

Fukushima Daiichi Nuclear Power Station

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

< Reference document >
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- The discharge of ALPS treated water (approximately 7,800m³) from measurement/confirmation facility tank group B began on February 28, planning to take approximately 17 days.
- Samples have been taken from the seawater pipe every day 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, 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 March 16 >

- Since the commencement of discharge on February 28, the amount of ALPS treated water being discharged has remained constant*¹ at approximately 460m³/day, and daily quick analysis results of tritium concentrations in the seawater have 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 suspended at 12:33 AM on March 15 in accordance with the pre-defined operational procedures after the earthquake with its epicenter off the coast of Fukushima Prefecture (The seismic intensity of 5-lower was measured in Naraha Town*²) occurred at around 12:14 AM on March 15. After confirming that there was no abnormality on our facilities as a result of field patrol inspections, we resumed the ALPS treated water transfer process at 3:49 PM on March 16, and completed it on 3:29 AM on March 17. On the same day, the flush out of the water remaining in the ALPS treated water transfer line was completed at 12:16 PM and the completion of this task marked the end of the fourth discharge of ALPS treated water into the sea. (Total amount of water discharged: approx. 7,794 m³, Total amount of tritium discharged: approx. 1.3 trillion Bq)
- With the completion of the fourth discharge of the ALPS treated water, we have completed the discharges for FY 2023 as planned. We will announce the FY2024 discharge plan, which we announced the draft at the end of January, by the end of March 2024.
- Going forward, we will remain vigilant to ensure that there are no unintentional discharges of ALPS treated water into the sea.

*1 Excluding the period from the temporal suspension of the discharge (12:33 AM on March 15) to the resumption of the discharge (3:49 PM on March 15)

*2 Fukushima Daiichi Nuclear Power Station is located in Okuma Town and Futaba Town. Fukushima Daini Nuclear Power Station is located in Tomioka Town and Naraha Town.

[Reference] Status of work for the 4th discharge of ALPS treated water

- Transfer from the K4 area group E and K3 area group A to the measurement/confirmation facility group B was completed on December 11 in preparation for the 4th discharge.
- Agitation/circulation commenced on December 15 and samples were taken on December 22.
- The collected samples are currently being analyzed. The 4th discharge is scheduled to commence in late February 2024.

Management number*3

23-1-1	Measurement/confirmation facility (K4 area) Group B:	Approx. 7,800m ³	Secondary treatment: No Tritium concentration: 140,000Bq/liter Total amount of tritium: 1.1 trillion Bq	Completed
23-2-2	Measurement/confirmation facility (K4 area) Group C:	Approx. 7,800m ³	Secondary treatment: No Tritium concentration: 140,000Bq/liter Total amount of tritium: 1.1 trillion Bq	Completed
23-3-3	Measurement/confirmation facility (K4 area) Group A:	Approx. 7,800m ³	Secondary treatment: No Tritium concentration: 130,000Bq/liter Total amount of tritium: 1.0 trillion Bq	Completed
23-4-4	K4 area Group E (Transferred to Measurement/confirmation facility group B * ²): K3 area Group A (Transferred to Measurement/confirmation facility group B * ²):	Approx. 4,500m ³ Approx. 3,300m ³	Secondary treatment: No Tritium concentration : 170,000~210,000Bq/liter * ¹ Total amount of tritium: 1.4 trillion Bq * ¹	Details on the next page

➔ Total amount of tritium to be discharged during FY2023: Approx. 5 trillion Bq

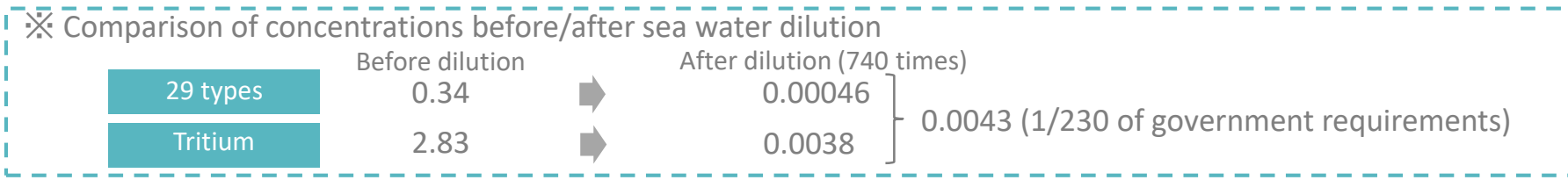
*1 Average value of the tank group that was assessed taking into account the radioactive decay until July 1, 2023

*2 Being transferred to K4 area tank group B that was empty after the 1st discharge was completed




*3 The management number is made up of the fiscal year, followed by the discharge number for that fiscal year, and the total number of discharges to date. For example, "24-1-5" indicates that the data is for the first discharge of 2024, which is the fifth discharge to date.

[Reference] Outline of fourth discharge for Group K4-B

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: 0.34*)	(details on p1 of the link)
	Tritium concentration	170,000Bq/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 ³	
Treated water flow rate		Approximately 460m ³ /day (set not to exceed designed maximum on 500m ³ /day)	
Dilution sea water flow rate		Approximately 340,000m ³ /day (same speed as walking in the tunnel [approximated 1m/second])	
Concentration of tritium after dilution		Approximated 230Bq/liter	
Term of discharge		Approximately 17 days	



Future monitoring plan for quick tritium measurements

	A total of 4 locations ^{※1} in the vicinity of the discharge outlet 	Other 6 locations  
During the discharge period and for one week following the completion of discharge	Quick measurements : Conduct daily ^{※2} (Normal measurement: Conduct once a week)	Quick measurements : Conduct twice a week (Normal measurement: Conduct once a week)
Outside the discharge period (Excluding one week following the completion of discharge)	Quick measurements : Conduct once a week (Normal measurement: Conduct once a week)	Quick measurements : Conduct once a month (Normal measurement: Conduct once a week)

※1 Selected considering 3 monitoring points conducted by Ministry of the Environment in the vicinity of the discharge outlet, detection performance of monitoring conducted by TEPCO, and direction of ocean current.

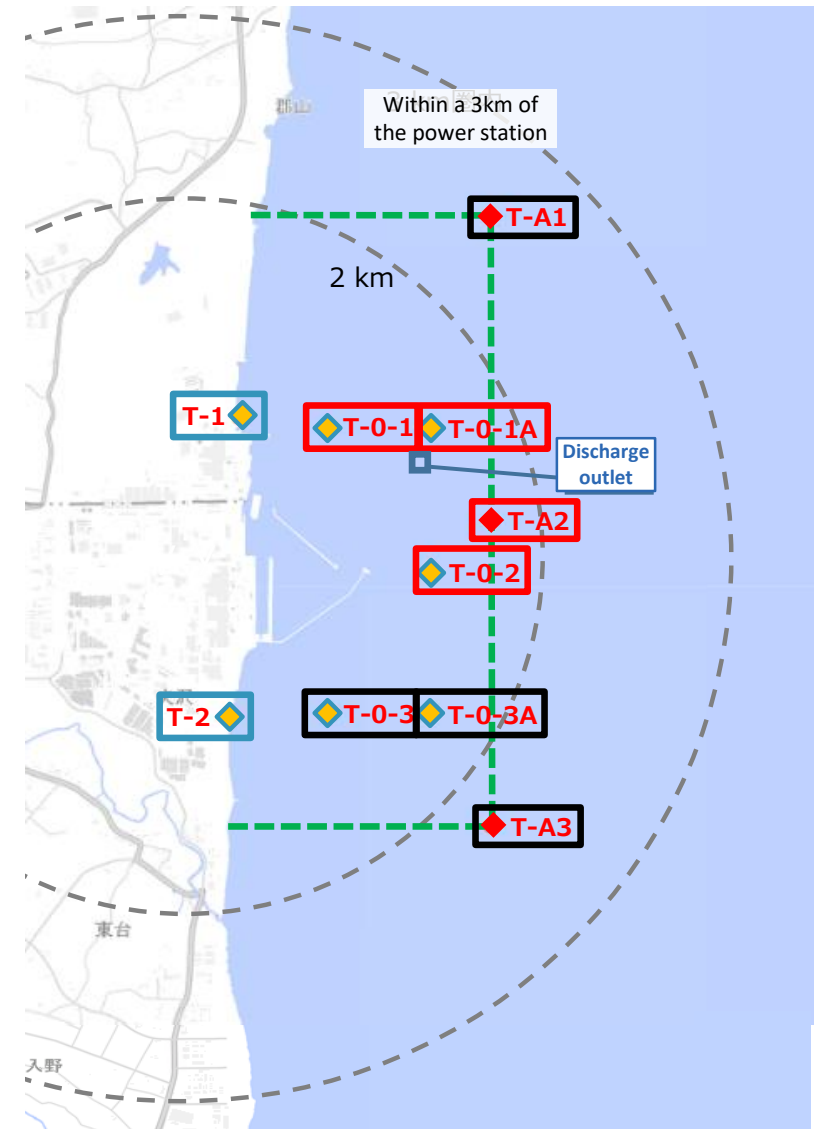
※2 If two days are missed because of bad weather condition during the discharge period, and it is predicted that measurements will not be able to be taken the next day either (third day in a row), quick tritium measurement will be conducted at T-1 and T-2 on the third day.

Quick measurement : Analysis performed with a detection limit of 10Bq/liter in order to quickly confirm that the discharged water is dispersing from the discharge outlet as anticipated after leaving the discharge outlet.

Normal measurement: Analysis performed with a detection limit of 0.4Bq/liter (once a week), and 0.1Bq/liter (once a month) in accordance with the government's Comprehensive Radiation Monitoring Plan.

Note) The same specimen may be used for both quick measurements and normal analysis

- During the analysis of samples from the other 6 locations, this plan may be revised if
 - ✓ Tritium is detected during quick measurements
 - ✓ Concentrations that exceed detection limits for quick measurements are detected during normal analysis

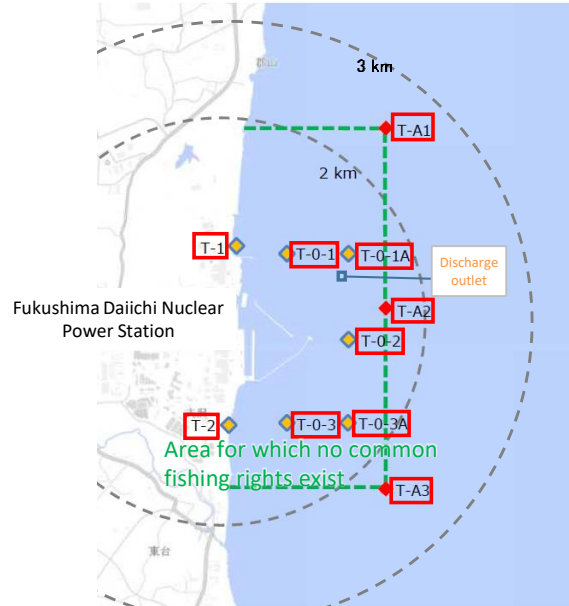


(Reference) Monitoring plans for quick tritium measurements

- Seawater tritium analysis is implemented once a week at all points on Figures 1 and 2 below, with the detection limit set to 0.1-0.4Bq/liter.
- In addition, quick tritium measurements with the detection limit set to 10Bq/liter will be implemented at the locations outlined in the red frames in Figures 1 and 2 below. In the case "discharge suspension level" indicators are exceeded, the discharge into the sea will be suspended.
- After the commencement of the discharge, in light of the monitoring frequency outlined by the various organizations within the Comprehensive Monitoring Plan, frequency of quick tritium measurements specifically near the discharge outlets shown in Figure 1 will be increased from once a week to everyday for the time being.

To be revised

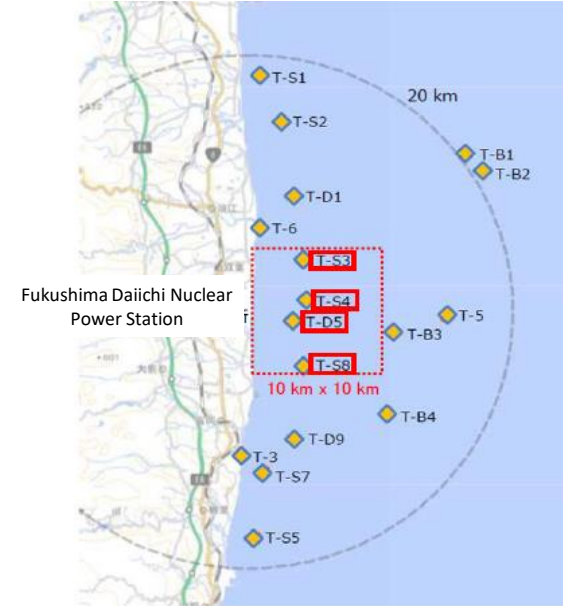
Figure 1. Sampling locations within a 3km radius of the power station (in the vicinity of the discharge outlet)



: Monitoring locations for measurements to obtain results quickly (10 locations)
Indicator (discharge suspension level): 700Bq/liter
 Analysis frequency: once a week → **Every day for the time being**

Remains the same

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



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