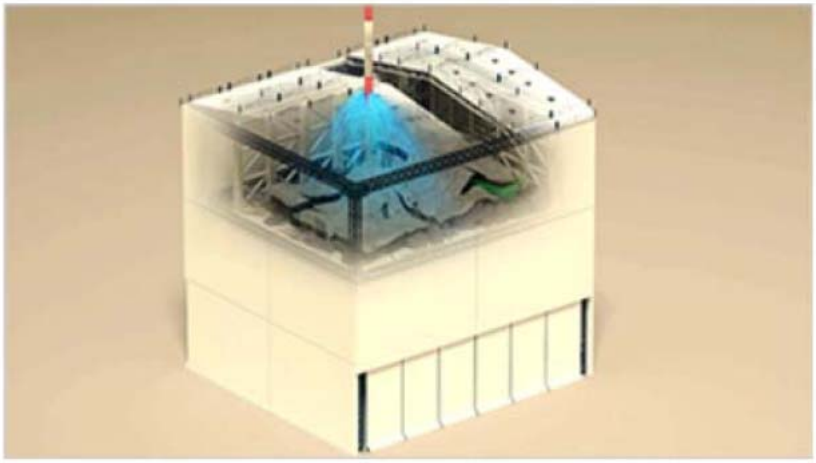


New development of special section for decommissioning

Play time: about 5 minutes and 53 seconds

Stabilization and decommissioning work by using robots

Overview of land-side water sealing wall work



Play time: about 4 minutes and 39 seconds

Scattering prevention measures for radioactive substances during the debris removal work

- Communication with relevant parties overseas
  - Enhancement of information provision to foreign embassies in Tokyo

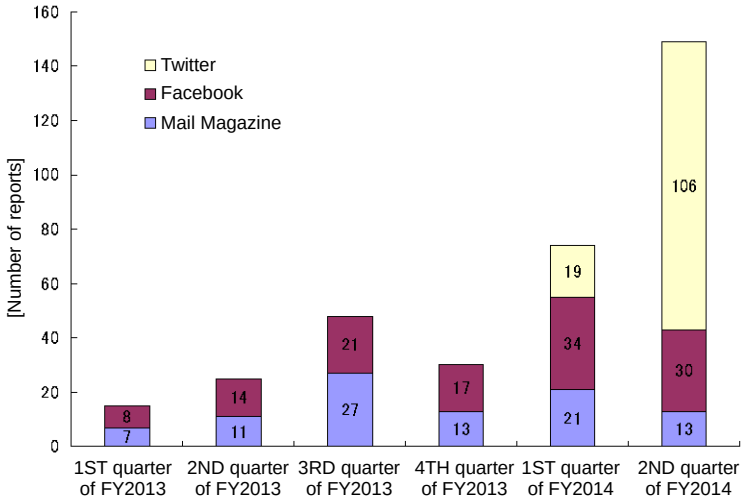
    The situation of the decommissioning and contaminated water effort was explained to the diplomatic bodies in Tokyo in an explanatory meeting sponsored by the Ministry of Foreign Affairs (September 10: a total of 25 participants from 22 countries and regions), in addition to visits to the foreign embassies to explain the situation (ongoing).

    As a continuation from June, preparation is ongoing for the visit to Fukushima Daiichi Nuclear Power Plant in the middle of October. In addition, visits by VIPs and specialists from overseas are actively accepted and the information tailored to meet the requirements of each party is enriched.

    Furthermore, the development of an emergency contact network was started with respect to the emergency contact system with the foreign embassies in emergency situations. Emergency contact training will be carried out at the time of the emergency response drill in the 3rd quarter.

・ Improvement of delivery of information to relevant parties overseas

In February 2014, a special web page for explaining the decommissioning was added to the English version of our home page. Movies and drawings explaining the status of the decommissioning activities, etc. in a way that is easy to understand, a press release (a newsletter delivered to the overseas media and experts via email), etc. were arranged and published. In addition, the timely communication of information using Twitter was added to deliver information that is of high concern overseas as well, such as the monitoring of seawater, the status of the fuel removal and the countermeasures for the contaminated water, while improving the email newsletter and the contents of Facebook.



Number. of Information shared to overseas

・ Exhibition of videos and panels at General Conference of IAEA

In the General Conference of IAEA (September 22), videos, messages, panels and brochures were provided to explain the progress status of the decommissioning work, the actual condition of the contaminated water processing and the situation of the communication with communities, with careful consideration to easy understanding.

➢ Internal communication

・ In order to improve the communication with workers at Fukushima Daiichi, an electric bulletin board is used to deliver information (digital signage). The progress status of the decommissioning work, the status of media coverage of our company, and work-related notices and news are provided in an timely manner.

➢ Communication training and emergency response drill

・ Training for the managers in the nuclear department

In the training for improving the communication ability regarding nuclear safety,

etc., the social communication room conducted a lecture and Q&A session under the topic of the background and improvement of risk communication (September 18, attended by 26 managers).

- Training for new risk communicators

  Group training sessions for improving the ability to collect and analyze risk information and conversational skills were conducted as required. The number of participants for this quarter was 11, consisting of three additional employees and new staff members by rotation (August 8, 11 and 28; September 2 and 3; October 9).

Training for risk communicators
Left: Discussion on risk communication (External specialist center foreground)
Right: Practice of explanation by new risk communicator

- Internal training by risk communicators

  Workshops and a compilation of documents as a database were carried out by risk communicators as instructors for the employees responsible for the communication with communities. Their understanding of the basic information about nuclear power and the updated status of the decommissioning effort was supported (August 18, September 2). A liaison meeting was held for the employees responsible mentioned above, with the participation of risk communicators. For the communication considering information recipients, information on the condition of communities and related issues was shared on a regular basis (July 3, August 7, and September 4).

Workshop

- Emergency response drill

  In the emergency response comprehensive drill for Kashiwazaki Kariwa – Headquarters carried out on August 25, a simulated press conference was held (Headquarters), extending the scope of emergency response to external response in addition to conventional accident response. The emergency response drill will be repeated on an ongoing basis for prompt and accurate delivery of information.

Simulated press conference

Evaluation meeting after the drill

(2) Future plan

➢ Communication with siting communities

- With respect to our communication activities, a mechanism will be developed that would allow gathering of evaluation from the communities in a bid to improve the practice of communication activities and to better communicate with the communities, with attention to their positions.

➢ Communication with siting communities and people in the society

- As a continuation from the previous period, the Communication Division involved in nuclear power will work together with the Technical Division and gather risk information within and outside the nuclear power plants. Easy-to-understanding

delivery of information and risk communication will be carried out by means of videos and CGs.

- Among other things, people in Fukushima Prefecture and in the society have a high interest in the situation of the contaminated water processing and the demolition work for the cover of the reactor building in Unit 1, so we will practice the communication by paying more attention to information recipients.

➢ Communication with relevant parties overseas

- We will proactively obtain know-how about measures taken in each region and risk communication from overseas organizations that have experienced nuclear accidents and decommissioning, in a bid to improve our future communication activities.

➢ Internal communication

- We will further enhance the communication with workers at Fukushima Daiichi NPS and development of a sense of unity among them, by making more efforts for information sharing and considering and implementing new countermeasures.

➢ Emergency response drill

- Technical staff members to be dispatched to local governments in emergency situations will be assigned to appropriate locations and the training and emergency response drill will be repeatedly conducted for further improvement of response capabilities.

2.5 Countermeasure 5 Reinforcement of Power Station and Headquarters Emergency Response Capability (Organizations)

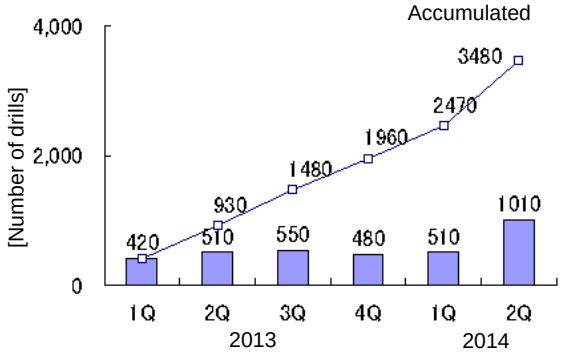
(1) Implementation of the 2nd quarter

➢ In Kashiwazaki Kariwa, comprehensive drill was carried out on July 25, August 25 and September 19, and individual drills were also implemented on a continuous basis for the improvement of on-site response capabilities. The improvement of the capability for emergency response and the operational capability for the Emergency response organization was confirmed by repeated comprehensive drills and individual drills.

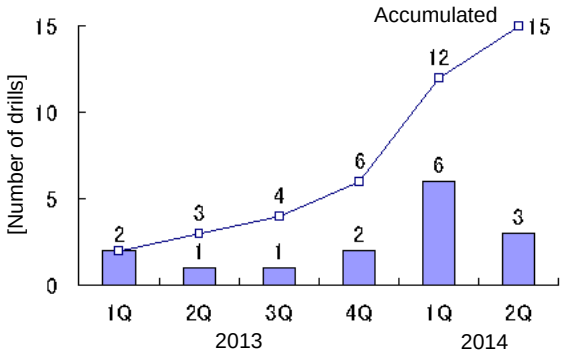
➢ The comprehensive drill of July 25 was carried out based upon an accident scenario caused by tornados for the first time, instead of earthquakes and tsunami that were the causes of accidents in the previous comprehensive drills. Accident scenarios caused by any disaster other than earthquakes and tsunami will be carried out for further improvement of response capability.

➢ In the comprehensive drill of August 25 and September 19, staff members of the power plants and Headquarters were dispatched to the actual off-site center and an external response drill (a simulation of information sharing with relevant external

parties at the off-site center) was carried out. It was confirmed to be possible to promptly share information about nuclear plant information with relevant parties at the off-site center by means of portable terminals. However, the necessity of definition of division of roles for the personnel dispatched from the Headquarters and the power plants was confirmed, so an improvement plan will be considered and its effectiveness will be examined by the next drill.



Number of individual drills at Kashiwazaki Kariwa



Number of comprehensive drills at Kashiwazaki Kariwa

Drill at Kashiwazaki Kariwa (comprehensive drill)

- In the Headquarters, basic rules for command announcements, which had been an ongoing challenge, were defined for the improvement of command announcements within the main office of the Headquarters and each of the commander levels of the head office within the Headquarters participated in the comprehensive drill after repeated training. Continuous efforts will be made for the improvement of command announcements by individually repeated training and comprehensive drill.
- On August 6, a start-up drill was carried out, as an individual drill, with the staff members dispatched from the Headquarters to the actual disaster measure support location for nuclear sites (Kashiwazaki Energy Hall). Securing of traffic lines for people working at the site that were not seen on the drawings was brought up as an issue, so efforts will be made to improve the issue and its effectiveness will be

confirmed by the next start-up drill.

- On September 16, a drill for materials procurement and support for the power plants affected by disasters was carried out as an individual drill. Inadequate setting of priority levels for prompt goods procurement and support through various routes was brought up as an issue, so an improvement plan will be considered and its effectiveness will be examined by the next individual drill.


Individual drill for Headquarters and power plants (external response at the offsite center)


Individual drill at the Headquarters (start-up drill for the logistics support site)
Left: Installation of a satellite antenna on the rooftop of Kashiwazaki Energy Hall
Right: Carrying-in and carrying-out of goods at Kashiwazaki Energy Hall

Individual drill at the Headquarters (drill for goods procurement and support)

(2) Future plan

In order to establish the emergency response system based upon ICS (allocation of multiple response organizations in preparation for long-lasting accidents, etc.) and improve the capability for emergency response, we will repeat comprehensive drills and individual drills under the guidance of external experts, and identify the challenges and develop solutions for them on an ongoing basis. Also, we will proceed with coordination with relevant organizations, and plan and implement joint drills with them.

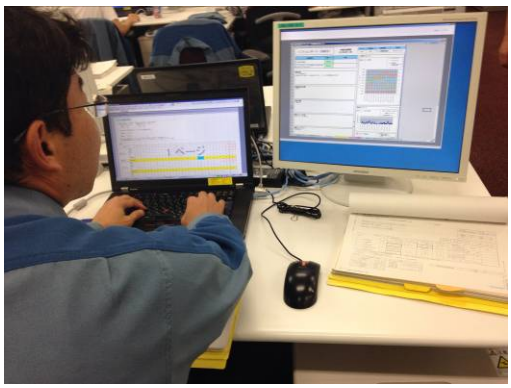
2.6 Countermeasure 6 Reinforcement of Emergency Response Capability (Individual) and Reinforcement of On-Site Capability

(1) Implementation of the 2nd quarter

- Enforcement of capability for emergency response
  - ○ The system engineers have developed their approaches to improve reliability by monitoring not only from the component level viewpoint but also from the wider system level viewpoint that the main systems including the important-to-safety systems are performing expected functions/performance concerned as a part of plant oversight activities. A pilot operation of the periodical integrity monitoring activity has been started by selecting four systems from Unit 6 and Unit 7 of the Kashiwazaki Kariwa. In this approach, trend monitoring is carried out by specifying the monitoring parameters effective to detect a mechanism to cause performance degradation of system functions in the simulation.
  - ○ Also, as part of the plant monitoring activities, an examination of the usage of risk information was started.
  - ○ A training program is under consideration that would be necessary for system engineers to acquire knowledge and skills effective to improve the competence required. Examples of knowledge and skills effective to improve competence that

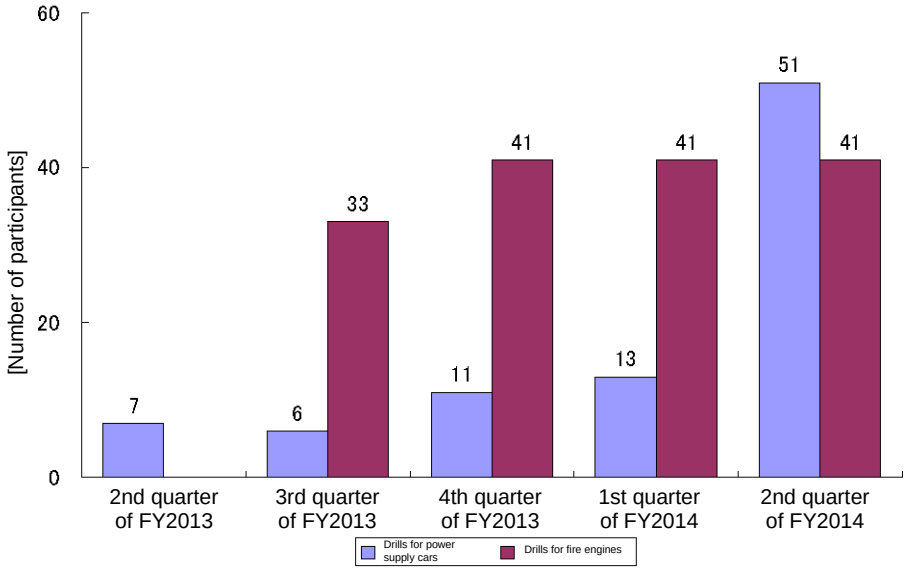
should be acquired and are under consideration are as follows:

- Acquisition of operational knowledge and skills related to functions, performance expected for each system (including design management and evaluation of the condition of maintenance programs and equipment) and evaluation
- Acquisition of operational knowledge and skills related to understanding of the plant behaviors and restoration policy plan in case of accidents and transition
- Acquisition of operational knowledge and skills related to the operational manual (including understanding the status of compliance with applicable maintenance provisions and emergency response)



Examination work by system engineers

○ Operators in Kashiwazaki Kariwa NPS have started participation in the drills implemented by the emergency response organization for connecting power supply cars since July 2013. In this fiscal year, leaders were developed within the Operation management department (15 are qualified as of the end of September) and start-up training for power supply cars was started, directly operated by the Operation management department. As of the end of September, 126 staff attended the training sessions with Unit 1 to Unit 7 compared to 110 target personnel. Fire engine connecting drills also started in October 2013 and as of the end of September, 114 staff attended the training sessions with Unit 1 to Unit 7 compared to 110 target personnel. The target number of members participated in the training sessions both for power supply cars and fire engines in the 2nd quarter.



Transition of the number of operators participating in training sessions directly operated by the Operation Management department at Kashiwazaki Kariwa (Unit 6 and 7)

Start-up training for power supply car

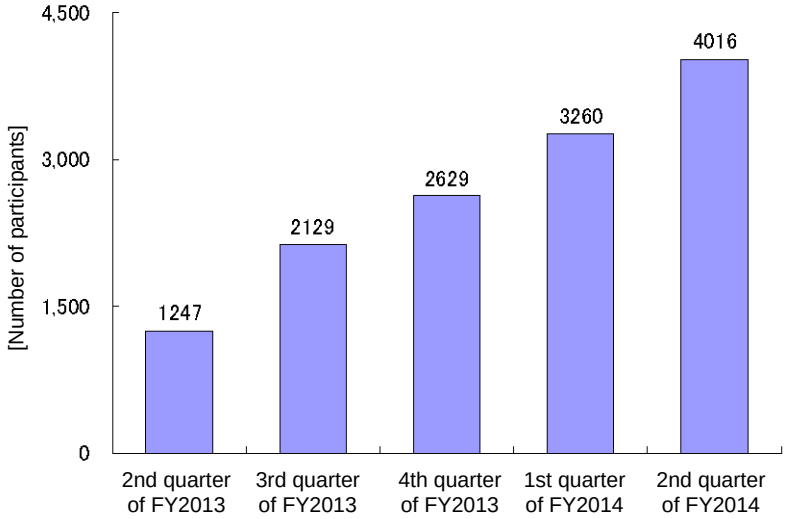
(Left: Examination of the operational state; Right: Removal of the terminal cover)

Furthermore, facility diagnosis by operators has been conducted for Unit 7[24] rotating equipment with regard to about 260 rotating equipment. Collection of data directly by operators is ongoing.

[24] Facility diagnosis had been conducted for Unit 6 and Unit 7, but only Unit 7 is subject to facility diagnosis because the operators are temporarily allocated to the safety improvement countermeasure work.

Collection of data directly by operators (e.g.: vibration diagnosis)

○ For maintenance personnel, enhancement of basic technologies (annealed wire/rope handling training and the like), and training through direct management of work (inspection of power supply cars/gas turbine generator cars/alternative heat exchanger cars, training of temporary hose pull out of emergency action and electric cable connection training, exchange of electric motor, pump bearing disassembly/assembly, ground leveling by heavy machinery and the like) was carried out from July 2013 at each power station. These drills were continued in the 1st quarter (as of the end of September, a total of 4,016 members at 3 power stations have attended the training: 140 at Fukushima Daiichi, 2,476 at Fukushima Daini, 1,400 at Kashiwazaki Kariwa).



Transition of the number of maintenance personnel participating in training through direct management of work

○ In Fukushima Daiichi, training for handling low-tension cable terminals is implemented on a regular basis for the improvement of skills.

Training for handling low-tension cable terminals

Training for handling low-tension cable terminals

○ In Kashiwazaki Kariwa, training for handling terminals also started under the guidance of qualified personnel for the acquisition of skills for handling high-tension and low-tension cable terminals.

Training for handling high-tension cable terminals

Training for handling high-tension cable terminals

○ As mentioned above, as a result of the system engineer educations and the drills managed by operators themselves, personal and organizational abilities for emergency response have been improved reflecting the lessons from the Fukushima Nuclear Accident, and further and continuous efforts will be made in this regard.

➢ Enforcement of on-site capability

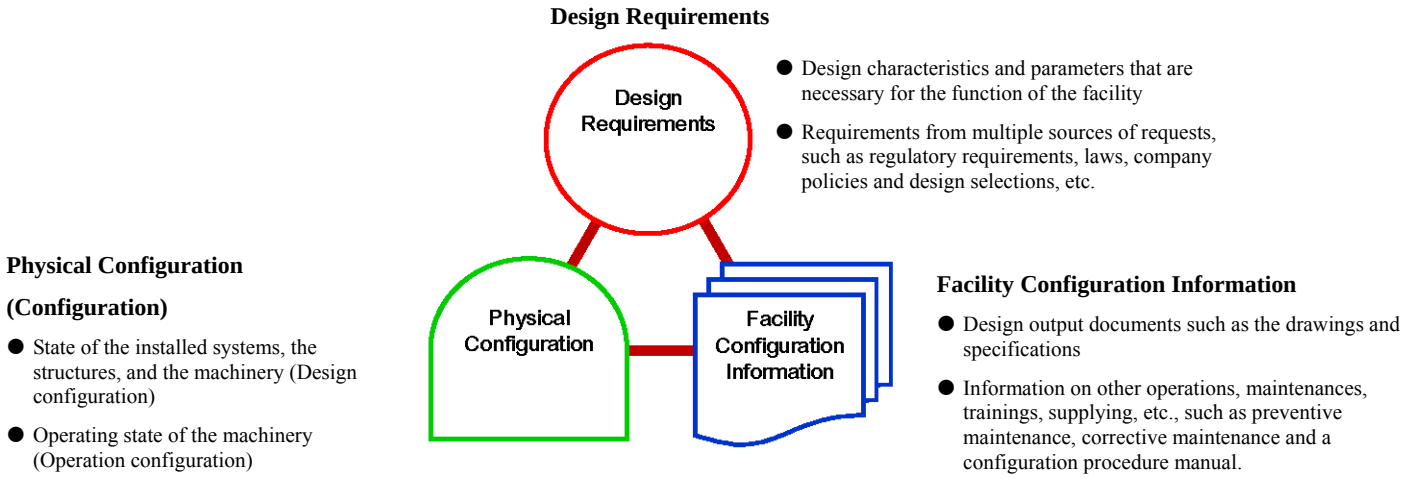
○ For enforcement of on-site capability, an examination was started with priority placed on the training program for basic skills after categorization into basic skills and application skills, focusing on the Maintenance Department. As a result of the examination, it was decided to provide training to young workers in the Maintenance Department, starting in September.

➢ Enforcement of engineering capability

○ For enforcement of engineering capability imperative for the improvement of nuclear safety, an examination was started with respect to the development of technical basics and enforcement and self-operation of internal technologies.

○ Consideration of the following matters was started for establishment of a mechanism (configuration management) to confirm and ensure that the nuclear power facilities are operated and maintained in accordance with the design requirements, with maintaining the balance of three factors all the time: design requirements, physical configuration, and facility configuration information as technical basics.

- For the major systems (boric acid solution injection systems), technologies and design requirements that should be understood and managed by our company were again clarified and put together into design standards.
- For the major systems, the facility configuration information in possession of our company was again organized and compiled and the scope of management and management hierarchy was examined.
- A basic flow was developed with respect to the change management process in the event of changes due to alteration or the like.



Concept of configuration management

○ In order to promptly proceed with the improvement of safety, the capability to procure components and equipment is enforced. By enforcing the capability to procure components (such as discontinued goods and goods no longer manufactured due to withdrawal of manufacturers) by means of reverse engineering, an examination is undertaken for the improvement of response capability in the event of a problem with the existing facilities. An examination is undertaken toward enforcement of the engineering capability for promoting reasonable procurement of equipment.

○ An action plan is being considered for the enforcement and self-operation of individual technologies, such as aseismic design, safety evaluation (e.g. PRA), and digital technologies, as important areas to improve safety.

○ Organization and compilation of standards that should be preferentially taken care of was started, with reflection on the lessons from the Fukushima Nuclear Accident. An examination was also started with respect to the maintenance and development of engineers who are familiar with related standards.

(2) Future plan

➢ Enforcement of capability for emergency response

The system engineers will, based upon the results of evaluation activities of the health of four systems in the 2nd quarter, establish a framework for the system health report by the end of this year. At the same time, they will proceed with preparation for extending the monitoring systems (six systems to be added) and start monitoring activities, including preparation of the system health report, for a total of 10 systems, starting from April 2015 (monitoring activities to be eventually extended to about 40 systems).

➢ Enforcement of on-site capability

For enforcement of on-site capability, a verification means will be considered to allow evaluation of training achievements as the ability to practice them more fully at the site. Also, for the enforcement of on-site capability including application skills, an examination will proceed with respect to how to enforce it in the future, in a bid to compile the results by the end of this year.

With respect to the improvement of technological capability[25], step-by-step progress is considered important. Instead of just controlling the frequency of countermeasure implementation and the like (drill, training sessions, etc.), "qualification" should be considered as part of an outcome of accumulated achievements. With setting of the number of "qualification" necessary for the organization with an aim to acquire "qualification" as a result of efforts, the fulfillment rate for this is set as KPI (Key Performance Indicator). With KPI set, countermeasures necessary for the improvement of technological capability (such as compilation of data about qualified personnel into a database, development of necessary education/training sessions) will be planned and implemented as required. The following are being organized and examined as target qualifications:

a. Qualification required for an operator of nuclear activities (Chief technician of

[25] On-site capability tends to be considered from the perspective of onsite versus desk plan. However, here, as with engineering capability mentioned later, on-site capability is extensively regarded to be "technical capability" imperative to improve nuclear safety on an ongoing basis.

nuclear reactors, radiation protection supervisor, electrical chief engineer)

b. Qualification for internal certified engineering technician (Class S, Class A, Class B, and Class C) [26]
c. Qualification required for securing safety and quality in implementing the supervision of work (Certified machine maintenance technician, non-destructive inspection technician, dangerous object handler, operations chief of organic solvents work, operations chief of oxygen deficient danger, operations chief of excavating natural ground and shoring, etc.)
d. Certification for operation of a fire engine, power supply vehicle, wheel loader, etc., connection of power cables, radiation survey, etc. that is considered necessary for emergency response (development of internal qualifications to be examined)
e. Qualification considered useful from the standpoint of smooth and efficient operations, etc. (Linguistic proficiency for acquisition of international benchmarks and operation experience information, etc.)

- Enforcement of engineering capability

Other than the major systems, the residual heat removal system equipped with multiple safety functions and the reactor container, a representative building, are added, to reorganize the safety requirements and facility configuration information that should be managed by us, in an attempt to develop a mechanism for configuration management. For the change management process for this, a detailed flow has been scheduled to be completed by the end of this year.

With respect to safety evaluation technologies (PRA, etc.), in order to promote on-site based activities in a more effective way, timely monitoring of the risk levels will be implemented according to the condition of the nuclear reactors in addition to the development of a system to allow efficient use of risk information on a day-to-day basis (establishment of a system engineering group and a nuclear power safety center), in an attempt to select safer conditions. In addition, in order to maintain those efforts on an ongoing basis, development of human resources will be promoted. To enable this, a human resources development plan, including personnel rotation, will be prepared by the end of this year, and development of personnel who would play key roles with respect to risk assessment, will be started by means of training programs provided by EPRI[27].

Furthermore, in order to proactively use new knowledge and information, active efforts will be made for the corporation with the Nuclear Risk Research Center of the

[26] Breakdown of qualifications according to job role and review of the education and training plan necessary for certification that is more focused on actual work will be carried out at the same time.
[27] EPRI: Electric Power Research Institute

Central Research Institute of Electric Power Industry that was recently founded and the acquisition of the latest information and technologies from the International Atomic Energy Agency and BWR Owners Group (USA). In particular, for the risk assessment of internal overflow and internal fire that has not been efficiently implemented, an evaluation with use of knowledge and information obtained from relevant parties overseas will be implemented and efforts will be made for the improvement of technologies for self-operation ability, by means of inviting international PRA specialists for support.

In addition to the above, the following efforts will be made for the enforcement of engineering capability:

- With respect to the procurement of equipment, basic design of components will be implemented by means of reverse engineering and verification of the reliability of procurement will proceed by the end of this year. Domestic and international procurement strategies will also be analyzed and evaluated, and an examination of clarification of procurement specifications and resulting expansion of suppliers will be undertaken to proceed with more reasonable procurement.
- With respect to the seismic design technology, improvement of the piping analysis codes will be started by the end of this year to enhance the self-operation ability within the TEPCO Group. At the same time, among the design information necessary for seismic analysis, the information in possession of TEPCO will be analyzed and then organized on an ongoing basis. Furthermore, work volume related to seismic design for the next five years will be evaluated and a development plan for necessary personnel will be made.

Last Statement

In the 2nd quarter, specific activities were started to accelerate the so-called PDCA cycle, with an aim to correctly understand issues and accelerate the speed of planning and implementation of improvement plans by means of enhancement of the monitoring capability for the Nuclear Safety Reform Plan.

In addition, from the perspective that insufficiency of "Safety awareness," "technological capability" and "ability to promote dialogue" are the background factors for the Fukushima Nuclear Accident, we made the following efforts based upon two documents called Traits and PO&C:

1) We acknowledge how "Safety awareness," "technological capability" and "ability to promote dialogue" of the world's top level should be;
2) We set a goal to be achieved based upon how we should be;
3) We evaluate the level of ourselves and of the organization we belong to by comparison with such a target (gap), and
4) We make improvement efforts day by day to fill the gap.

Those efforts cannot improve the three factors in a single day, but we believe that we are able to repeat training for the establishment of a solid basis, aiming at continuously improving nuclear safety for various activities in the Nuclear Power Division.

Under the strong determination of '**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 operators that keep creating unparalleled safety,**' we shall keep addressing nuclear safety reform, while receiving objective evaluations from the Nuclear Reform Monitoring Committee.

We would be more than happy to receive your valuable opinions and comments on our website or directly to us about our ongoing reform.

End