

Overview of Nuclear Safety Reform Plan Progress Report (3rd Quarter FY2015)

- To realize our determination to be “a nuclear operator that continuously improves safety to unparalleled levels by enhancing safety on a daily basis while always keeping the Fukushima Nuclear Accident firmly in mind,” TEPCO has been promoting the Nuclear Safety Reform Plan since April 2013 in our pursuit of the world’s highest level of safety.
- This March marks the three-year milestone since the nuclear safety reforms were initiated, and TEPCO will conduct a self-assessment of the results of past efforts that takes into account the goals and objectives set forth by the Nuclear Reform Monitoring Committee.

1. Progress on Safety Measures at Nuclear Power Stations

- Progress is steadily being made on the decommissioning reactors at Fukushima Daiichi NPS, and we will continue to reduce the risks entailed.
- A case with significant nuclear safety implication was found. There were mistakes in cable routing in safety classification under the floor in the main control rooms. TEPCO is probing the root cause behind this case and working to prevent any such recurrence. And, we will further commit ourselves to improving “safety consciousness” and “technical capabilities,” which are part of the aims of nuclear safety reform.

Fukushima Daiichi Nuclear Power Station

In preparation for removing fuel from the spent fuel pool, the cover over the building at Unit 1 has been completely dismantled, and training begun in removing the steel frame so that a sprinkler system may be installed as a measure to prevent dust dispersion (training facility set up in Hirono town). At Unit 3, the large piece of rubble inside the pool has been completely removed.

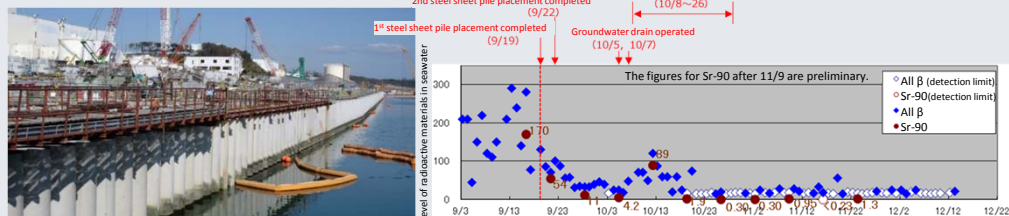


Training in operating equipment to remove obstacles and steel frame at Unit 1 (Training facility in Hirono town)



Removal of large piece of rubble from SFP at Unit 3

Placement of steel sheet piles for the sea-side impermeable wall and waterproofing of joints has been completed. The impermeable wall (total length: approx. 780 meters) has been completely closed off. Since closure of the sea-side impermeable wall, a low level of radioactive materials has been maintained in seawater inside the port.



Progress made on closing off sea-side impermeable wall and change in level of radioactive materials in seawater

Closure of sea-side impermeable wall completed

A miscellaneous waste incinerator is being constructed to incinerate used protective clothing, which has been temporarily stored on site. After trial operation, the facility is set to begin full operation within the fiscal year to reduce the volume of waste.



Exterior of miscellaneous waste incinerator



Incinerator facility



Combustion inside the incinerator

Fukushima Daini Nuclear Power Station

The spent fuel pool pipes have been improved to provide a safer environment for storage of spent fuel.

- To prevent the outflow of water from the spent fuel pool due to siphoning phenomenon, the pipes on the Unit 3 SFP were converted (completed on January 7, 2016).
- The same work will be performed successively at Units 1, 2 and 4.

Kashiwazaki-Kariwa Nuclear Power Station

Safety measures have been enhanced to deal with earthquakes, tsunami and other natural disasters as well as PCV damage, reactor core damage or other potential severe accidents.

- Safety measures have been enhanced, including the installation of above-ground filtered vents, which remove radioactive materials in air released during venting of the reactor containment vessel (removes 99.9% of particle radioactive material) and the addition of alternate high-pressure cooling water injection systems to strengthen reactor cooling water injection function.
- Engineering capacity for direct management has been improved, including operation of power supply cars and heavy equipment, and emergency response capacity has been strengthened by repeatedly conducting training with actual equipment.



Above-ground filtered venting system at Unit 7 (Fitted with iodine filters)



Alternate high-pressure cooling water injection system pump at Unit 7 (Installed system)



Training on how to use high-volume water cannons at reservoir

Taking into account the failure to separate cables under main control room floors, we have once again become aware that “nuclear safety is the responsibility of all employees” and we will further improve our technical capacity.

- Training has been conducted for all Nuclear Power Division employees on approaches for ensuring independence and isolation of facilities necessary for securing plant safety.
- Technical capacity has continued to be improved, and further committed to developing our personnel to safety.




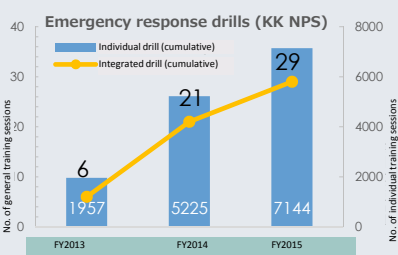






Training for safety classification of nuclear power plant components

Overview of Nuclear Safety Reform Plan Progress Report: Progress Made in 3rd Quarter FY2015

2. Nuclear Safety Reform Plan Progress (Management Aspects)

- Priority is placed on improvement of safety consciousness (nuclear safety culture) and enhancement of personnel development and training. Benchmarks adopted in other countries and experts from overseas have been used to accelerate TEPCO's aim of achieving world-class excellence.
- The Nuclear Reform Monitoring Committee conducted a site visit to Kashiwazaki-Kariwa NPS, and confirmed the implementation of strengthened safety systems and the improved emergency response capabilities on the basis of lessons learned from the Fukushima nuclear accident.

Safety Awareness	Technological Capability	Dialogue-Promoting Capability												
<p>Measure 1: Reform from Top Management</p> <ul style="list-style-type: none"> ■ Workshops have been held on crisis management for managers and nuclear power leaders. <ul style="list-style-type: none"> • Former ANA Pilot Yamauchi gave lectures, which were based on actual experiences, so that participants could learn about “making use of accident experiences” and “sharing accident experiences.” ■ Benchmarks were set, which were drawn from INPO and Palo Verde Nuclear Generating Station, to survey methods for systematically assessing an organization’s nuclear safety culture (December 6-13). <ul style="list-style-type: none"> • Teams will be formed to assess the nuclear safety culture and training conducted for the team members, who will then initiate systematic assessments.  <p>Explanation at INPO of methods for assessing safety culture in organizations</p>  <p>Explanation of measures for spreading nuclear safety culture at Palo Verde Nuclear Generating Station</p> <p>Measure 2: Strengthening Observation and Assistance for Management</p> <ul style="list-style-type: none"> ■ Over the past year, the Nuclear Safety Oversight Office has focused work safety and controls. Its assessment is that, although work practices have been seen in the field that require improvement, the earnest efforts of management have improved the situation. ■ The mistakes to separate cables under the main control room floors is indicative of the presence of major and long-term risks, and the Nuclear Safety Oversight Office will step up its monitoring with an emphasis on nuclear safety. ■ Management Observation Guidelines were enacted with the stated purpose of “using management observations of daily operations to confirm whether or not improvements are on track toward realizing the world’s highest level of nuclear safety, radiation safety and occupational safety, and to promote reforms promptly through our own capabilities without having to rely on external reviews” (December 17). 	<p>Measure 3: Strengthening the Ability to Propose Defense in Depth</p> <ul style="list-style-type: none"> ■ Of the 121 entries in the first competition of 2015 to strengthen the ability to propose safety improvements, 13 have been selected as outstanding proposals. ■ Efforts have taken hold so that operational experience (OE) data are utilized at daily meetings and other occasions (rate of implementation at the end of the 3rd quarter: 95%). <p>Measure 5: Strengthening Emergency Response Capabilities of Power Stations and Headquarters</p> <ul style="list-style-type: none"> ■ Training has been repeatedly conducted to strengthen emergency response organization capability to respond and operate. <ul style="list-style-type: none"> • Training has been conducted under a framework setting up a headquarters within the power station’s emergency response center to reflect the recommendations issued by IAEA-OSART.  <p>Integrated drill (Kashiwazaki-Kariwa NPS) <Headquarters office set up at emergency response center></p>  <p>Emergency response drills (KK NPS)</p> <table border="1"> <thead> <tr> <th>Fiscal Year</th> <th>Individual drill (cumulative)</th> <th>Integrated drill (cumulative)</th> </tr> </thead> <tbody> <tr> <td>FY2013</td> <td>6</td> <td>1957</td> </tr> <tr> <td>FY2014</td> <td>21</td> <td>5225</td> </tr> <tr> <td>FY2015</td> <td>29</td> <td>7144</td> </tr> </tbody> </table> <p>Measure 6: Strengthening Emergency Response Capabilities and Field Personnel Capabilities</p> <ul style="list-style-type: none"> ■ Over a period of six weeks, teams of experts invited from other countries (2 teams with a total of 7 experts) provided guidance and advice on personal development and issue resolution in each specialized field. ■ Drills and training will continue to be conducted to strengthen the engineering capabilities for direct management of work during emergencies. <ul style="list-style-type: none"> • At Fukushima Daini NPS, training has been conducted in laying and connecting cables at night in accordance with the training policy, which was formulated with the aim of further improving employees’ skills.  <p>Night training in laying cables (Fukushima Daini NPS)</p>	Fiscal Year	Individual drill (cumulative)	Integrated drill (cumulative)	FY2013	6	1957	FY2014	21	5225	FY2015	29	7144	<p>Measure 4: Enhancing Risk Communication Activities</p> <ul style="list-style-type: none"> ■ As part of the Fukushima Daiichi decommissioning project, explanatory meetings have been constantly held about matters of high interest to community residents. <ul style="list-style-type: none"> • In Hirono town, an explanation was provided of the new training facility set up there and the current state of the project to dismantle the cover over the Unit 1 reactor building (December 2).  <p>Explanation for residents of Hirono town</p> <ul style="list-style-type: none"> ■ A website (1 For All Japan (http://1f-all.jp/)) has been opened (10/15), free community paper (1F Monthly) launched (distribution began on 11/10) along with the improvement of other tools to share information with personnel working at Fukushima Daiichi and their families. <ul style="list-style-type: none"> • On the website, useful information is available to all workers, including site radiation data, menus for the large rest center cafeteria, bus schedules and so on. Interviews and messages of support along with other content will be posted as well.  <p>“1 For All Japan” website opened</p>  <p>First issue of “1F Monthly”</p>
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<p>KPI pertaining to self-assessments on nuclear safety</p> <p>[Target: 70 points or higher]</p> <p>KPI pertaining to improvement using MO and messages on safety communicated by nuclear power leaders</p> <p>[Target: 70 points or higher]</p>	<p>KPI pertaining to formulation of operation plans to enhance technical skills</p> <p>[Target: 70 points or higher]</p> <p>KPI pertaining to the degree to which operation plans are executed</p> <p>[Target: 50 points or higher]</p>	<p>KPI concerning status of internal reciprocal communication</p> <p>[Target: Upward trend]</p> <p>KPI concerning external assessments of TEPCO’s communication of information, etc.</p> <p>[Target: Points tending to be positive]</p>												