ALPS Treated Water Discharge Status Update

November 27, 2025



Tokyo Electric Power Company Holdings, Inc.

Report contents



- 1. Performance of the discharge of ALPS treated water (Management number* : 25-5-16)
- 2. Status of facility inspections
- 3. Transfer of ALPS treated water in preparation for the future discharges

(Reference) Sea area monitoring history after the commencement of discharge

^{*} 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, "25-5-16" indicates that the data is for the fifth discharge of 2025, which is the sixteenth discharge to date.



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Overview



- We are planning to conduct the discharge of ALPS treated water (management number: 25-5-16) as follows.
- On the next page, we will explain that there was no abnormality in parameters and sea area monitoring.

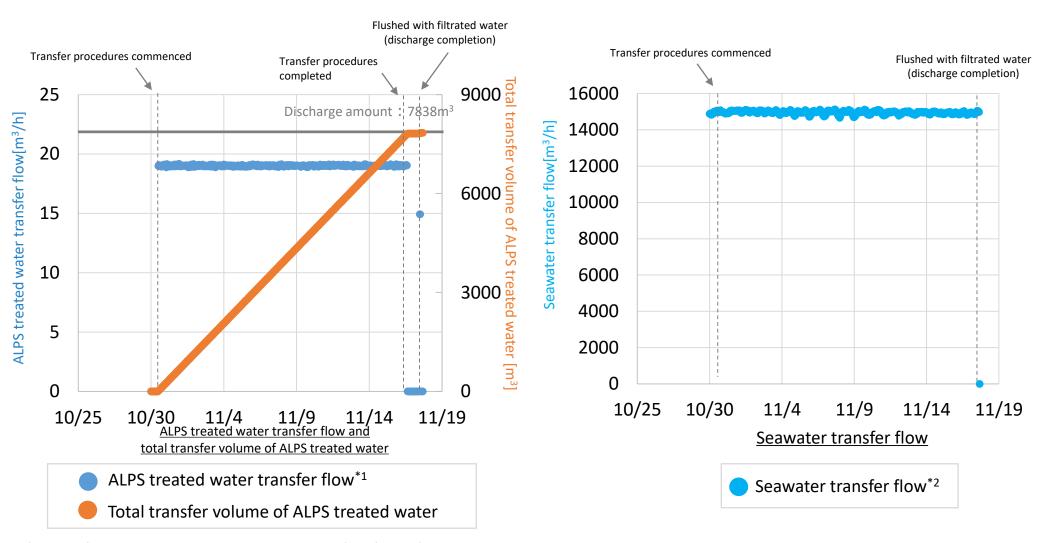
FY2025

Management number	Tank group	Tritium Concentration	Commenced	Completed	Amount of discharge	Amount of tritium radioactivity
25-1-12	Group A	37x 10 ⁴ Bq/liter	April 10, 2025	April 28, 2025	7,853m³	Approx. 2.9 trillion Bq
25-2-13	Group C	25x 10 ⁴ Bq/liter	July 14, 2025	August 3, 2025	7,873m³	Approx. 2.0 trillion Bq
25-3-14	Group A	38x 10 ⁴ Bq/liter	August 7, 2025	August 25, 2025	7,908m³	Approx. 3.0 trillion Bq
25-4-15	Group B	21x 10 ⁴ Bq/liter	September 11, 2025	September 29, 2025	7,872m³	Approx. 1.7 trillion Bq
25-5-16	Group C	25x 10⁴ Bq/liter	October 30, 2025	November 17, 2025	7,838m³	Approx. 2.0 trillion Bq

1-1. Operating parameter records during the discharge (1/3)



We were able to operate ALPS treated water transfer systems and seawater systems without issue.



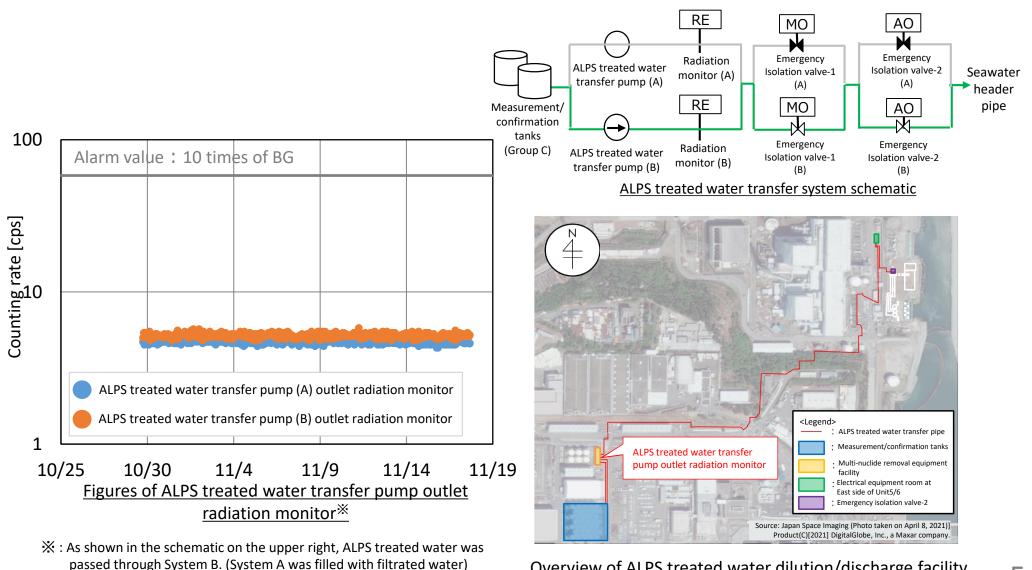
^{*1:} The flowmeters are reduplicate, so the higher of the figures from both meters was used.

^{*2:} Total for systems A and B

1-1. Operating parameter records during the discharge (2/3)



No abnormalities were seen in the figures from the ALPS treated water transfer pump outlet radiation monitor.

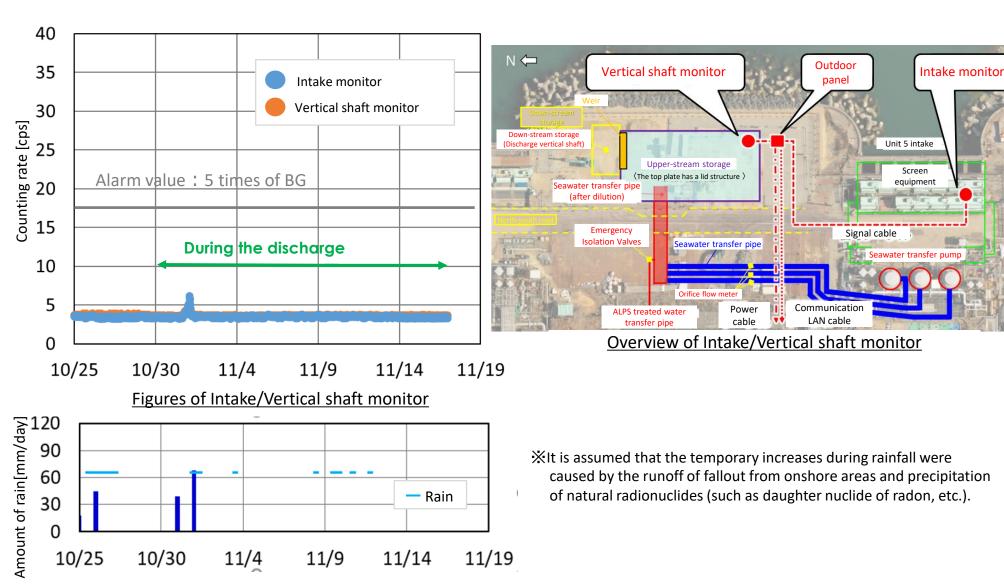


Overview of ALPS treated water dilution/discharge facility

1-1. Operating parameter records during the discharge (3/3)



Temporary increase in values, possibly due to rain is observed, but no abnormalities are seen in the readings.



Rain

11/19

11/14

10/25

10/30

11/4

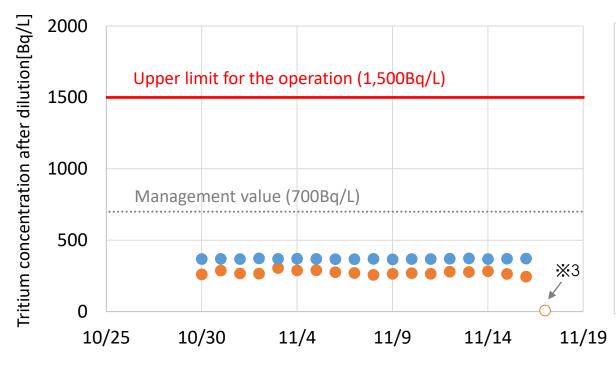
11/9

XIt is assumed that the temporary increases during rainfall were caused by the runoff of fallout from onshore areas and precipitation of natural radionuclides (such as daughter nuclide of radon, etc.).

1-2. Tritium concentrations after dilution during the discharge



- During the discharge period, water was sampled daily from the seawater pipe to analyze tritium concentrations.
 - ⇒Confirmed to be less than the upper limit for the operation: 1,500Bq/liter



- Calculated values^{*1}
- Analysis values (Detected values)
- Analysis values (Below detectable levels)
- X1: Calculated using the following formula(Uncertainty has been considered for each parameter)

Tritium concentrations after dilution (Calculated values)

Tritium concentrations in ALPS treated water **2

ALPS treated water

X transfer flow

Seawater transfer flow + ALPS treated water transfer flow

※2 : Analysis values at measurement/confirmation tanks

※3 : No calculated values since the pipes were flushed out with filtrated water.

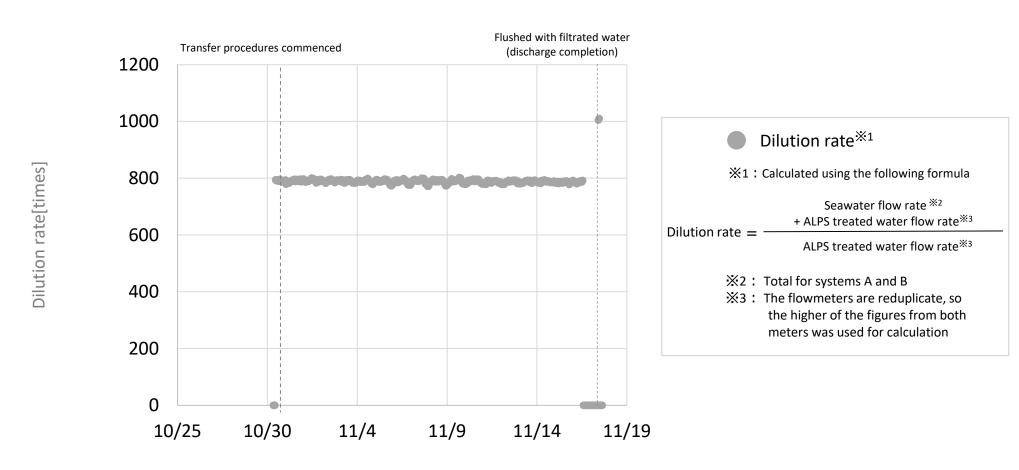
<u>Tritium concentrations after dilution (calculated values and analysis values)</u>

	10/30	10/31~11/16	11/17
Calculated value: Time of data acquisition	13:00	7:00	_
Analysis value: Time of specimen sampling	13:26	6:00~9:00	12:02

[Reference] Dilution rate of ALPS treated water



■ The dilution rate had always been kept at over 100 times during the discharge.



Dilution rate of ALPS treated water

1-3. Sea area monitoring history (1/3)



Measurement results of tritium concentrations in water sampled in the vicinity of the discharge outlet (within 3km of the power station) and outside of the vicinity of the discharge outlet (within a 10km square in front of the power station) are all below indices (discharge suspension level and investigation level).

(Unit: Bq/L)

	Sampling		Octobe	October 2025 November 2025									
	location*3	Frequency	30 *4	31	1	2	3	4	5	6	7	8	9
	T-1	Twice a week*1	<6.8	-	-	-	<6.9	-	-	<6.2	-	-	-
	T-2	Twice a week*1	<6.8	-	-	-	<6.9	-	-	<6.2	-	-	-
	T-0-1	Once a day*2	<8.0	<8.2	*5	<5.5	<6.9	<7.7	<7.5	6.6	<7.3	<5.8	<6.1
	T-0-1A	Once a day*2	<8.0	16	*5	<8.6	35	<4.7	43	11	<6.5	<7.2	<6.5
In the vicinity of the	T-0-2	Once a day*2	<8.0	<8.2	*5	<5.6	<5.6	<7.7	<7.5	8.7	<7.3	<5.8	<6.2
discharge outlet	T-0-3A	Twice a week*1	<5.4	-	-	-	<5.6	-	-	<6.3	-	1	-
outiet	T-0-3	Twice a week*1	<8.0	-	-	ı	<5.6	ı	ı	<6.3	ı	1	-
	T-A1	Twice a week*1	<5.5	-	-	-	<6.4	-	1	<7.0	1	1	-
	T-A2	Once a day*2	<5.5	<7.0	*5	<8.6	<6.4	4.7	<7.7	<7.0	<6.5	<7.2	<6.5
	T-A3	Twice a week*1	<5.5	-	-	-	<6.4	-	-	<7.0	-	-	-
0 1 1 1	T-D5	Once a week	1	-	-	-		-	<7.7		1	1	-
Outside the vicinity of the	T-S3	Once a month	1	-	-	1		1	<7.6		1	1	-
discharge	T-S4	Once a month	-	-	-	-		-	<7.7		-	-	-
outlet	T-S8	Once a month	-	-	-	-		-	<7.6		-	-	-

 $[\]mbox{\%}:\mbox{A "less than" symbol (<) indicates that the analysis result was less than the detection limit$

indicates that the detected value

: Term of discharge of ALPS treated water

^{*1:} Conduct twice a week during the discharge period and for one week following the completion of discharge. Conduct once a month outside the discharge period, excluding the one week following the completion of discharge.

^{*2:} Conduct once a day during the discharge period and for one week following the completion of discharge. Conduct once a week outside the discharge period, excluding the one week following the completion of discharge

^{*3:} For sampling locations, refer to "[Reference] Measurement monitoring plan"

1-3. Sea area monitoring history (2/3)



(Unit: Bq/L)

	Sampling						No	vember 20)25				101me: 5q7 27
	Sampling location* ³	Frequency	10	11	12	13	14	15	16	17 *4	18	19	20
	T-1	Twice a week*1	<6.3	-	-	<6.4	-	-	-	<7.4	-	-	<7.7
	T-2	Twice a week*1	<6.3	-	-	<6.4	-	-	-	<7.4	-	-	<7.7
	T-0-1	Once a day*2	<6.3	<6.9	<7.0	<6.4	6.1	<7.0	<7.7	<7.4	<6.9	<6.4	<7.6
	T-0-1A	Once a day*2	<8.0	21	13	13	33	<7.0	30	<7.3	<6.9	<6.5	<6.3
In the vicinity of the	T-0-2	Once a day*2	<8.0	<6.9	<7.0	<8.3	<5.6	<7.0	<7.7	<7.3	<6.9	<6.4	<7.7
discharge outlet	T-0-3A	Twice a week*1	<8.0	-	-	<8.3	-	-	-	<6.1	-	-	<6.3
outiet	T-0-3	Twice a week*1	<8.0	-	-	<8.3	-	-	-	<7.3	-	-	<6.3
	T-A1	Twice a week*1	<9.0	-	-	<8.0	-	-	-	<6.0	-	-	<7.3
	T-A2	Once a day*2	<9.0	<6.4	<6.9	<8.0	<8.1	<7.0	<7.7	<6.0	<6.9	<6.5	<7.3
	T-A3	Twice a week*1	<9.0	-	-	<8.0	-	-	-	<6.0	-	-	<7.3
	T-D5	Once a week	-	-	<6.9	-	-	-	-	<7.4	-	-	-
Outside the vicinity of the	T-S3	Once a month	-	-	-	-	-	-	-	-	-	-	-
discharge outlet	T-S4	Once a month	-	-	-	-	-	-	-	-	-	-	-
outiet	T-S8	Once a month	-	-	-	-	-	-	-	-	-	-	-

lepha: A "less than" symbol (<) indicates that the analysis result was less than the detection limit

indicates that the detected value

[:] Term of discharge of ALPS treated water

^{*1:} Conduct twice a week during the discharge period and for one week following the completion of discharge. Conduct once a month outside the discharge period, excluding the one week following the completion of discharge.

^{*2:} Conduct once a day during the discharge period and for one week following the completion of discharge. Conduct once a week outside the discharge period, excluding the one week following the completion of discharge

^{*3:} For sampling locations, refer to "[Reference] Measurement monitoring plan"

^{*4:} Sampled before the completion of discharge at 9AM

1-3. Sea area monitoring history (3/3)



(Unit: Bq/L)

	Camadina la saki a *3	F		Novemb	er 2025	
	Sampling location*3	Frequency	21	22	23	24
	T-1	Twice a week*1	-	-	1	<9.9
	T-2	Twice a week*1	-	•	ı	<9.8
	T-0-1	Once a day*2	<6.1	<7.1	<7.3	<8.1
	T-0-1A	Once a day*2	<6.2	<7.1	<7.4	<8.1
In the vicinity of the	T-0-2	Once a day*2	<6.2	<7.1	<7.3	<8.2
discharge outlet	T-0-3A	Twice a week*1	ı	ı	ı	<8.4
Junet	T-0-3	Twice a week*1	1	ı	ı	<8.1
	T-A1	Twice a week*1	1	ı	ı	<8.4
	T-A2	Once a day*2	<6.2	<7.1	<7.4	<8.4
	T-A3	Twice a week*1	-	-	-	<8.4
	T-D5	Once a week	-	-	-	<9.9
Outside the vicinity of the	T-S3	Once a month	-	-	-	-
discharge outlet	T-S4	Once a month	-	1	ı	-
Junet	T-S8	Once a month	-	-	-	-

^{**:} A "less than" symbol (<) indicates that the analysis result was less than the detection limit indicates that the detected value : Term of discharge of ALPS treated water (Management number: 25-4-15)

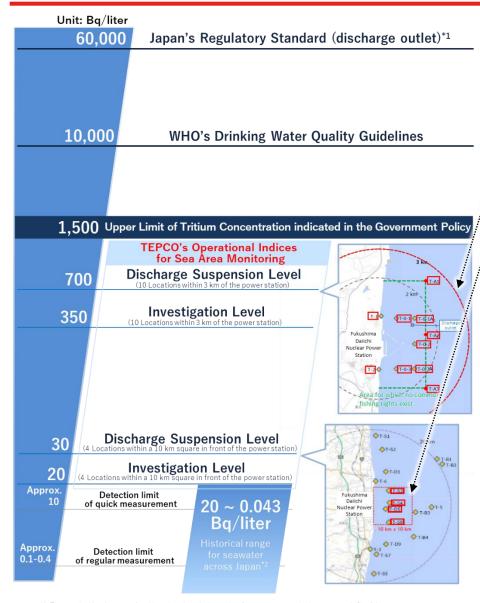
^{*1:} Conduct twice a week during the discharge period and for one week following the completion of discharge. Conduct once a month outside the discharge period, excluding the one week following the completion of discharge

^{*2:} Conduct once a day during the discharge period and for one week following the completion of discharge. Conduct once a week outside the discharge period, excluding the one week following the completion of discharge

^{*3:} For sampling locations, refer to "[Reference] Measurement monitoring plan"

[Reference] Comparison of tritium concentration in seawater





^{*1:} This standard has been stipulated based on the calculation that if a person were to drink approximately 2L of the water coming out of the discharge outlet of a nuclear facility every day for one year, his/her exposure would be 1mSv.

We have set a discharge suspension level and an investigation level as TEPCO's operational indices.

	Discharge suspension level	Investigation level
Within 3km of the power station	700 Bq/L	350 Bq/L
Within a 10km square in front of the power station	30 Bq/L	20 Bq/L

If the discharge suspension level is exceeded, the sea discharge will be immediately suspended.

If the investigation level is exceeded, facilities/operation status will be inspected and the frequency of monitoring will be increased as necessary.

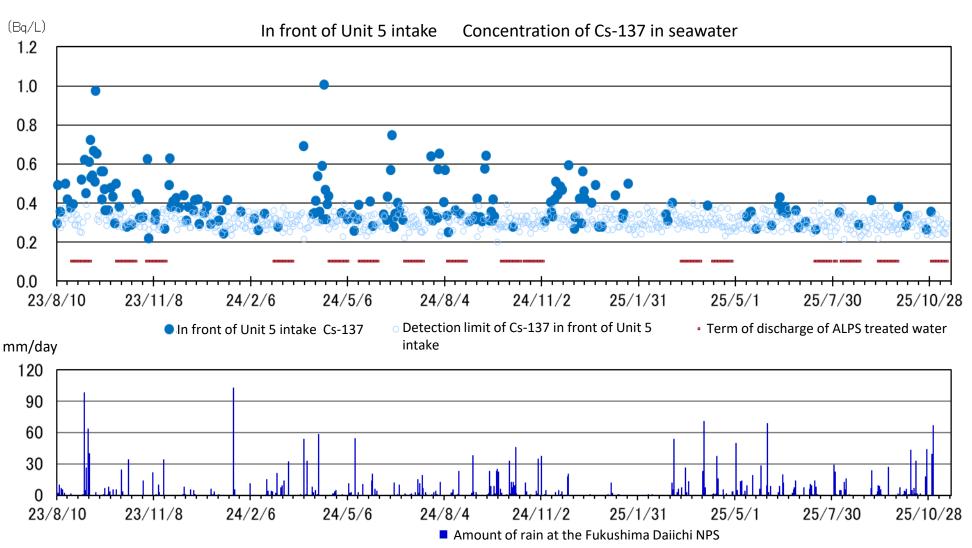
- Even if the tritium concentration exceeds indices (Discharge suspension level and Investigation level), the levels are well below the Japan's regulatory standard of 60,000 Bq/L and the WHO's drinking water quality guidelines of 10,000 Bq/L, and we assess that the surrounding sea areas are still safe.
- It is expected that the concentration of tritium in seawater will be affected depending on the concentration of tritium in the treated water to be released in the future, and higher values than before will be detected. Even in such cases, it is evaluated that the concentration will remain below the investigation level and other indices.

^{*2:} Source: Environmental Radioactivity and Radiation in Japan (Period: April 2019 to March 2022)

1-4. Unit 5 intake channel monitoring



Sea water monitoring results at near the intake for seawater to be used for dilution during the discharge of ALPS treated water have confirmed that values are similar to those outside of the term of the discharge.

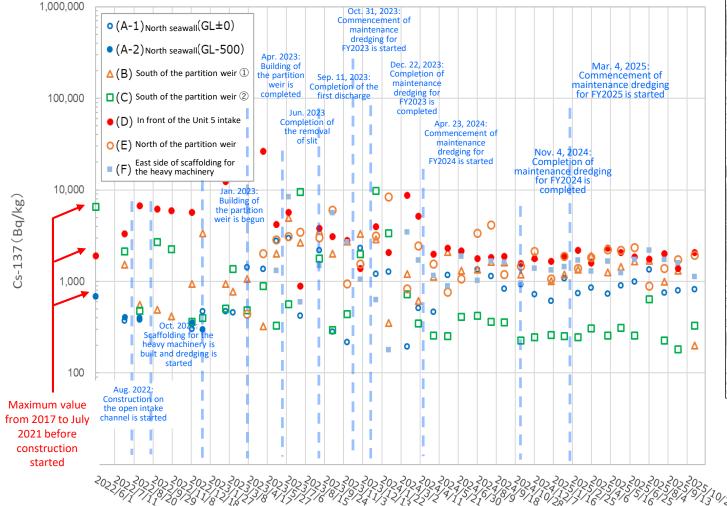


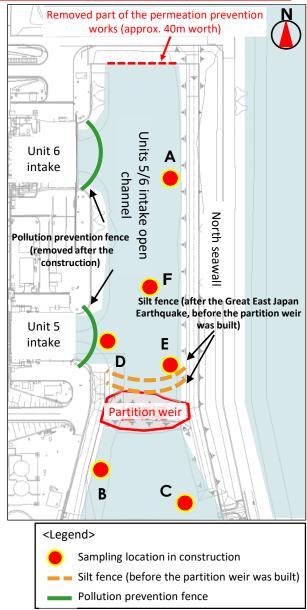
1-5. Monitoring results for seabed soil inside the Unit 5/6 intake open channel (1)



Monitoring results for seabed soil in front of Unit 5 intake did not show significant fluctuations from the beginning of construction at the intake open channel until December 2022. While they showed higher readings after January 2023, we have confirmed that these readings decreased after the completion of silt removal.

We will continue to monitor the seabed soil.

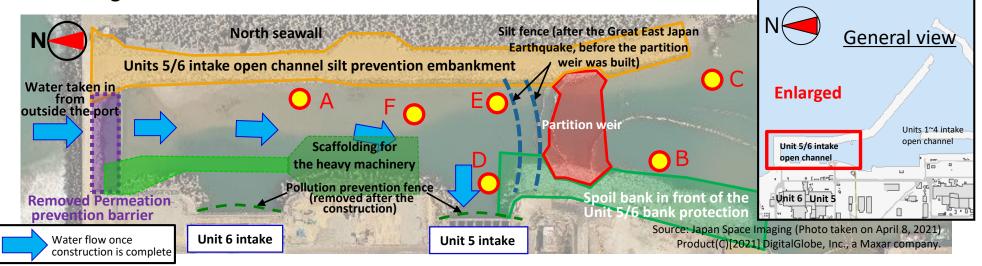




1-5. Monitoring results for seabed soil inside the Unit 5/6 intake open channel (2)



The following shows monitoring results for seabed soil inside the unit 5/6 intake open channel from August 2022 to November 2025.



`						_							
Sampling points		Before construction	FY2022	2023	2024				2025				
Sampling points	<u> </u>	2017 to July 2021	Aug. ~ Mar.	Apr. ~ Mar. Apr. ~ Mar.		Apr. May Jun. Jul. Aug. Sep.					Oct.	Nov.	
A-1 North side of the Unit 5/6	Cs-134	4.4~52.3	31.5~39.8	32.0~69.5	34.4~64.5	45.0	51.3	47.3	46.7	92.3	42.5	60.1	62.6
(North side of the silt fence (GL ± 0m)	Cs-137	163.6~678.6	303.2~468.1	216.7~2975.0	461.7~2107.0	850.5	727.6	902.6	999.4	1,352.0	747.7	790.3	812.9
A-2 North side of the Unit 5/6 open channel	Cs-134	14.4~58.5	32.5~38.3		*Only sampled fr	from the curf	/GI ± 0m	l since cand i	::as removed	during drod	ring -		
North side of the silt fence (GL-0.5m)	Cs-137	310.0~689.8	299.1~404.0	.00000000000000000000000000000000000000	MOIIIy Saiiipieu ii	I	Le (GL - UIII)	I	as removed :	Juling ureug	,ing ı	·	
B South side of the partition weir	Cs-134	723.0	34.5~65.6	48.8~97.1	35.1~64.5	55.0	35.7	40.0	50.1	55.7	37.1	58.7	84.1
(① (South side of the silt fence)	Cs-137	6,475.0	412.8~3,331.0	323.8~4943.0	613.8~1889.0	1,889.0	1,251.0	1,447.0	1,654.0	1,669.0	987.7	1,306.0	200.1
C South side of the partition weir	Cs-134	183.0	30.9~68.7	37.1~234.8	26.5~48.6	36.7	33.7	50.7	35.4	38.1	31.0	29.7	30.1
(② (South side of the silt fence)	Cs-137	1,893.0	360.8~2,671.0	295.9~9519.0	227.4~419.6	306.9	257.5	311.6	255.8	633.3	224.9	182.1	329.7
D Unit 5 intake	Cs-134		101.6~3,546.0	50.2~690.7	35.9~114.8	44.4	47.1	53.1	80.5	40.6	59.2	52.8	58.8
D Office a meaning	Cs-137		3,301.0~144,000.0	951.7~26400.0	1563.0~2306.0	1,587.0	2,306.0	2,064.0	1,852.0	1,757.0	2,014.0	1,380.0	2,078.0
North side of	Cs-134			35.6~147.0	30.0~59.7	44.4	47.4	82.8	38.9	47.3	42.7	36.0	45.0
the partition weir	Cs-137	_		437.1~5795.0	746.6~4154.0	1,834.0	2,202.0	2,196.0	2,344.0	882.6	1,377.0	1,718.0	1,915.0
East side of scaffolding	Cs-134			40.2~166.1	34.1~87.1	50.0	56.4	40.7	39.6	63.8	37.5	69.2	51.4
for the heavy machinery	Cs-137	_		592.4~8303.0	891.0~1884.0	1,295.0	1,664.0	1,235.0	1,715.0	2,187.0	1,729.0	1,579.0	1,122.0

[Reference] Total radioactivity of nuclides to be measured and assessed (29 nuclides)



■ The following chart shows the total radioactivity (Bq) for nuclides to be measured and assessed (29 nuclides) during the discharge of Management number: 25-5-16. (Calculated from analysis values^{※1} (Bq/liter) and discharge volume (7,838m³) for each nuclide)

💥 1: It was confirmed that the sum of the ratios of legally required concentrations of the nuclides targeted for measurement/assessment is 0.14 and less than 1.

The total radioactivity from nuclides for which analysis values were below detection limit (ND) have not been included.

Nuclide	Analysis value [Bq/liter]	Total radioactivity [Bq]	Nuclide	Analysis value [Bq/liter]	Total radioactivity [Bq]	Nuclide	Analysis value [Bq/liter]	Total radioactivity [Bq]
C-14	3.7E+01	2.9E+08	Cd-113m	<7.0E-02	_	U-234 [*] 3	<2.7E-02	_
Mn-54	<2.3E-02	_	Sb-125	1.7E-01	1.3E+06	U-238 [*] 3	<2.7E-02	_
Fe-55	<1.4E+01	_	Te-125m ^{※2}	6.2E-02	4.9E+05	Np-237 [*] 3	<2.7E-02	_
Co-60	4.1E-01	3.2E+06	I-129	3.7E-01	2.9E+06	Pu-238 ^{※3}	<2.7E-02	_
Ni-63	<8.9E+00	_	Cs-134	<2.7E-02	_	Pu-239 ^{※3}	<2.7E-02	_
Se-79	<1.1E-01	_	Cs-137	2.1E-01	1.6E+06	Pu-240 ^{※3}	<2.7E-02	_
Sr-90	1.1E-01	8.6E+06	Pm-147 ^{**} 2	<3.0E-01	_	Pu-241 ^{※2}	<7.3E-01	_
Y-90 ^{※2}	1.1E-01	8.6E+06	Sm-151 ^{**} 2	<1.2E-02	_	Am-241 ^{**3}	<2.7E-02	_
Tc-99	<3.5E-01	_	Eu-154	<6.8E-02	-	Cm-244 ^{※3}	<2.7E-02	_
Ru-106	<2.2E-01	_	Eu-155	<1.6E-01	_			

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2. Status of facility inspections

3. Transfer of ALPS treated water in preparation for the future discharges

(Reference) Sea area monitoring history after the commencement of discharge

^{*} 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, "25-5-16" indicates that the data is for the fifth discharge of 2025, which is the sixteenth discharge to date.

2-4. FY2025 Facility inspection overview



- The inspections listed below will be implemented in FY2025 as well.
- The sixth discharge in FY2025 (management number: 25-6-17) will be conducted in parallel with the inspection of the dilution/intake facilities.

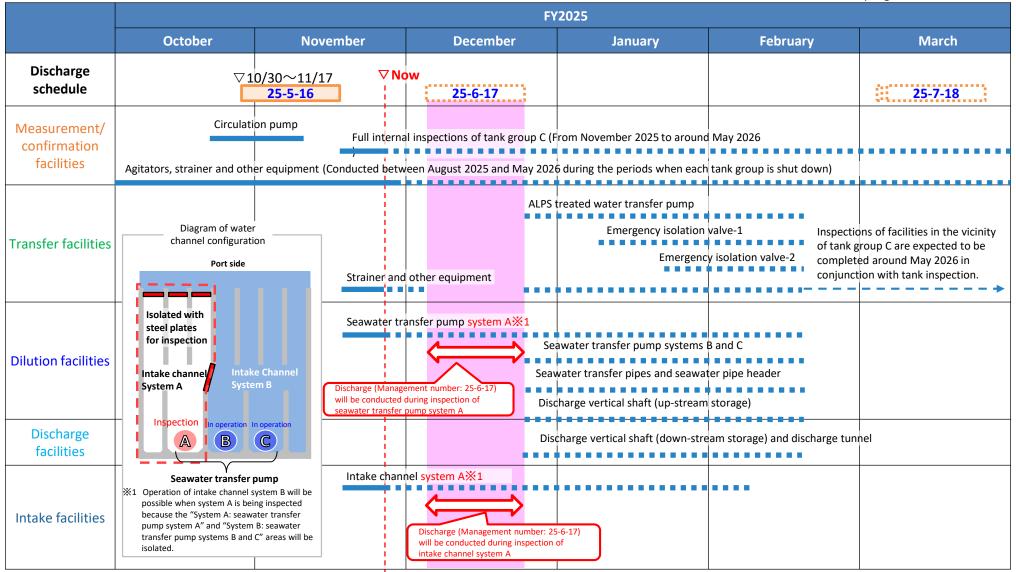
Facility	Primary inspection details	Inspection status
	Measurement/confirmation tank group C: Full internal inspections	Under inspection
Measurement/	Circulation pumps: Disassembly inspection	Completed (no abnormalities (reported on the following page))
confirmation facilities	Agitators: Insulation resistance measurements	Under inspection
	Miscellaneous: Strainer cleaning, etc.	Under inspection
	ALPS treated water transfer pumps: Lubrication oil for bearings replacement	Inspection to begin from December 2025
Transfer facilities	Emergency isolation valve-1: Disassembly inspection	Inspection to begin from January 2026
Transfer facilities	Emergency isolation valve-2: External inspection	Inspection to begin from January 2026
	Miscellaneous: Strainer cleaning, etc.	Under inspection
	Seawater transfer pump system A: Disassembly inspection [™]	Under inspection
	Seawater transfer pump system B: Gland packing replacement	Inspection to begin from December 2025
Dilution facilities	Seawater transfer pump system C: Gland packing replacement	Inspection to begin from December 2025
	Sea water transfer pipes/seawater pipe header: Internal inspection	Inspection to begin from December 2025
	Discharge vertical shaft (up-stream storage): Internal inspection	Inspection to begin from December 2025
Discharge facilities	Discharge vertical shaft (down-stream storage), discharge tunnel: Internal inspection	Inspection to begin from December 2025
Seawater intake	Partitioning weirs: External inspection	Inspection to begin from December 2025
facilities	Intake channel system A: Cleaning, Internal inspection, repair*	Under inspection

[Reference] General inspection schedule



■ The general inspection schedule (as of November 2025) for FY2025 is as follows:

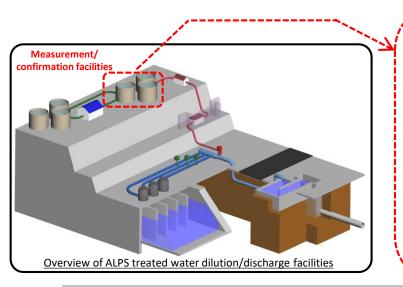
Dotted lines indicate that changes may be made in accordance with work progress

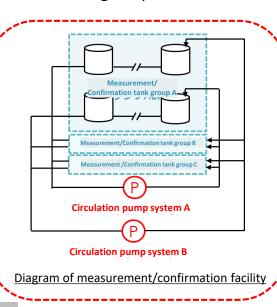


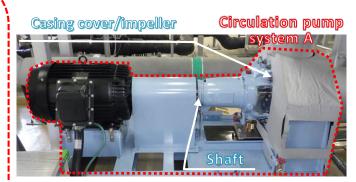
2-2. Circulation pumps inspection results



Disassembly inspections of circulation pump systems A and B were implemented in accordance with the inspection plan to check for abnormalities such as corrosion, etc. The following are photos from the inspection of circulation pump system A.







Entire circulation pump system A >

Disassembly inspection photos



< Shaft >



< Casing cover >



< Impeller >

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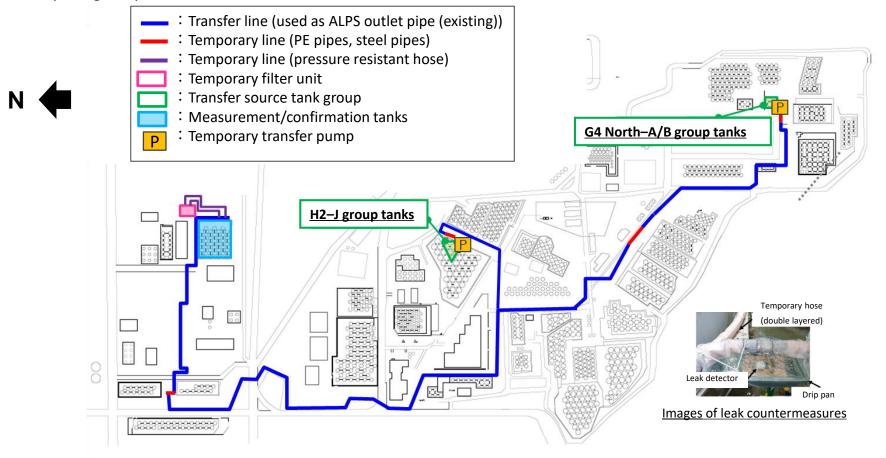
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^{*} The management number is made up of the fiscal year, followed by the discharge number for that fiscal year, and the total number of discharges to date. For example, "25-5-16" indicates that the data is for the fifth discharge of 2025, which is the sixteenth discharge to date.

3. Transfer of ALPS treated water in preparation for the future discharges



- Transfer of ALPS treated water from G5 area Group A/D and G4 North area Group A to measurement/confirmation facility tank group A in preparation for the discharge of Management number: 25-6-17 commenced on September 4, 2025 to October 3, 2025. Circulation/agitation of the tanks commenced on October 10, 2025 and samples were taken on October 17, 2025. Samples are currently being analyzed.
- Transfer of ALPS treated water from G4 North area Group B and H2 area Group J to measurement/confirmation facility tank group B in preparation for the discharge of Management number: 25-7-18 commenced on October 7, 2025 to November 7, 2025. Circulation/agitation of the tanks commenced on November 13, 2025 and samples were taken on November 20, 2025. Samples are currently being analyzed.



Report contents



- 1. Performance of the discharge of ALPS treated water (Management number* : 25-5-16)
- 2. Status of facility inspections
- 3. Transfer of ALPS treated water in preparation for the future discharges

(Reference) Sea area monitoring history after the commencement of discharge

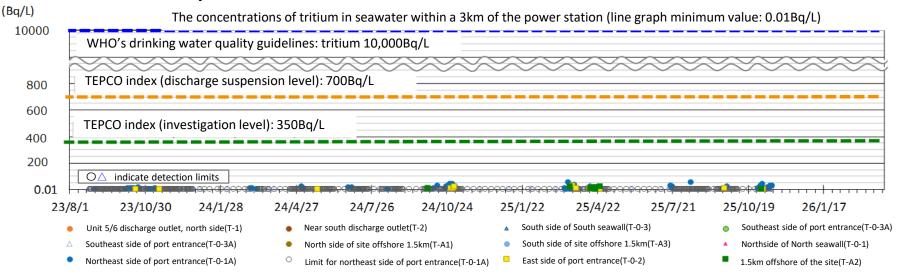
^{*} The management number is made up of the fiscal year, followed by the discharge number for that fiscal year, and the total number of discharges to date. For example, "25-5-16" indicates that the data is for the fifth discharge of 2025, which is the sixteenth discharge to date.

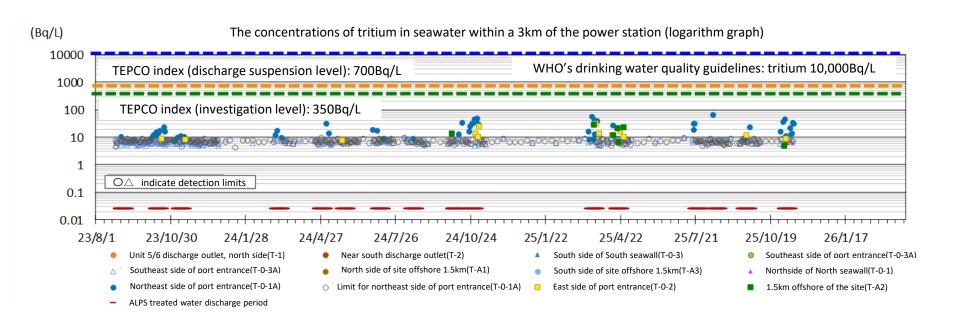
[Reference] Sea area monitoring results (1/2)

quick monitoring



Within a 3km of the power station



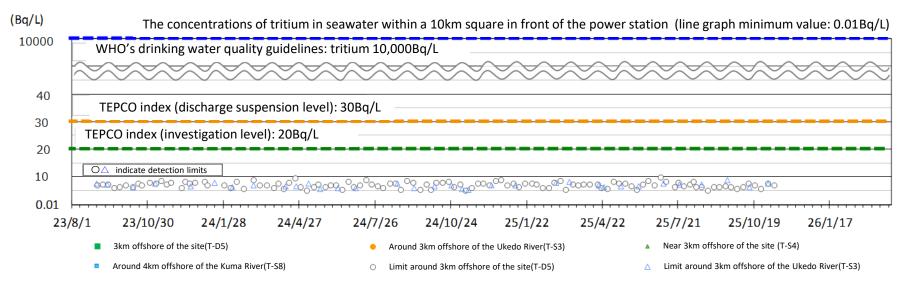


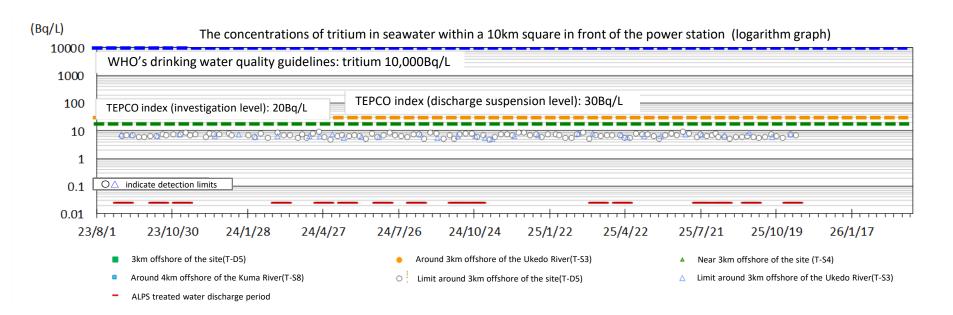
[Reference] Sea area monitoring results (2/2)

quick monitoring



Within a 10km square in front of the power station



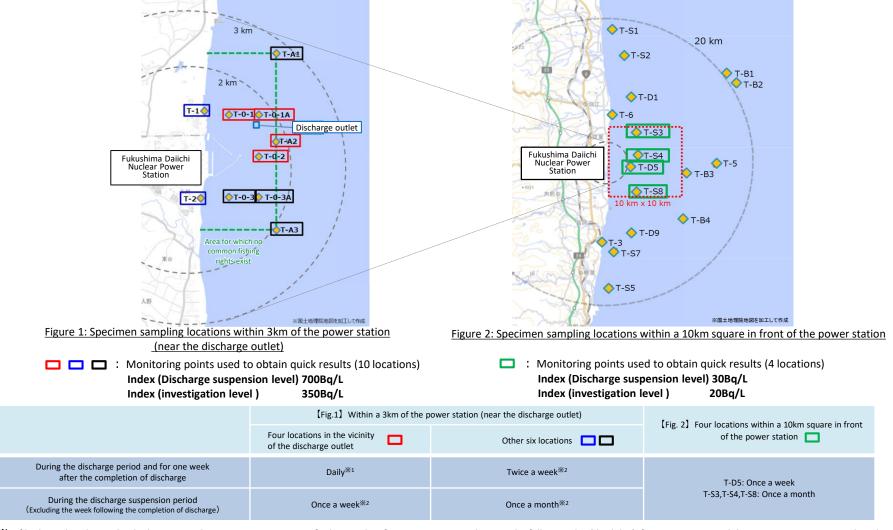


[Reference] Sea area monitoring plan

for obtaining quick measurements of the concentration of tritium in seawater



• We have engaged in monitoring to obtain quick measurements of the concentration of tritium in seawater with targeting the upper detection limit for 10Bq/liter, and index to determine discharge suspension (the discharge suspension level) was set.



^{*1} If bad weather during the discharge period prevents measurements for being taken for two consecutive days, on the following day (third day) if it is again expected that measurements cannot be taken, measured results will be quickly obtained from T-1 and T-2.

^{*2} We have engaged in monitoring daily since the commencement of discharge in August 2023, but the monitoring plan was changed on December 26, 2023 in light of actual measurements taken during discharge (Announced on December 25, 2023)