

# Fukushima Daiichi Nuclear Power Station

## Completion of the Discharge from Measurement/Confirmation Facility Tank Group B (First Discharge)

< Reference document >  
September 11, 2023  
Tokyo Electric Power Company Holdings, Inc.  
Fukushima Daiichi Decontamination and  
Decommissioning Engineering Company

- The discharge of ALPS treated water from measurement/confirmation facility tank group B that began on August 24 (approximately 7,800m<sup>3</sup>) is planned to take approximately 17 days.
- Samples have been taken from the seawater pipe every day starting on August 24 to measure tritium concentrations in order to confirm that tritium is being suitably diluted during the discharge period. As a result, we have been able to confirm that the analysis values are approximately equal to calculated concentrations, and below 1,500Bq/liter.
- Seawater samples have also been taken every day since August 24, and the detection limit has been raised to approximately 10Bq/liter in order to quickly obtain tritium concentration measurement results. As a result, we have confirmed that the analysis values are below both the discharge suspension level (700Bq/liter) and the investigation level (350Bq/liter).

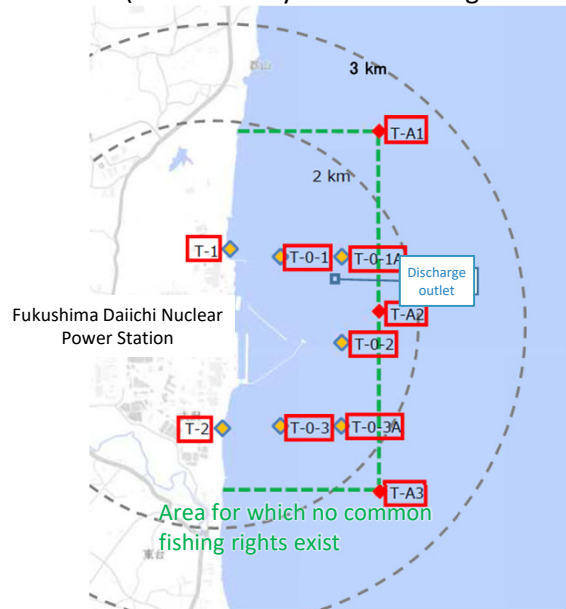
< Announced by September 11 >

- Since the commencement of discharge on August 24, the amount of ALPS treated water being discharged has remained constant at approximately 460m<sup>3</sup>/day, and daily quick analysis results of tritium concentrations in the seawater has confirmed that the ALPS treated water is being discharged safely as planned.
- The transfer of ALPS treated water from measurement/confirmation facility tank group B was completed at 2:52 pm on September 10. On September 11, the flush out of the water remaining in the ALPS treated water transfer line was completed at 00:15 pm and the completion of this task marked the end of the first discharge of ALPS treated water into the sea.  
(Total amount of water discharged: approx. 7,788m<sup>3</sup>, Total amount of tritium discharged: approx. 1.1 trillion Bq)
- We will conduct an inspection of entire ALPS treated water dilution/discharge facility and review the operational records for the first discharge. In particular, during the facility inspection which will be commenced tomorrow, we will perform an external visual inspection of entire ALPS treated water dilution/discharge facility such as the inspection inside the upper-stream storage (condition of the walls and bottom, etc.) after draining the water in the upper-stream storage into the down-stream storage. Furthermore, during the review of operational records, we will take a close look at whether or not certain procedures should be improved.
- Going forward, we will remain vigilant to ensure that there are no unintentional discharges of ALPS treated water into the sea.

# (Reference) Quick analysis of tritium in seawater

- In accordance with our sea area monitoring plan, tritium concentrations in seawater are analyzed using predetermined detectable limits of 0.1Bq/liter or 0.4Bq/liter. Since the commencement of discharge (August 24), in addition to these conventional measurements, we have conducted the analyses with the detection limit to approximately 10Bq/liter in order to quickly obtain results on a daily basis.
- All of these analysis results have shown of that tritium concentrations are below TEPCO's operational indices (discharge suspension level: 700Bq/liter, investigation level: 350Bq/liter within a 3km of the power station), and that the tritium water is being discharged safely as planned.

Figure 1. Sampling locations within a 3km radius of the power station (in the vicinity of the discharge outlet)




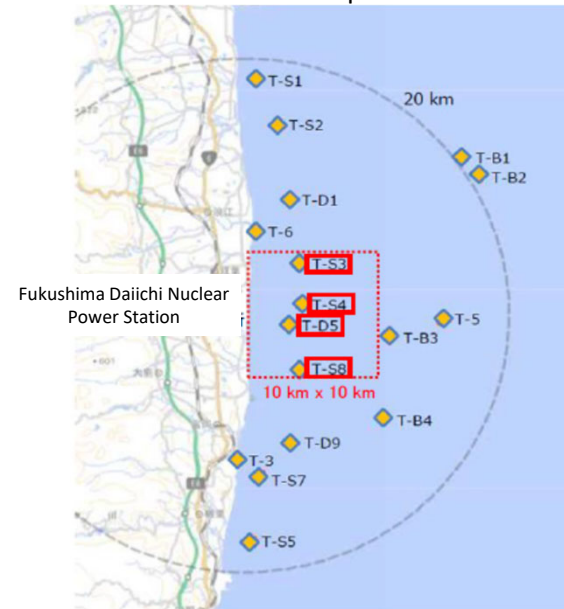

 : Monitoring locations for quick tritium measurements (10 locations)  
**Indicator (discharge suspension level): 700Bq/liter**  
 Analysis frequency: once a week → [every day for approximately one month after the start of the discharge into the sea](#)

Figure 2. Sampling locations within a 10km square in front of the power station



 : Monitoring locations for quick tritium measurements (4 locations)  
**Indicator (discharge suspension level): 30Bq/liter**  
 Analysis frequency: Once a week (T-D5),  
 Once a month (T-S3, T-S4, T-S8)

# (Reference) FY2023 discharge plan



- During FY2023, the ALPS treated water being stored in the K4 area tank groups A-C, which were repurposed as the measurement/confirmation facility, will be discharged along with the water in group K4-E and group K3-A. The amount of tritium to be discharged per tank group are outlined below, totaling approximately 5 trillion Bq.


<b>1<sup>st</sup> discharge</b>	Measurement/confirmation facility (K4 area) Group B:	Approx. 7,800m <sup>3</sup>	Secondary treatment: No Tritium concentration: 140,000Bq/liter Total amount of tritium: 1.1 trillion Bq	<b>Details on the next page</b>
<b>2<sup>nd</sup> discharge</b>	Measurement/confirmation facility (K4 area) Group C:	Approx. 7,800m <sup>3</sup>	Secondary treatment: No Tritium concentration: 140,000Bq/liter ※ <sup>1</sup> Total amount of tritium: 1.1 trillion Bq ※ <sup>1</sup>	
<b>3<sup>rd</sup> discharge</b>	Measurement/confirmation facility (K4 area) Group A:	Approx. 7,800m <sup>3</sup>	Secondary treatment: No Tritium concentration: 130,000Bq/liter ※ <sup>1</sup> Total amount of tritium: 1.0 trillion Bq ※ <sup>1</sup>	
<b>4<sup>th</sup> discharge</b>	K4 area Group E (Transferred to Measurement/confirmation facility group B ※ <sup>2</sup> ): K3 area Group A (Transferred to Measurement/confirmation facility group B ※ <sup>2</sup> ):	Approx. 4,500m <sup>3</sup> Approx. 3,300m <sup>3</sup>	Secondary treatment: No Tritium concentration: 170,000~210,000Bq/liter ※ <sup>1</sup> Total amount of tritium: 1.4 trillion Bq ※ <sup>1</sup>	

➡ Total amount of tritium discharged during FY2023: 5 trillion Bq

※<sup>1</sup> Average value of the tank group that was assessed taking into account the radioactive decay until July 1, 2023

※<sup>2</sup> To be transferred to K4 area tank group B that will be empty after the 1<sup>st</sup> discharge is completed

# (Reference) Outline of first discharge for group K4-B (2<sup>nd</sup> stage) **TEPCO**

Outline of discharge for group K4-B														
Attributes of the treated water	Concentration of the 29 types of radionuclides (excluding tritium) in scope of measurement/evaluation	Within regulatory requirements (sum of the ratios of legally required concentrations of radioactive substances is less than 1) (sum of the ratios of concentration: 0.28* ) (details on p1 of the link)												
	Concentration of tritium	140,000Bq/liter (details on p2 of the link)												
	Concentration of the 39 significant types of radionuclides measured voluntarily	No significant radionuclides identified (details on p3 of the link)												
	Status of water quality assessment	Within government and prefectural requirements (details on p4 of the link)												
	Water temperature	Same as outdoor temperature. After diluted to 740 times, same as sea water temperature. (not the same as plant's thermal discharge)												
Expected volume of treated water discharge	Approximately 7,800m <sup>3</sup>													
Treated water flow rate	Approximately 460m <sup>3</sup> /day (set not to exceed designed maximum on 500m <sup>3</sup> /day)													
Dilution sea water flow rate	Approximately 340,000m <sup>3</sup> /day (same speed as walking in the tunnel [approximated 1m/second])													
Concentration of tritium after dilution	Approximated 190Bq/liter													
Term of discharge	Approximately 17 days													
※ Comparison of concentrations before/after sea water dilution														
	<table border="0"> <tr> <td></td> <td>Before dilution</td> <td>→</td> <td>After dilution (740 times)</td> <td rowspan="2">} 0.0036 (1/270 of government requirements)</td> </tr> <tr> <td>29 types</td> <td>0.28</td> <td>→</td> <td>0.00038</td> </tr> <tr> <td>Tritium</td> <td>2.33</td> <td>→</td> <td>0.0032</td> </tr> </table>		Before dilution	→	After dilution (740 times)	} 0.0036 (1/270 of government requirements)	29 types	0.28	→	0.00038	Tritium	2.33	→	0.0032
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