Situation of Storage and Treatment of Accumulated Water containing Highly Concentrated Radioactive Materials at Fukushima Daiichi Nuclear Power Station (667th Release)

September 18, 2024

Tokyo Electric Power Company Holdings, Inc.

1. Introduction

This document is to report the following matters in accordance with the instruction of “Installment of treatment facility and storing facility of water containing highly concentrated radioactive materials at Fukushima Daiichi Nuclear Power Station of the Tokyo Electric Power Company (Instruction) “(NISA No. 6, June 8, 2011), dated on June 9, 2011.

<Instruction>

TEPCO should report to NISA the situation of storing and treatment of the contaminated water in the Power Station and the future forecast* based upon the current situation as soon as the treatment facility starts its operation. Also, subsequently, continued report has to be submitted to NISA once a week until the treatment of the accumulated water in the Central Radioactive Waste Treatment Facility is completed.

2. Situation of storing and treatment of accumulated water in the building (actual record)

Stored amounts in each unit building (Units 1 to 4 (including condensers and trenches)) and stored and treated amounts, and other related data in the Accumulated Water Storing Facilities as of September 12, 2024 are shown in the Attachment -1.

3. Forecast of storing and treatment

Accumulated water in the Unit 1 to 4 buildings is transferred to the Process Main Building and/or High Temperature Incinerator Building as Accumulated Water Storing Facilities systematically considering the stored amount in the Accumulated Water Storing Facilities and the operating situation of the Radioactive Material Treatment Equipment.

Transferred accumulated water is treated at the Radioactive Material Treatment Equipment systematically considering the state of storage and transfer of Accumulated Water Storing Facilities. Specifically, in order to suppress the flow of groundwater into the buildings and reduce the amount of accumulated water being generated, we are planning to transfer accumulated water from the Unit 1 to 3 Reactor Buildings, where injected cooling water is being circulated, in accordance with the capacity of the Accumulated Water Storing Facilities and the status of the treatment of accumulated water in the buildings, etc., while ensuring a specific difference between the levels of

accumulated water in the buildings and the water levels of subdrains in the vicinity. At other buildings where the lowermost floors have been exposed, we are planning to transfer accumulated water to keep these floor surfaces exposed.

We also treat systematically the accumulated water in the Accumulated Water Storing Facilities considering the situation of construction of Middle and Low Level Treated Water Receiving Tanks, the operation factor of the Radioactive Material Treatment Equipment and duration for maintenance. The water treated at the Radioactive Material Treatment Equipment is stored in the Middle and Low Level Treated Water Receiving Tanks.

Currently, transfer, storing and treatment with Radioactive Material Treatment Equipment of accumulated water in the buildings are being implemented systematically, and the situation can continue to be maintained. Therefore, it is expected that storing and treatment of high level radioactive accumulated water will continue to be stable in the future.

* Matters pointed out at the “Regular meeting pertaining to circulating injection cooling, accumulated water, etc. at the Fukushima Daiichi Nuclear Power Station” on October 20, 2023 (Excerpt from the meeting summary of Nuclear Regulatory Agency dated on the same day):

For the part that relates to the forecast ((1) Short term forecast, (2) Middle term forecast) based on the situation of storing and treatment of the contaminated water contained in the report document entitled “Situation of Storage and Treatment of Accumulated Water containing Highly Concentrated Radioactive Materials at Fukushima Daiichi Nuclear Power Station” submitted in accordance with “Installment of treatment facility and storing facility of water containing highly concentrated radioactive materials at Fukushima Daiichi Nuclear Power Station of the Tokyo Electric Power Company (Instruction) “(NISA No. 6, June 8, 2011) dated on June 9, 2011, it is sufficient to report to that effect if it is certain that storing and treatment of the contaminated water will continue to be stable and that the changes of water level in the Accumulated Water Storing Facilities, etc. will fall within the normal range considering the progress of contaminated water treatment at the aforementioned power station (quantitative evaluation is not required).

On the other hand, if the change of water level at the Accumulated Water Storing Facilities, etc. is expected to be different from normal due to planned work, abnormality occurrence, etc., it shall be reported in a format containing a quantitative evaluation.

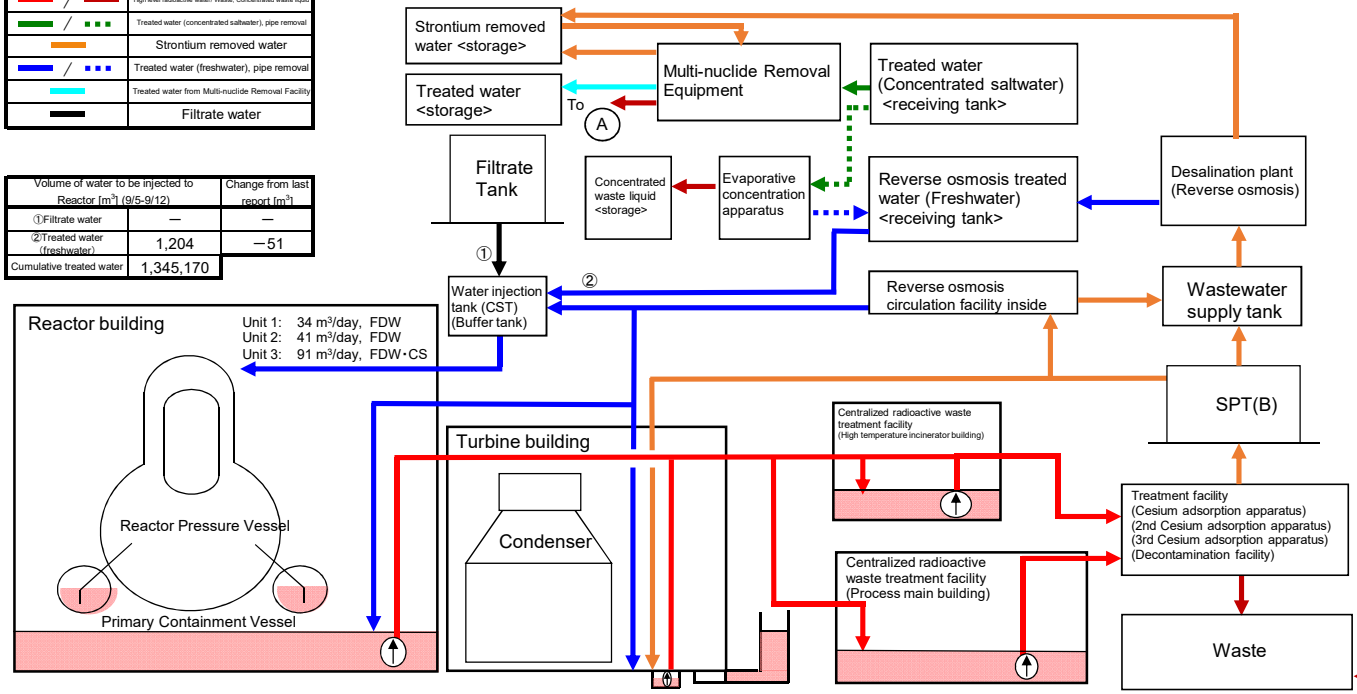
END

Attachment-1

Storage and treatment of high level radioactive accumulated water (as of September 12, 2024)

	Classification
	High level radioactive water/ Waste, Concentrated waste liquid
	Treated water (concentrated saltwater), pipe removal
	Strontium removed water
	Treated water (freshwater), pipe removal
	Treated water from Multi-nuclide Removal Facility
	Filtrate water

Volume of water to be injected to Reactor [m³] (9/5-9/12)		Change from last report [m³]
①Filtrate water	—	—
②Treated water (freshwater)	1,204	−51
Cumulative treated water	1,345,170	



Storage volume [m³] *1,2		Change from last report [m³]	Storage capacity [m³] *3,4
Concentrated saltwater receiving tank	0	—	—
Freshwater receiving tank	5,474	−102	12,000
Concentrated waste liquid storage tank	9,414	No Change	10,300
Treated water storage tank *12,16	1,200,596	−79	1,262,400
Sample water storage tank *14,16	2,242	+157	11,600
Treated water storage tank (Reuse) *15,16	92,662	−226	97,200
Strontium removed water storage tank *10	9,605	+505	24,400

Residual water [m³] *5		Change from last report [m³]	Storage capacity [m³] *3,4
Concentrated saltwater tank	Approx.100	No Change	Approx.1,000
Treated water tank *13,16	0	No Change	0
Strontium removed water tank *11	0	No Change	0

Storage volume [m³]		Change from last report [m³]	Storage volume [m³] *3
Wastewater supply tank	359 *19	−152	1,200
SPT(A)	409 *18	No Change	3,100
SPT(B)	921	+175	3,100
Unit 1 CST	624	No Change	1,600
Unit 2 CST	1,873	−3	2,200
Unit 3 CST	1,846	+7	2,200
Buffer Tank	632	No Change	700

	Chloride concentration
Before/After Desalination	196 ppm/ 2 ppm (Sampled on Jul. 4, 2024)
Before/After Reverse Osmosis Circulation	81 ppm/<1 ppm (Sampled on Feb. 1, 2024)
Before/After Evaporative Concentration	—

Place of Sampling	Radioactivity concentration *6
Process Main Building	2.2E+06 Bq/L (Sampled on May 1, 2024)
Exit of cesium adsorption apparatus	3.8E+03 Bq/L (Sampled on Mar. 22, 2019)
Exit of decontamination facility	—
High Temperature Incinerator Building	8.6E+06 Bq/L (Sampled on Jul. 2, 2024)
Exit of second cesium adsorption apparatus	8.1E+03 Bq/L (Sampled on Feb. 1, 2024)
Exit of third cesium adsorption apparatus	2.1E+03 Bq/L (Sampled on Jul. 2, 2024)

Facility	Storage volume [m³]	Change from last report [m³]	Water level in T/B *8
Unit 1	Approx.880	−10	—
Unit 2	Approx.1,200	+10	—
Unit 3	Approx.1,200	−10	—
Unit 4	Approx.10	No Change	—
Total	Approx.3,290		

Storage facility	Storage volume [m³]	Change from last report [m³]	Water level *8	Treated volume (9/5-9/12)	Cumulative treated volume [m³]	Waste produced		Change from last report	Storage capacity
Process Main Building	Approx.9,300	+100	T.P.862	Approx. 1,740 *7	Approx. 2,766,360 *7	Sludge [m³]	423 *17	No Change	700 *3
High Temperature Incinerator Building	Approx.2,110	+10	T.P.−502			Used vessels	5,801 *9	+1	6,692
Total	Approx.11,410								

[Main operations that have been conducted during the period from September 5, 2024 to September 12, 2024]
- Water transfer from the Units 1-4 to the buildings (Units 1-4, Centralized radioactive waste treatment facilities) and to the treatment facilities was conducted whenever necessary.
- Due to other works, water transfer to the buildings (Units 1-4, Centralized radioactive waste treatment facilities) was conducted whenever necessary.
- Operations of the Cesium Adsorption Apparatus have been suspended.
- Operations of the 2nd Cesium Adsorption Apparatus have been suspended.
- Operations of the 3rd Cesium Adsorption Apparatus have been conducted; the availability factor is 41%.

*1 The figures of the data are treated as a reference, because water levels during water transfer are not stable.
*2 The figures of the storage volume do not include those of the following volumes that have accumulated from the bottom of the tanks to the height of so-called "down scale (DS)," where water gauges show 0%:
Freshwater receiving tank (approx. 100m³), Concentrated waste liquid storage tank (approx.100m³), Treated water storage tank (approx. 2,200m³)
Treated water storage tank (reuse) (approx. 200m³), Strontium removed water storage tank (approx. 200m³).
*3 The figures of the data show the operational limits.
*4 The figures of "Storage capacity" do not include those of the volumes that have accumulated from the bottom of the tanks to the height of so-called "down scale (DS)," where water gauges show 0%. However, each tank has the capacity that accommodates more than the storage volume that accumulates up to the height of "DS."
*5 The figure of "Residual water" includes the one of the volumes that have accumulated from the bottom of the tanks to the height of so-called "down scale (DS)," where water gauges show 0%. The amount of the residual water of concentrated saltwater is calculated based on that of the water treated through the ALPS and other facilities.
*6 The data shown here are those of Cs-137.
*7 Total treated amount of Cesium adsorption apparatus and 2nd Cesium adsorption apparatus and 3rd Cesium adsorption apparatus.
Breakdown of the treated amount: Cesium adsorption apparatus (0 m³)
2nd Cesium adsorption apparatus (0 m³)
3rd Cesium adsorption apparatus (1,740 m³)
Breakdown of the cumulative treated amount: Cesium adsorption apparatus (394,720 m³)
2nd Cesium adsorption apparatus (2,099,160 m³)
3rd Cesium adsorption apparatus (272,480 m³)
*8 The data of the water levels are as of 5 a.m., September 12
*9 Breakdown of the used vessels: Cesium adsorption apparatus (779), 2nd Cesium adsorption apparatus (263), 3rd Cesium adsorption apparatus (21)
Others: Storage container (4,391), Treated column (17), Used vessel (265), Filters and so forth (65)
*10 Volume of the Strontium removed water (before ALPS treatment) stored in the welded-type tanks
*11 Volume of the Strontium removed water (before ALPS treatment) remaining in the flange-type tanks
*12 Volume of the "ALPS treated water" and "treated water to be re-purified" stored in the welded-type tanks
*13 Volume of the "treated water to be re-purified" remaining in the flange-type tanks
*14 Volume of the "treated water to be re-purified" stored in the ALPS sample tanks (flange-type), the additional ALPS temporary storage tanks (welded-type) and the high performance ALPS temporary storage tanks (welded-type)
*15 Volume of the "treated water to be re-purified" stored in the reuse welded-type tanks which stored Strontium removed water (before ALPS treatment) before. (These welded-type tanks have been reused from 2019)
*16 The volume of the "ALPS treated water, etc." is the sum of the storage volume in each column of treated water, sample water, treated water (reuse) and treated water (residual) (including fluctuations in conjunction with the discharge of ALPS treated water into the sea).
*17 Sum of sludge and supernatant water (as of 1 p.m., September 12)
*18 Water transfer from SPT(A) to PMB/HTI was conducted whenever necessary.
*19 Water transfer from treated water storage tanks to wastewater supply tanks was conducted whenever necessary.