

Basic Policy for the Contaminated Water Issue at the TEPCO's Fukushima Daiichi Nuclear
Power Station

September 3, 2013

Nuclear Emergency Response Headquarters

1. Basic Policy

The countermeasures against the contaminated water increased by ground water intrusion every day have been taken since the accident at the TEPCO's Fukushima Daiichi Nuclear Power Station. However, the contaminated water issue has not been solved. This situation creates anxiety among not only the residents in Fukushima Prefecture but also people all over Japan. In order to realize the restoration and revitalization of Fukushima as soon as possible, it is a matter of urgency to fundamentally settle the contaminated water issue, which has been getting serious. Thus, the Government of Japan has determined to play a proactive role in TEPCO's implementing the necessary countermeasures in order for the earliest and fundamental settlement of the contaminated water issue. Beyond the follow-up measures like in the past, the preventive and multi-layered measures will be taken through identification of any potential risks. At the same time, appropriate measures will be taken through intensive examination in order not to miss new events and to minimize the influence of them.

2. Government Initiatives

(1) Establishment of inter-ministerial council for contaminated water issue and decommissioning

The Government of Japan establishes "Inter-Ministerial Council for Contaminated Water and Decommissioning Issues" under the Nuclear Emergency Response Headquarters. It aims to mobilize the related technologies and expertise at home and abroad for the earliest and fundamental settlement of the contaminated water issue and to enable the entire Government to implement the necessary countermeasures.

(2) Establishment of intergovernmental liaison office near the TEPCO's Fukushima Daiichi NPS

The Government of Japan establishes "Intergovernmental Liaison Office for Contaminated Water Issue" near the TEPCO's Fukushima Daiichi NPS. It aims to strengthen organizational structure, for example, by dispatching liaison staff from the related ministries

to the site of the TEPCO's Fukushima Daiichi NPS.

(3) Establishment of intergovernmental council for coordination near Fukushima Daiichi NPS
The Government of Japan establishes "Intergovernmental Council for Fostering Mutual Understanding on the Contaminated Water Issue". It aims to properly responding to the contaminated water issue by strengthening cooperation and coordination among the government and stakeholders such as TEPCO at site and by swiftly responding to the needs of the municipalities and locals, as well as by enhancing information sharing structures and coordination at site, utilizing "Fukushima Advisory Board" under the "Council for the Decommissioning of TEPCO's Fukushima Daiichi Nuclear Power Station".

(4) Progress management and risk identification of the contaminated water issue and decommissioning

The Government of Japan will play a proactive role in managing the process and progress for the sound progress of works on decommissioning and contaminated water countermeasures in addition to strengthening TEPCO's countermeasures. The Government of Japan will identify all of potential risks through the processes and will constantly consider concrete preventive measures and the way of emergency response utilizing such technical expertise as the Committee on Countermeasures for Contaminated Water Treatment. The timing of the implementation of each measure will be accelerated through consideration of all possible methods such as examinations of the work processes, application and modification of technologies.

In addition, the Government of Japan will implement the measures to secure the worker dose management and reduce the radioactive exposure to the extent possible.

(5) Financial support

The Government of Japan plays a proactive role in financially supporting the projects that have high technical difficulties and urgent needs. The Government of Japan will provide budgetary support for the expenditure of the whole project in order to install the land-side impermeable walls by the frozen soil method and to develop the multi-nuclide removal equipment with superior performance. At first, the Government of Japan will utilize reserve funds for the early commencement of the projects.

(6) Enhancement of monitoring activities, prevention of reputational damages or misinformation, reinforcement of global communications

In order to prevent reputational damages or misinformation, the Government of Japan will

promptly provide the accurate information on the results of observation of radioactive levels in the sea in addition to reinforcement of open sea monitoring activities. Especially, the Government of Japan will announce integrated monitoring information examined by the Nuclear Regulation Authority weekly, which consists of data of monitoring that the Government of Japan, Fukushima Prefecture and TEPCO respectively conduct in sea area as well as of other monitoring information related to the Fukushima Daiichi NPS accident. At the same time, the relevant ministries that have primary information (e.g. the causes of events, the progress of countermeasures, radioactive situations of environment and foods) will prepare the point of their information in English and an easily understandable way and disseminate them with the international community in the effective and prompt manners which respond to the needs of the receivers of the information(e.g. through the diplomatic and foreign press channels).From this perspective, the Government of Japan will establish the structure for information sharing and coordination among the relevant organizations in order to deliver integrated international public relations.

3. Three Principles for the Countermeasures against Contaminated Water Issue

The root cause of the contaminated water issue at TEPCO'S Fukushima Daiichi NPS is the accumulation of contaminated water. Every single day, a large amount of ground water flows into the basement of the reactor buildings and is mixed with the contaminated water in the basement of the reactor buildings and then accumulated in the sea-side trenches that are connected to the buildings. Consequently, the amount of contaminated water is increasing day by day and as the contaminated water leaks from the tanks and piping, management of the water becomes more difficult. Against this backdrop, three principles; 1) removing the source of the contamination, 2) isolating ground water from the contamination source, and 3) preventing leakage of the contaminated water was established to take countermeasures against the contaminated water issue.

Principle 1: Removing the source of the contamination

The monitoring activities on the highly-contaminated water in the basement of the reactor buildings and the sea-side trenches will be urgently reinforced, the contaminated water in the trenches will be removed, and the amount of contaminated water in the basement of reactor buildings will be reduced. In parallel, the highly-contaminated water will be decontaminated through the multi-nuclide removal equipment (ALPS) to lower the risk of contamination source, and improvement on the amount and efficiency of treatment will be aimed. Also, the final goal of removing contaminated water in the basement of reactor buildings etc. is pursued for its realization at the earliest possible date. .

Countermeasures already taken

- *Pumping up the highly-contaminated water in the sea-side trenches and transfer it to the turbine buildings and decontaminate it (start from August 22)*
- *Collecting the soil contaminated by the leakage from the contaminated water tank (start from August 23)*

Countermeasures to be taken

- *Accelerating decontamination of water by fixing the malfunction of the multi-nuclide removal equipment (ALPS) (start in mid-September)*
- *Lowering the contamination level of the highly-contaminated water in the sea-side trenches by the mobile decontamination equipment and then blocking the trenches*
- *Spending from the national treasury on the installation of a more efficient water treatment equipment for highly contaminated water*

Principle 2: Isolating ground water from the contamination source

In order to prevent an increase of contaminated water, which is produced through the mixing of newly intruded water and the highly contaminated water in the reactor buildings, countermeasures will be taken to reduce the amount of ground water near the reactor buildings to the extent possible. The countermeasures include pumping up the ground water at the upstream of ground water flow before it reaches to the reactor building and installation of the land-side impermeable walls which encircle the reactor buildings.

Countermeasures to be taken

- *Lowering the amount of ground water inflow through pumping up the ground water at the upstream of ground water flow and then making the best effort to obtain consent from the stakeholders on the disposal of the water after confirmation of its contamination level (installed in March 2013 and explanation process for operation)*
- *Lowering the amount of ground water inflow through pumping up the ground water from sub-drains (the wells near the reactor buildings) (to be installed around September 2014)*
- *Lowering the amount of ground water inflow through installation of the land-side impermeable walls which encircle the reactor buildings using the national treasury (to be in operation in FY 2014)*
- *Completely eliminating the contaminated water in the basement of the buildings by taking countermeasures to prevent the ground water from flowing into the buildings such as filling the gaps of such buildings*

Principle 3: Preventing leakage of the contaminated water

Countermeasures will be taken to prevent contaminated water from leaking to the sea, especially to the open sea. The countermeasures include installation of the sodium silicate walls in the contaminated sea-side area and installation of the sea-side impermeable walls in the port of the nuclear power station. In addition, contaminated water is stored in the tanks for the time being, countermeasures will be taken such as enhancing tank management and reinforcing patrol.

Countermeasure already taken

- *Installing the sea-side impermeable walls in the port of the nuclear power station in order to prevent contaminated water from leaking to the sea, especially to the open sea. (a part of them already installed and some to be installed in September 2014)*
- *Installing the sodium silicate walls in the contaminated sea-side area and pumping up the contaminated water from the contaminated area for decontamination in order to prevent contaminated water from leaking to the sea (some walls installed and water pumped up from August 9)*
- *Increasing patrols around tanks from twice to four times a day (start from August 22)*
- *Switching to “normally closed” drain valve operation from “normally open” in order to prevent expansion of contaminated area in case water leaks from a tank (start from August 28)*
- *Strengthening regular monitoring activities on dikes in which there is a possibility that contaminated water leaking from a tank or piping will leak into the ground water of the sea as well as strengthening monitoring activities in the sea (start from August 20)*

Countermeasure to be taken

- *Paving the surface of the contaminated soil with asphalt to prevent the rainwater from becoming new contaminated water in the contaminated area (start from October 2013)*
- *Building additional tanks as necessary in order to store the increasing contaminated water securely*
- *Accelerating replacement from bolted joint tank to welded joint tank and replace every single welded joint tank*
- *Strengthening patrol activities as there still is risk that the water will leak from a tank or piping even after the tanks are replaced as well as installing water level gauges and leak detectors into the tanks for early countermeasure in water leaks from a tank (start from August 22)*
- *Transferring the contaminated water from the horizontal steel tanks in which there is a*

relatively higher risk of leakage in the welds to the welded joint tanks in which such risk is lower and strengthening the bolted joint welds of the horizontal steel tanks in the meantime (planning)

- *Installing the buildings which cover high-level radioactive waste storages such as the High Integrity Container (HIC) to prevent expansion of contamination in case of its leakage (planning)*
- *Identifying any potential risks related to storage of highly-contaminated water and preparing its countermeasure (immediately)*