

Addendum to National Report of Japan for the Seventh Review Meeting

Joint Convention on the Safety of Spent Fuel Management and
on the Safety of Radioactive Waste Management

Section K Planned Activities to Improve Safety

K-2 Response to the challenges identified in the 6th review meeting

K-2-5 Management of waste in Fukushima Daiichi plants: implement solutions for treatment and storage of on-site RW as well as management of liquid waste, especially tritiated water

The management of solid wastes generated at TEPCO Fukushima Daiichi NPS is based on the following "basic policies" decided in September 2017.

- Solid waste management should be implemented thoroughly, with containment and isolation of radioactive materials to prevent their dispersion/leakage and human access to them, in order not to cause harmful radiation exposure.
- The amount of solid waste generated by decommissioning is reduced as much as possible in order to ease the burden of solid waste management.
- To proceed with study on processing/disposal method of solid waste, characterization of solid waste such as nuclide composition and radioactive concentration is needed. In addition to the fact that solid waste of TEPCO Fukushima Daiichi NPS is large in volume, and have varied nuclide compositions, it is necessary to address an increase in the number of analysis samples and proceed their characterization properly.
- To dispose of solid waste, it is essential to understand the volumes and characteristics of said solid waste, and to establish specifications of disposal facilities and technical requirements for waste packages (technical requirements for disposal). However, the volumes and characteristics of solid waste will become clear step by step, with the future clarification of progress and plan of decommissioning. Therefore, generated solid waste should be stored safely and reasonably according to characteristics of solid waste. Storage capacity should be secured to ensure that the waste can be stored within the site of TEPCO Fukushima Daiichi NPS.
- In order to safely store solid waste, the system for selecting the method of processing for stabilization and immobilization (preceding processing) will be established, and selecting the method of the preceding processing, before the technical requirements of disposal are established.
- To efficiently proceed with R&D concerning solid waste management, close

cooperation should be realized between R&D fields such as waste characterization, processing/disposal. Issues and discussions on R&D should be shared between parties, and necessary planning made with a bird's-eye-view of overall solid waste management, should be progressed collectively.

- In order to continue safe and steady solid waste management, the continuous operational framework structure including development of adequate facilities and human resources, which are concerned with solid waste management, should be undertaken.
- To steadily proceed with solid waste management, it is important to ensure the safety and health of workers. Therefore, radiation exposure control, safety management and healthcare programs should be implemented thoroughly based on the relevant laws/regulations.

Solid waste should be contained by placing it into containers or immobilization in order to prevent dispersion/leakage. Solid waste has been kept isolated in proper storage areas and has been managed properly by continuous monitoring. To suppress the volume of solid waste, efforts should be made to prevent material that will turn into solid waste from carrying-in, and to reuse/recycle/reduce its volume of the material.

For secondary waste from water treatment, risk of leakage should be largely reduced. Slurry generated at the Multi-nuclides Removal Equipment (ALPS) and other water purification system will be dewatered. Waste sludge generated at the water purification system in PMB building will be retrieved and transferred to the high place. In parallel, storage building for secondary waste from water treatment (adsorbent tower and others) will be installed. Through these measures, temporary storage area for secondary waste will be eliminated to possible extent and risks will be decreased as soon as possible. The storage methods for solid waste to be generated along with fuel debris retrieval will be carried out as per the study on fuel debris retrieval/storage methods.

The specific waste management practices implemented by TEPCO as reported in A3-1.

TEPCO has been making efforts to reduce the risks associated with the continuously generated contaminated water at TEPCO Fukushima Daiichi NPS. Measures have been taken to reduce the amount of contaminated water using multi-layered approaches including the construction and operation of sub-drains and the land-side impermeable walls (frozen soil walls). In addition, after radioactive materials are removed from the

contaminated water to the maximum extent by using the ALPS and other facilities, the treated water has been stored in tanks at the site of TEPCO Fukushima Daiichi NPS. Meanwhile, the decommissioning work including developing concrete plans for fuel debris retrieval has been progressing steadily, while maintaining and managing the stable state of TEPCO Fukushima Daiichi NPS. Going forward, essential and most challenging decommissioning measures, such as removing fuels from the spent fuel pools of Unit 1 and 2 and retrieving fuel debris will start. To advance those efforts safely and steadily, the site area of TEPCO Fukushima Daiichi NPS must be utilized in the most effective way. The current situation where the tanks and their piping facilities that store the water occupy increasingly large areas of the site can be a critical bottleneck in future decommissioning work, unless their placement is reviewed.

Since 2013, experts have been studying the issue for about six years and have compiled reports. In addition, after hundreds of meetings and careful discussions, the Government of Japan announced "Basic Policy on handling of ALPS treated water at the Tokyo Electric Power Company Holdings' Fukushima Daiichi Nuclear Power Station" in April 2021. As for the method of discharge, considering the successful precedence in Japan, as well as in conducting secure and sound monitoring and others, the Government selected discharge into the sea. TEPCO, the company conducting the discharge, will submit plans for the discharge. The discharge into the sea is subject to the necessary approval from the Nuclear Regulation Authority (NRA), an independent body that makes decisions based on the latest scientific and technical information. The actual discharge is envisaged to be launched approximately after two years from announcement of basic policy. TEPCO will comply with the regulatory standards stipulated in the Reactors Regulation Act, which has been set based on the recommendations of International Commission on Radiological Protection (ICRP) in order to ensure safety of the public and surrounding environment from all of the radionuclides. By taking such measures, the safety of the public, environment, agricultural, forestry and fishery products and others in the surrounding areas will be ensured as it has been to the present. Furthermore, the Government and TEPCO will strengthen and enhance monitoring before and after the discharge by activities including newly introduced monitoring of tritium at fishing ground, swimming beaches and other areas. For these monitoring activities, objectivity and transparency will be ensured by such activities as i) securing credibility of analytical capability by interlaboratories comparison project with the cooperation of IAEA, ii) having participation and observation by agriculture, forestry, fisheries, local municipalities and other businesses

to the TEPCO's monitoring activities such as sampling and analysis, and iii) providing confirmation and advice to sea area monitoring activities by a newly established experts committee.

Furthermore, considering relevant international law and international practice, measures will be taken to assess the potential impact on the marine environment, and to ascertain the environmental situation through continuous monitoring stated above after the discharge. The Government will seek to foster understanding of the general public as well as international community through ensuring a high degree of transparency by making the information regarding the impact on the environment to the public in a timely manner.