Attachment 1

TEPCO Holdings' Action in Response to the Government's Policy on the Handling of ALPS Treated Water

April 16, 2021

Tokyo Electric Power Company Holdings, Incorporated.

Introduction

We deeply apologize for the immense burden and deep concern the accident at the Fukushima Daiichi Nuclear Power Station of TEPCO Holdings, Inc. (hereinafter Fukushima Daiichi) is causing local residents and society at large. We would also like to offer our apologies for the string of recent incidents that have caused concern about TEPCO's nuclear operations and distrust in us as a company.

TEPCO Holdings has been working to reduce the risk associated with the contaminated water generated continuously since the accident at Fukushima Daiichi. The amount of contaminated water generated has been reduced through multilayered measures such as the land-side impermeable wall and the sub-drains, and contaminated water is being purified and treated using the Multi-nuclide Removal Equipment (hereinafter ALPS) to reduce the annual exposure dose to less than 1 mSv at the site border, and then stored in tanks. The handling of this water stored in tanks has been discussed from all angles including both scientific and societal perspectives in respect to the adverse impacts on reputation by the Tritiated Water Task Force and the Subcommittee on Handling of ALPS Treated Water (hereinafter ALPS Subcommittee). Furthermore, following the report published by the ALPS Subcommittee in February 2020, the government gathered opinions widely from parties concerned and from the public.

Given the ALPS Subcommittee report, TEPCO Holdings created a review draft outlining discharge methods for the ALPS treated water and measures to respond to reputational damage in March 2020. Performance confirmation tests, which started being conducted in September 2020 on samples taken from water stored in tanks to assess the effectiveness of secondary treatment using ALPS, found that the total sum of the ratios of the 62 nuclides (nuclides subject to removal by ALPS) and carbon-14 to the upper limit of the notification concentrations of each was less than 1.

Recently, the Government of Japan published the "Basic Policy on handling of ALPS treated water at the Tokyo Electric Power Company Holdings' Fukushima Daiichi Nuclear Power Station" (hereinafter government policy) at the 5th Inter-Ministerial Council for Contaminated Water, Treated Water and Decommissioning Issues held on April 13.

We are taking seriously that this government policy was put forth based on opinions expressed by parties concerned at various opportunities in addition to the discussions held in the ALPS Subcommittee and the Tritiated Water Task Force.

The government policy indicated the following in addition to the basic approach to balancing recovery and decommissioning for the discharge of ALPS treated water [1].

- The handling of the ALPS treated water
- Specific method of discharge of the ALPS treated water into the sea
- Measures to respond to adverse impacts on reputation
- Further Steps for the future

We are committed to discharging ALPS treated water under the basic principle of "balancing recovery and decommissioning". However, there were shortfalls in the timing and content of communications around the events that occurred within the station such as the sliding (dislodging) of the tank following the earthquake which occurred in offshore Fukushima Prefecture on February 13. We were also not able to respond appropriately to the troubles the plant encountered in maintenance and management of equipment, such as the seismometer installed in the Unit 3 reactor building. As a result, we have caused concern to those in the siting region; we are now swiftly inspecting facilities and implementing measures accordingly.

Furthermore, we take the series of events regarding the physical protection of the Kashiwazaki-Kariwa Nuclear Power Station [2] very seriously as a nuclear operator who

[1] Water that has been purified and treated by devices such as ALPS until radioactive materials other than tritium will surely satisfy the regulatory standards for safety.

[2] An event involving an unauthorized use of an ID card and an event involving the partial loss of function of physical protection facilities at Kashiwazaki-Kariwa Nuclear Power Station. The NRA evaluated these events as "significance level: red" and "severity level : SL I" on March 23. Given this assessment, on April 14, TEPCO, found to be in violation of the Reactor Regulation Act, received an order that "TEPCO may not move specified nuclear fuel material at the Kashiwazaki-Kariwa Nuclear Power Station until the NRA notifies TEPCO that the nuclear regulatory inspection handling category stipulated for the Kashiwazaki-Kariwa Nuclear Power Station has been changed to Category 1".

is tasked with maintaining nuclear security. The cause of these events will be investigated thoroughly as a problem for all nuclear power initiatives at TEPCO Holdings and drastic countermeasures will be implemented.

In discharging of ALPS treated water, we will be implementing the following in line with the government policy taking seriously that TEPCO Holdings is under scrutiny more so than ever before. Moreover, we will continue to respond appropriately to the items discussed in the Ministerial Meeting Toward the Realization of the Basic Policy on Handling of ALPS Treated Water, newly launched by the government.

1. TEPCO Holdings' approach to the discharge of ALPS treated water

Given the basic policy related to ALPS treated water, TEPCO Holdings will strictly comply with the laws such as "Law for the Regulations of Nuclear Source Material, Nuclear Fuel Material and Reactors", use a safe discharge method that minimizes the adverse impacts on reputation, implement initiatives to foster understanding in society, and respond responsibly to the adverse impacts on reputation and reputational damage that may occur despite these efforts. TEPCO Holdings' approach to the discharge of ALPS treated water is as follows.

- First, regarding the discharge of the ALPS treated water into the sea, we will ensure the safety of the public, surrounding environment as well as agricultural, forestry and fishery products through compliance with safety standards based on relevant laws and legislations. We will take further measures based on international standards and practices to confirm the safety of the water to be discharged.
    - To ensure the safety of the public and surrounding environment, we will surely comply with regulatory standards and relevant laws for concentration of tritium and other radioactive materials in the water to be discharged, which are set based on international standards (e.g. International Commission on Radiological Protection (ICRP) publication).

- With regard to the radiation impact [3] of the discharge on the public and environment under the above mentioned conditions, we will assess its safety and publish the results prior to starting the necessary procedure for approval by Nuclear Regulation Authority (NRA). Additionally, we will receive reviews by experts such as those of International Atomic Energy Agency (IAEA) and others.
- The water to be discharged will be purified and diluted in two stages outlined below.
  - Stage 1: Water stored in tanks will be purified and treated for radioactive materials other than tritium as many times as necessary until the concentration of radioactive materials other than tritium falls below the regulatory standard value for safety before discharge. Before dilution prior to discharge, the concentrations of radioactive materials (tritium, 62 nuclides (nuclides subject to removal by ALPS) and carbon – 14) in the water stored in tanks will be measured and assessed. The results will be published before discharge every time and will be confirmed by third parties.
  - Stage 2: Afterward, the tritium that cannot be removed using ALPS will be diluted by more than 100 times with large amounts of seawater and then discharged. The concentration of radioactive materials other than tritium at this point will be far below the national government's regulatory standard value.
- Tritium which is difficult to remove will be diluted with enough seawater to concentrations far below regulatory standards to the current operational target value for the tritium concentration in drainage of underground water bypass and subdrain (less than 1500 Bq/L).
- As shown above, in addition to "complying with regulatory standards and laws", we will ensure that the water to be discharged is safe by "conducting secondary treatment", "having it confirmed by third parties", and "sufficiently diluting the water".

[3] Including the potential impact on the marine environment.

- Second, in discharging ALPS treated water into the sea, we will further expand and strengthen our sea area monitoring efforts to minimize the adverse impacts on reputation. Objectivity and transparency of monitoring will be secured by asking for the cooperation of experts and the people in the agricultural, forestry, and fishery industry.
- Third, the tanks on site that store the water will be continually monitored for leaks through monitoring of the tank water level and conducting patrols in which the tank will be visually checked for leaks. Furthermore, the tanks and connecting pipes will be maintained and managed appropriately to prepare for further natural disasters.
- Fourth, to dispel concerns and foster understanding of parties concerned both domestically and internationally, we will continuously provide accurate information in a highly transparent manner, regarding the impacts on the environment such as the results of measurements/analysis on the concentration of radioactive materials in the ALPS treated water before discharge; status of the discharge and the results of sea area monitoring; as well as the results of assessment of the radiation impact on the public and the environment. To minimize the adverse impacts on reputation, we will do our utmost in promoting production, processing, distribution, and consumption (cultivating new markets).
- Fifth, if reputational damage is incurred as a result of the discharge of ALPS treated water despite these efforts, we will provide swift and appropriate compensation.

2. Design and operation of necessary facilities

TEPCO Holdings will implement detailed design and operation of facilities necessary for the discharge of ALPS treated water into the sea in around two years' time while hearing feedbacks of parties concerned. Taking into account the feedback, we are preparing to obtain approval from the nuclear regulatory authority (NRA) by creating a plan to steadily implement measures required by government policy. Current assumptions for advancing concrete discussions for design and operations are as follows.

- With regard to the design and the operation of facilities for discharging the water into the sea, we will comply with the laws such as "Law for the Regulations of Nuclear Source Material, Nuclear Fuel Material and Reactors", and will receive necessary approval from the NRA. Progress made in the approval process and construction work, status of discharge will be reported in the Commission on Supervision and Evaluation of the Specified Nuclear Facilities. Moreover, we will review the design of such facilities and their operation as appropriate in accordance with progress made in the assessment of the radiological impact on the public and the environment as well as in future technological development, to modify facilities and improve operations. .
- Secondary treatment will be conducted as necessary for water stored in tanks for which the sum of ratios of the concentration of the 62 radionuclides other than tritium (nuclides subject to removal by ALPS), and carbon-14 to the regulatory standard of each is more than one, until concentrations fall below the regulatory standard value for safety (the sum of ratios is less than one). The sum of ratios of these radioactive materials will be less than 0.01 after it is diluted with large amounts of seawater by more than 100 times. The tritium concentration of the water will also be measured before dilution.
- Similarly to ALPS treated water that has gone through secondary treatment, the concentration of tritium, the 62 nuclides (subject to removal by ALPS) and carbon-14 in water for which the sum of ratios of the concentration of the 62 radionuclides other than tritium (nuclides subject to removal by ALPS) and carbon-14 to the regulatory standard of each was already less than 1 will also be measured and assessed before dilution of the ALPS treated water prior to the discharge. If the sum of ratios of the concentration of the 62 radionuclides (nuclides subject to removal by ALPS) other than tritium and carbon-14 to the regulatory standard of each is more than one in this measurement, the water will also undergo secondary treatment.
- The concentration of tritium, 62 nuclides (nuclides subject to removal by ALPS), and carbon–14 in ALPS treated water and its assessment results will be disclosed promptly every time before dilution of the ALPS treated water prior to the discharge. Measurements and assessments by third parties will also be disclosed.

- The concentration of tritium in the water to be discharged will be sufficiently below the government's standard and safety regulations (upper limit of the notification concentration) of 60,000 Bq/L and the criteria indicated in the Guidelines for drinking-water quality of the World Health Organization (hereinafter WHO) of 10,000 Bq/L, and will also be below 1500 Bq/L, the operational target for the concentration of drainage of the groundwater bypass and subdrain currently being dealt with.
- ALPS treated water will be discharged carefully. Discharge will start in small amounts to verify the soundness of facilities, procedures for transferring ALPS treated water, the process for measuring the concentration of radioactive materials, assessment of the level of dilution of tritium in the water to be discharged, and its dispersion in the ocean.
- If transfer facilities or dilution facilities do not perform as planned due to failures or outages, the discharge of ALPS treated water will be halted immediately. If there are any abnormal values detected in sea area monitoring, the discharge of ALPS treated water will be halted and details will be investigated. It will be confirmed that discharge can be conducted safely before resuming discharge.
- In the near term, the amount of tritium discharged will be less than 22 trillion Bq per year which was the discharge management target value for Fukushima Daiichi before the accident. The amount of tritium that can be discharged annually will be reviewed as necessary based on the progress made in decommissioning.
- To continue to discharge ALPS treated water in a stable manner and to continue construction of facilities necessary for steady decommissioning in a planned manner, the necessity of additional temporary tanks on the Fukushima Daiichi site will be examined further. The order of the discharge of the water stored in tanks (order of secondary treatment, etc.) and plans for dismantling tanks will be discussed so that necessary facilities can be constructed in a planned manner.
- Based on the understanding that purification and treatment of contaminated water will need to be continued in the long-term, we will continue to improve the performance of various water treatment facilities including ALPS and will consider replacing such facilities as needed. Radioactivity measuring technology will also be improved.

- The amount of contaminated water generated will be further reduced to 100 m3/day in 2025; efforts to reduce the amount of contaminated water generated will be continued thereafter, repairing the building and paving over the ground to prevent rainwater and groundwater inflow. Additionally, the reuse of water stored in the tanks will be considered to further reduce the amount of ALPS treated water. Based on these efforts, we will continuously monitor the amount of contaminated water generated and changes in the tritium concentration of the contaminated water to carefully adjust the amount of the water to be discharged.

3. Environmental monitoring

We are aware that many both domestic and abroad are concerned about the environmental impact of ALPS treated water discharge. Considering this, we will confirm through continuous sea area monitoring of seawater, fishes, and seaweeds that unforeseen events have not occurred.

Specifically, we will create an enhanced sea area monitoring plan with increased sampling points and sampling frequency, and will start sea area monitoring according to this plan a year before discharge is scheduled to start. The results of monitoring will be disclosed promptly and third parties will measures, assess and disclose results to secure transparency.

Sea area monitoring conducted according to this enhanced plan will focus on measuring and assessing tritium in addition to current sea area monitoring of cesium 137. Most of the samples will continue to be of seawater but we will also increase the number of samples taken of fishes and seaweeds.

Water is purified until the 62 nuclides other than tritium (nuclides subject to removal by ALPS) and carbon–14 in ALPS treated water is at a concentration that is below the regulatory standard value (sum of ratios of the concentration of each radionuclide to the regulatory standards of each is less than one) before it is diluted. This water will be diluted by large amounts of seawater by more than 100 times to be discharged into the water below 1/100th of government's regulatory standard, and the water will then disperse naturally. Therefore, measuring these radioactive materials will become more difficult but to ensure safety at a higher level, we will study measurement and

assessment methods to confirm that there is no significant change in levels before and after discharge.

In conducting sea area monitoring (collecting samples, measuring radioactivity), we will ask people of the agricultural, forestry, and fishery industry and local government officials to participate in and to observe our efforts to increase understanding of ALPS water discharge into the sea. We will also respond appropriately to the confirmations requested and advice provided by the new meeting body established by the government comprised of experts in marine environment.

Our review draft published previously contained the results of the tritium dispersion simulation that assumes 22 trillion Bq of tritium-worth of ALPS treated water is discharged into the sea annually .[4] Results showed that tritium concentration was above 1 Bq/L, which is 1/10,000 of the WHO's Guidelines for drinking-water quality of 10,000 Bq/L ,[5] in areas 1.5 km to the north, 1.5 km to the south, and 0.7 km offshore Fukushima Daiichi . This area is close to Fukushima Daiichi (within the area where joint fishing rights are not granted (3km to the south and north, 1.5 km offshore)).

We are also planning on conducting fish feeding tests to provide empirical evidence regarding the radioactivity within ALPS treated water as part of environmental monitoring. We will ask for the cooperation and support of experts and those involved in the fishery industry, and prepare to report on the status and results of testing.

Additionally, we will also continue to clean drainage channels to reduce the radioactivity concentration within the bay of Fukushima Daiichi and expel fish from the bay.

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[4] See March 24, 2020 "TEPCO Draft Study Responding to the Subcommittee Report on Handling ALPS Treated Water".

[5] In the dispersion simulation of tritium in ALPS treated water, tritium discharged into the ocean at a concentration of less than 1500 Bq/L gradually disperses and the concentration falls the further out it goes from the point of discharge. At the same time, water in the natural environment (tap water, seawater) contains around 0.1 to 1 Bq/L of tritium as a result of cosmic rays Therefore, the tritium from the ALPS treated water and tritium from natural sources are indistinguishable in water that contains less than 1 Bq/L of tritium. So in this dispersion simulation, we used 1 Bq/L, when the tritium from natural sources become indistinguishable, as the standard for determining the assessment scope in this simulation. The simulation results are representative of the average dispersion under the weather conditions observed from January to December 2014. The application of weather conditions from different years or special weather conditions produced similar results though there were slight variations in the area that had concentrations of tritium of 1 Bq/L or more.

4. Review on the safety by the International Atomic Energy Agency (IAEA)

Considering not just domestic legislations but also relevant international laws and practices, we plan to receive reviews by IAEA experts before and after the start of the discharge, which will cover the safety of the design of facilities and their operation methods; the plan and implementation status of the sea area monitoring; the capability of the radiation measurement of TEPCO; the reliability of radiation measurements by comparing analysis of different laboratories; the assessment of radiation impact on the public and the environment, and so on. Then, we will reflect appropriately IAEA's guidance and advisory points to further improve and strengthen our measures.

In order to manage the above issues properly, we will study the specific design of facilities for transfer and dilution process and its operation, as well as prepare for the assessment of radiological impact on the public and the environment, and will provide information and explanations to the IAEA through the government.

5. Response to the adverse impacts on reputation, Measures to respond to reputational damage

(1) Communication to foster understanding domestic and abroad

TEPCO Holdings as the organization responsible for discharging ALPS treated water into the sea will continue to actively promote initiatives for facilitating communication to accurately convey information to minimize the adverse impacts on reputation and reputational damage.

- We will develop and actively use PR tools such as videos and pamphlets to disseminate scientific evidence-based information in an easy-to-understand manner on the characteristics of ALPS treated water, tritium, and performance of ALPS. These tools will be continuously improved based on people's feedback. The discharge method, examination system, measurement results, and monitoring results will be swiftly and accurately disseminated domestically and abroad.
- We will encourage the media and key figures to visit and cover Fukushima Daiichi in the reporting so that accurate information about ALPS treated water

can be conveyed in various angles. Additionally, information will also be disseminated through our website and on social media.

- We will work to increase the number of visitors population to the Hamadori and surrounding areas and communicate our initiatives and policy regarding the discharge of ALPS treated water into the sea at various opportunities including in visits and tours of Fukushima Daiichi and events. During these opportunities, we will ensure that we are conducting two-way communication where we listen and consider people's concerns, opinions, and requests sincerely.
- We consider the tours of Fukushima Daiichi to be an important opportunity to directly take in a range of perspectives. We will continue to have local residents and parties concerned tour Fukushima Daiichi to communicate the challenges and progress made in decommissioning, measures to reduce the amount of contaminated water generated, and the status of tank storage.
- We will steadily disseminate accurate information promptly to audiences overseas through our website and social media. Understanding from international society will be fostered by actively hosting visitors from various countries including those who are currently restricting imports from Japan.

(2) Production/processing/distribution/consumption measures

We will concentrate on initiatives to secure safety when ALPS treated water is discharged into the sea, initiatives to minimize the adverse impacts on reputation, and initiatives to explain the measures that we will implement should reputational damage occur to people in various industries that could be impacted by such rumors. . Specifically, we will implement the following for the production, processing, distribution, and consumption in the relevant industries.

- In response to concerns regarding reputational damage that could occur, we will continue to promote the distribution of products produced in Fukushima by cultivating new markets in the Tokyo Metropolitan area and within Fukushima for agricultural and livestock products (mainly rice, beef, and peaches) and fishery products. We will enhance and strengthen efforts to

cultivate markets for Joban-mono (products made in the Joban area) to support the full recovery of the fishery industry and to increase its landing.

- Given this new policy outlined by the government, we will be working with parties concerned to develop a suitable environment for supporting fishery-related brokers and processors in the Hamadori area by, for example, changing the articles of incorporation of Fukushima Soso Reconstruction Promotion Organization.
- In addition, taking into account discussions on the necessity of additional measures in the "Ministerial Meeting Toward the Realization of the Basic Policy on Handling of ALPS Treated Water" that the government launched, we will expand and enhance these measures as necessary through dialogue and discussion with Fukushima prefecture, other neighboring prefectures, and parties concerned.

(3) Response should reputational damage be incurred

- If reputational damage is incurred as a result of the discharge of ALPS treated water despite measures to minimize the adverse impacts on reputation, we will appropriately and swiftly compensate for losses due to the discharge of ALPS treated water without putting restrictions on the compensation period, region, or industry beforehand.
- In confirming actual damage incurred, we will carefully listen to circumstances of each individual case and will respond appropriately, referencing the reduction in the volume of products or services traded, reduction in prices, and other objective indicators such as statistical data. If the exact amount of damage attributable to the discharge of ALPS treated water is difficult to calculate because of the existence of attributable causes other than the discharge of ALPS treated water, we will respond flexibly to minimize the burden on the persons to whom the damage was sustained by inferring the amount of damage using rational means.
- In working to compensate for reputational damage we will respectfully explain specific standards of compensation to parties concerned to dispel their concerns and gain their understanding. To that end, we will set up a dedicated

inquiry desk to pick up on the concerns. We will listen to and engage with the concerns and respond appropriately.

6. Investigation Regarding Tritium Separation Technology

We have not been able to confirm the existence of tritium separation technology that can be used on ALPS treated water at Fukushima Daiichi. The ALPS Subcommittee and the IAEA have come to similar conclusions. Preparations for the discharge of ALPS treated water will be continued, aiming for start discharge into the sea in around two years' time. Large amounts of the water will not be discharged at once and the time required for decommissioning will be used effectively. We will continue to keep a close eye on new developments in the tritium separation technology during this time.

To this end, a new scheme will be considered involving third parties on implementing a wide range of surveys and accepting proposals for the feasibility of tritium separation technology, and any realistically practical technology identified will be actively verified and adopted.

In Closing

Under the guidance of various parties concerned including the government, we have been working to reduce continuous risk in the decommissioning of Fukushima Daiichi by maintaining a stable plant, implementing multilayered contaminated water measures, and improving the work environment.

As residents of the Fukushima Daiichi area return home and more people start to move to the area, and as recovery efforts progress, we are committed to safely and steadily completing the decommissioning of Fukushima Daiichi while also indicating a specific plan for decommissioning based on the "TEPCO Holdings Mid-and-Long-Term Roadmap towards the Decommissioning of TEPCO's Fukushima Daiichi Nuclear Power Station" and the new government policy on the handling of ALPS treated water given the great principle of balancing recovery and decommissioning. Furthermore, we will work to communicate swiftly, accurately, and objectively to deepen the siting region and society's understanding of our handling of the ALPS treated water and other decommissioning efforts without causing concern, and do our utmost to respond to adverse impacts on reputation.

There is much concern about the adverse impacts on reputation the discharge of ALPS treated water may cause, and we understand that the water will be discharged with TEPCO Holdings under severe scrutiny. We take this situation seriously, and will engage in careful dialogue with local residents and parties concerned. From the start of concrete discussions on the design and operation of facilities necessary for discharge into the sea, start of actual discharge, to after start of discharge, we will continuously disseminate information and engage maintain dialogue with parties concerned. Additionally, we will do our utmost on countering rumors, while also appropriately addressing the fact that our competency as a nuclear operator is being questioned, as a challenge that needs to be tackled by management and the whole organization under the leadership of the President. As the party responsible for the Fukushima Daiichi Nuclear Power Station Accident, TEPCO will strive to regain trust in our business endeavors, and in accordance with our fundamental principle of "balancing recovery with decommissioning," move steadily forward with the decommissioning of the Fukushima Daiichi Nuclear Power Station, contaminated water and treated water countermeasures, while prioritizing safety.

END

Reference: Schedule