

# ALPS Treated Water Discharge Status Update

April 25, 2024

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Tokyo Electric Power Company Holdings, Inc.

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- 1. Status of work for the 5<sup>th</sup> discharge of ALPS treated water**
  - 2. Transfer of ALPS treated water in preparation for the 6<sup>th</sup> and 7<sup>th</sup> discharges**
  - 3. Countermeasures to prevent marine organisms from adhering to dilution/discharge facility**
- (Reference) Sea area monitoring history after the commencement of discharge**

- 1. Status of work for the 5<sup>th</sup> discharge of ALPS treated water**
  2. Transfer of ALPS treated water in preparation for the 6<sup>th</sup> and 7<sup>th</sup> discharges
  3. Countermeasures to prevent marine organisms from adhering to dilution/discharge facility
- (Reference) Sea area monitoring history after the commencement of discharge

# 1. Overview

- We are currently conducting the fifth discharge of ALPS treated water (management number: 24-1-5) as follows.
- In this report, we will explain that there is no abnormality in parameters and sea area monitoring from the commencement of discharge to April 21.

Tank group	Tritium concentration	Commenced	Completed (scheduled)	Amount of discharge (scheduled)	Amount of tritium radioactivity (scheduled)
Group C	190,000 Bq/liter	April 19, 2024	May 7, 2024	7,800m <sup>3</sup>	Approx. 1.3 trillion Bq

# 1-1. Outline of the 5th discharge

## (Management Number: 24-1-5)

### Outline of discharge for group K4-C

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: 0.31 ) <small>(details on p1 of the link)</small>	
	Tritium concentration	190,000Bq/liter <small>(details on p2 of the link)</small>	
	Concentration of the 39 significant types of radionuclides measured voluntarily	No significant radionuclides identified <small>(details on p3 of the link)</small>	
	Status of water quality assessment	Within government and prefectural requirements <small>(details on p4 of the link)</small>	
	Water temperature	Same as outdoor temperature. After diluted to 740 times (design dilution factor ), 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	Approximately 260Bq/liter		
Term of discharge	Approximately 17 days		

# 1-1. Analysis Results of ALPS Treated Water in the Measurement/Confirmation Tanks



(Management number: 24-1-5)

■ Pre-discharge analysis results for the samples taken from the measurement/confirmation tank (Group C) on February 29, 2024, were obtained. It was confirmed that the water satisfies discharge requirements (Table 1. Disclosed on April 17, 2024).

- Item 1: For 29 nuclides to be measured and assessed, the sum of the ratios of the concentration of each radionuclide to the regulatory concentration is 0.31, and it is confirmed to be less than 1.
- Item 2: Analysis results of tritium concentration is 19 x 10<sup>4</sup> Bq/liter, and it is confirmed to be less than 1 million Bq/liter.
- Item 1/2: The external agency consigned by TEPCO (Kaken) and the third-party consigned by the Japanese Government (JAEA)\*<sup>1</sup> obtained the same results from their analyses.
- Item 3/4: It was confirmed that operational targets have been satisfied.

\*1 ALPS treated water third-party analysis  
[https://fukushima.jaea.go.jp/okuma/alps/index\\_e.html](https://fukushima.jaea.go.jp/okuma/alps/index_e.html)

Table 1 . Pre-discharge analysis results of water in the measurement/confirmation tank (Management number: 24-1-5)

Items		Requirement basis	Operational Target	Analysis Results
①	Nuclide to be measured and assessed (29 nuclides)	Implementation plan	The sum of the ratios of the concentration of each radionuclide to the regulatory concentration, except for tritium, is less than 1	<b>0.31 ( &lt; 1 )</b>
②	Tritium		Tritium concentration is less than 1 million Bq/liter	<b>190,000Bq/liter (less than 1 million Bq/liter)</b>
③	Nuclides voluntarily checked to ensure that they are not significantly present (39 nuclides)	Voluntary	No significant concentrations were found of any of the nuclides	<b>None of the nuclides are present in significant consternation</b>
④	General water quality: 44 criteria		Pre-check of water quality standards* <sup>2</sup>	<b>All criteria satisfied</b>

\*2 Water sampled from the discharge vertical shaft (upper-stream storage) once a year to confirm that legal requirements are being satisfied

# [Reference] Pre-discharge Analysis Results of ALPS Treated Water

## in the Measurement/Confirmation Tanks (Management number: 24-1-5) (1/4)



- For 29 nuclides to be measured and assessed, the sum of the ratios of the concentration of each radionuclide to the regulatory concentration is 0.31, and it is confirmed to be less than 1.

Nuclides to be measured and assessed (29 nuclides)

Analysis results of radioactivity (Bq/L)

Ratios to Regulatory Concentration Limit

Pre-discharge Analysis Results of ALPS Treated Water in the Measurement/Confirmation Tanks (1/4)											
Sample Name		ALPS Treated Water in the Measurement/Confirmation Tanks				Group C					
Data and Time of Sampling		February 29, 2024		10:08							
Storage Volume (m <sup>3</sup> )		8943									
Summary		Nuclides to be measured and assessed (29 nuclides) : The sum of the ratios of the concentration of each radionuclide to the regulatory concentration						0.31 (Confirmed to be less than 1)			
Radioactivity Analysis: Nuclides to be measured and assessed (29 nuclides)											
No.	Nuclide	TEPCO			KAKEN Co., Ltd.			Ratios to Regulatory	Concentration Limit	Regulatory Concentration Limit *2 (Bq/L)	Analysis Method *4
		Analysis Value (Bq/L)	Uncertainty *1 (Bq/L)	Detection Limit (Bq/L)	Analysis Value (Bq/L)	Uncertainty *1 (Bq/L)	Detection Limit (Bq/L)				
1	C-14	1.6E+01	± 1.9E+00	1.5E+00	1.6E+01	± 1.0E+00	9.7E-01	7.8E-03	7.9E-03	2000	Measurement
2	Mn-54	ND	—	2.9E-02	ND	—	1.8E-02	less than 2.9E-05	less than 1.8E-05	1000	Measurement
3	Fe-55	ND	—	1.5E+01	ND	—	1.2E+01	less than 7.7E-03	less than 6.1E-03	2000	Measurement
4	Co-60	4.1E-01	± 7.6E-02	2.6E-02	4.0E-01	± 5.3E-02	1.9E-02	2.1E-03	2.0E-03	200	Measurement
5	Ni-63	ND	—	9.2E+00	ND	—	6.2E+00	less than 1.5E-03	less than 1.0E-03	6000	Measurement
6	Se-79	ND	—	1.1E+00	ND	—	8.6E-01	less than 5.3E-03	less than 4.3E-03	200	Measurement
7	Sr-90	3.9E-01	± 2.7E-02	4.0E-02	3.5E-01	± 4.8E-02	3.3E-02	1.3E-02	1.2E-02	30	Measurement
8	Y-90	3.9E-01	—	4.0E-02	3.5E-01	—	3.3E-02	1.3E-03	1.2E-03	300	Sr-90/Y-90 Radioactive Equilibrium Assessment
9	Tc-99	3.5E+00	± 3.2E-01	2.5E-01	3.3E+00	± 4.0E-01	3.3E-03	3.5E-03	3.3E-03	1000	Measurement
10	Ru-106	ND	—	2.4E-01	ND	—	1.9E-01	less than 2.4E-03	less than 1.9E-03	100	Measurement
11	Sb-125	9.7E-02	± 6.6E-02	9.7E-02	8.1E-02	± 5.2E-02	7.6E-02	1.2E-04	1.0E-04	800	Measurement
12	Te-125m	3.6E-02	—	3.6E-02	3.0E-02	—	2.8E-02	4.0E-05	3.4E-05	900	Sb-125/Te-125m Radioactive Equilibrium Assessment
13	I-129	2.3E+00	± 8.2E-02	2.0E-02	2.2E+00	± 2.4E-01	6.5E-02	2.5E-01	2.4E-01	9	Measurement
14	Cs-134	ND	—	3.2E-02	ND	—	2.5E-02	less than 5.4E-04	less than 4.2E-04	60	Measurement
15	Cs-137	3.9E-01	± 7.2E-02	2.8E-02	3.9E-01	± 5.2E-02	2.3E-02	4.4E-03	4.3E-03	90	Measurement
16	Ce-144	ND	—	3.9E-01	ND	—	2.8E-01	less than 1.9E-03	less than 1.4E-03	200	Measurement
17	Pm-147	ND	—	3.5E-01	ND	—	2.4E-01	less than 1.2E-04	less than 8.1E-05	3000	Eu-154 Relative Ratio Assessment
18	Sm-151	ND	—	1.3E-02	ND	—	9.3E-03	less than 1.7E-06	less than 1.2E-06	8000	Eu-154 Relative Ratio Assessment
19	Eu-152	ND	—	7.8E-02	ND	—	5.4E-02	less than 2.0E-04	less than 1.4E-04	400	Measurement
20	Eu-155	ND	—	3.1E-01	ND	—	1.4E-01	less than 1.0E-04	less than 4.6E-05	3000	Measurement
21	U-234									20	Gross Alpha
22	U-238									20	Gross Alpha
23	Np-237									9	Gross Alpha
24	Pu-238	ND	—	2.2E-02	ND	—	2.3E-02	less than 5.4E-03	less than 5.9E-03	4	Gross Alpha
25	Pu-239									4	Gross Alpha
26	Pu-240									4	Gross Alpha
27	Am-241									5	Gross Alpha
28	Cm-244									7	Gross Alpha
29	Pu-241	ND	—	5.9E-01	ND	—	6.4E-01	less than 3.0E-03	less than 3.2E-03	200	Pu-238 Relative Ratio Assessment

The sum of the ratios of the concentration of each radionuclide to the regulatory concentration (sum of the ratios to regulatory concentration limit) is less than 0.31.

\* ND indicates that analysis result is less than the detection limit.  
 \* Values are expressed in exponential notation.  
 For example, "3.1E+01" means "3.1×10<sup>1</sup>" and equals 31. Similarly, "3.1E+00" means "3.1×10<sup>0</sup>" and equals 3.1, and "3.1E-01" means "3.1×10<sup>-1</sup>" and equals 0.31.  
 \*1 "Uncertainty" refers to the accuracy of analysis data.  
 "Uncertainty" is calculated using "Expanded Uncertainty: Coverage Factor k=2".  
 \*2 Regulatory concentration limits stipulated in the Regulations of the Safety and Physical Protection of Specific Nuclear Fuel Material at Fukushima Daiichi Nuclear Power Station of the Tokyo Electric Power Company, Incorporated. (Attached Chart 1, Row 6: Concentration limits in the water outside of the environmental monitoring area [in this chart Bq/cm<sup>3</sup> has been converted into Bq/L])  
 \*3 The ratio to regulatory concentration limit for alpha-radionuclides has been assessed using the lowest regulatory concentration limit for all the target nuclides.  
 \*4 Analysis methods are as follows:  
 Measurement - The concentrations of each radionuclide have been calculated by directly measuring/analyzing radioactivity intensity and the quantity of the element.  
 Gross Alpha - The total amount of alpha-radionuclides in the specimen are calculated by directly measuring alpha rays.  
 Radioactive Equilibrium Assessment - Calculated using a physical phenomenon in which the amount of radioactivity of one radionuclide and another radionuclide produced by the decay of that radionuclide exist in a certain ratio.  
 Relative Ratio Assessment - Calculated based on the assessment values of radionuclides that existed inside the reactor while considering radionuclide decay and migration into ALPS treated water.

# 1-1. Pre-discharge Analysis Results of ALPS Treated Water

## in the Measurement/Confirmation Tanks (Management number: 24-1-5) (2/4)



- Analysis results of tritium concentration is  $19 \times 10^4$  Bq/liter.

Tritium Concentration  
(Bq/liter)

Pre-discharge Analysis Results of ALPS Treated Water in the Measurement/Confirmation Tanks (2/4)

Summary							$19 \times 10^4$ Bq/L (confirmed to be less than 1 million Bq/L)		
Radioactivity Analysis: Tritium									
No.	Nuclide	Analysis Results						Analysis Objective	Analysis Method *3
		TEPCO			KAKEN Co.,Ltd.				
		Analysis Value (Bq/L)	Uncertainty *1 (Bq/L)	Detection Limit (Bq/L)	Analysis Value (Bq/L)	Uncertainty *1 (Bq/L)	Detection Limit (Bq/L)		
1	H-3	1.9E+05	± 1.1E+04	1.8E+01	1.9E+05	± 1.4E+04	2.5E+01	*2	Measurement

· Values are expressed in exponential notation.  
 For example, "3.1E+01" means "3.1×10<sup>1</sup>" and equals 31. Similarly, "3.1E+00" means "3.1×10<sup>0</sup>" and equals 3.1, and "3.1E-01" means "3.1×10<sup>-1</sup>" and equals 0.31.

\*1 "Uncertainty" refers to the accuracy of analysis data.  
 "Uncertainty" is calculated using "Expanded Uncertainty: Coverage Factor k=2".

\*2 To confirm that the tritium concentration is less than 1E+06Bq/liter (less than 1 million Bq/liter), the maximum concentration stipulated in the implementation plan, ensuring that the tritium concentration after dilution is less than 1,500 Bq/liter.

\*3 Analysis method is as follows:  
 Measurement - The concentration of radionuclide has been calculated by directly measuring/analyzing radioactivity intensity and the quantity of the element.

※Excerpt from Treated Water Portal Site



# 1-1. Pre-discharge Analysis Results of ALPS Treated Water

## in the Measurement/Confirmation Tanks (Management number: 24-1-5) (3/4)



- We voluntarily checked that the nuclides (39 nuclides) are not significantly present.
- We confirmed that all the 39 nuclides are not significantly present.**

Pre-discharge Analysis Results of ALPS Treated Water in the Measurement/Confirmation Tanks (3/4)							
		Summary					
		No significant concentrations found of any of the nuclides					
Radioactivity Analysis: Nuclides voluntarily checked to ensure that they are not significantly present (39 nuclides)							
No.	Nuclide	TEPCO		KAKEN Co.,Ltd.		Confirmation Method #2	
		Assessment *1	Detection Limit (Bq/L)	Assessment *1	Detection Limit (Bq/L)		
1	Fe-59	○	5.0E-02	○	4.3E-02	Measurement	
2	Co-58	○	2.8E-02	○	1.8E-02		
3	Zn-65	○	5.3E-02	○	4.0E-02		
4	Rb-86	○	3.3E-01	○	3.1E-01		
5	Sr-89	○	6.6E-02	○	5.3E-02		
6	Y-91	○	2.7E+00	○	2.1E+00		
7	Nb-95	○	3.0E-02	○	2.1E-02		
8	Ru-103	○	3.3E-02	○	4.1E-02		
9	Ag-110m	○	2.7E-02	○	1.9E-02		
10	Cd-113m	○	8.5E-02	○	3.1E-02		
11	Cd-115m	○	1.4E+00	○	1.2E+00		
12	Sn-123	○	1.6E+00	○	1.0E+00		
13	Sn-126	○	2.5E-01	○	1.1E-01		
14	Sb-124	○	6.3E-02	○	4.6E-02		
15	Te-123m	○	5.1E-02	○	4.5E-02		
16	Te-127	○	9.2E-01	○	6.5E-01		
17	Te-129m	○	9.1E-01	○	7.8E-01		
18	Te-129	○	3.9E-01	○	4.0E-01		
19	Cs-136	○	2.9E-02	○	4.9E-02		
20	Ba-140	○	1.2E-01	○	1.5E-01		
21	Ce-141	○	1.1E-01	○	8.9E-02		
22	Pm-146	○	4.3E-02	○	3.4E-02		
23	Pm-148m	○	2.7E-02	○	2.5E-02		
24	Pm-148	○	3.9E-01	○	3.0E-01		
25	Eu-152	○	1.4E-01	○	1.0E-01		
26	Gd-153	○	3.0E-01	○	2.2E-01		
27	Tb-160	○	8.4E-02	○	6.5E-02		
28	Am-243	○	2.2E-02	○	2.3E-02		
29	Cm-242	○	2.2E-02	○	2.3E-02		
30	Cm-243	○	2.2E-02	○	2.3E-02		
31	Rh-103m	○	3.3E-02	○	4.1E-02		Ru-103/Rh-103m Radioactive Equilibrium Assessment
32	Rh-106	○	2.4E-01	○	1.9E-01		Ru-106/Rh-106 Radioactive Equilibrium Assessment
33	Sn-119m	○	9.2E-03	○	4.2E-03		Sn-126 Relative Ratio Assessment
34	Te-127m	○	9.4E-01	○	6.6E-01		Te-127 Relative Ratio Assessment
35	Cs-135	○	1.9E-07	○	1.5E-07		Cs-137 Relative Ratio Assessment
36	Ba-137m	○	2.7E-02	○	2.2E-02		Cs-137/Ba-137m Radioactive Equilibrium Assessment
37	Pr-144m	○	5.7E-03	○	4.2E-03		Ce-144/Pr-144m Radioactive Equilibrium Assessment
38	Pr-144	○	3.8E-01	○	2.8E-01		Ce-144/Pr-144 Radioactive Equilibrium Assessment
39	Am-242m	○	1.5E-04	○	1.6E-04		Am-241 Relative Ratio Assessment

\*1 ○ indicates that the absence of significant concentrations was confirmed by the following, and × indicates that significant concentrations of nuclide was confirmed.

- Concentration of nuclide measured was below detection limit
- For nuclide that has been assessed using radioactive equilibrium, etc., if its target nuclide is detected and the assessment value of the target nuclide is extremely small compared to the regulatory concentration limit, or in other words, if it is less than 1/100 of the regulatory concentration limit which is the value set as the detection limit, then it shall be deemed to be below the detection limit.

Nuclide	Assessment Values (Bq/L)		Regulatory Concentration Limit
	TEPCO	KAKEN Co.,Ltd.	
Rh-103m	—	—	2.0E+05
Rh-106	—	—	3.0E+05
Sn-119m	—	—	2.0E+03
Te-127m	—	—	3.0E+02
Cs-135	2.6E-06	2.5E-06	6.0E+02
Ba-137m	3.7E-01	3.7E-01	8.0E+05
Pr-144m	—	—	4.0E+04
Pr-144	—	—	2.0E+04
Am-242m	—	—	5.0E+00

\* A hyphen "—" indicates that the concentration of the target nuclide was below the detection limit.  
 \* Values are expressed in exponential notation.  
 For example, "3.1E+01" means "3.1×10<sup>1</sup>" and equals 31. Similarly, "3.1E+00" means "3.1×10<sup>0</sup>" and equals 3.1, and "3.1E-01" means "3.1×10<sup>-1</sup>" and equals 0.31.

\*2 Analysis Methods are as follows:  
 Measurement - The concentrations of each radionuclide have been calculated by directly measuring/analyzing radioactivity intensity and the quantity of the element.  
 Measurement (substituted with gross alpha) - The total amount of alpha-radionuclides in the specimen are calculated by directly measuring alpha rays.  
 Radioactive Equilibrium Assessment - Calculated using a physical phenomenon in which the amount of radioactivity of one radionuclide and another radionuclide produced by the decay of that radionuclide exist in a certain ratio.  
 Relative Ratio Assessment - Calculated based on the assessment values of radionuclides that existed inside the reactor while considering radionuclide decay and migration into ALPS treated water.

\*3 Regulatory concentration limits stipulated in the Regulations of the Safety and Physical Protection of Specific Nuclear Fuel Material at Fukushima Daiichi Nuclear Power Station of the Tokyo Electric Power Company, Incorporated.  
 (Attached Chart 1, Row 6: Concentration limits in the water outside of the environmental monitoring area [in this chart Bq/cm<sup>3</sup> has been converted into Bq/L])

✖Excerpt from Treated Water Portal Site

Nuclides voluntarily checked to ensure that they are not significantly present (39 nuclides)

Assessment results  
 ○ : absence of significant concentration was confirmed  
 × : significant concentration was confirmed

# 1-1. Pre-discharge Analysis Results of ALPS Treated Water

## in the Measurement/Confirmation Tanks (Management number: 24-1-5) (4/4)



- For 44 general water quality measurement items (voluntary check to confirm that there are no unusual water quality), **it is confirmed that all criteria<sup>※1</sup> satisfied.**

※1 In accordance with Fukushima Prefecture's "Ordinance on Discharge Standards Based on the Air Pollution Control Act and Wastewater Standard based on the Water Pollution Prevention Act (attached Chart 2)", and "the Ordinance Enforcement Regulations Pertaining to the Preservation of the Living Environment in Fukushima (attached Chart 5)".

General water quality measurement items (44 criteria)

Analysis results

Pre-discharge Analysis Results of ALPS Treated Water in the Measurement/Confirmation Tanks (4/4)

Summary	Criteria satisfied
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General Water Quality Analysis: Voluntary check to confirm that there are no unusual water quality (44 criteria)

No.	Measurement Items	Unit	Analysis Result	Criteria *1
1	Hydrogen Ions (pH)	-	8.7	Sea Area 5.0~9.0
2	Suspended Solids (SS)	mg/L	<1	Maximum: 70 or less Average: 50 or less
3	Chemical Oxygen Demand (COD)	mg/L	1.7	Maximum: 40 or less Average: 30 or less
4	Boron	mg/L	0.5	Sea Area 230 or less
5	Soluble Iron	mg/L	<1	10 or less
6	Copper	mg/L	<0.1	2 or less
7	Nickel	mg/L	<0.1	2 or less
8	Chrome	mg/L	<0.1	2 or less
9	Zinc	mg/L	<0.1	2 or less
10	Biochemical Oxygen Demand (BOD)	mg/L	2	Maximum: 40 or less Average: 30 or less
11	Coliform Count	pcs/cm <sup>3</sup>	0	3000 or less
12	Cadmium	mg/L	<0.01	0.03 or less
13	Cyanide	mg/L	<0.05	0.5 or less
14	Organic Phosphorus	mg/L	<0.1	1 or less
15	Lead	mg/L	<0.01	0.1 or less
16	Hexavalent Chromium	mg/L	<0.05	0.2 or less
17	Arsenic	mg/L	<0.01	0.1 or less
18	Mercury	mg/L	<0.0005	0.005 or less
19	Alkyl Mercury	mg/L	<0.0005	Not Detected *2
20	Polychlorinated Biphenyl	mg/L	<0.0005	0.003 or less
21	Trichlorethylene	mg/L	<0.03	0.1 or less
22	Tetrachloroethylene	mg/L	<0.01	0.1 or less
23	Dichloromethane	mg/L	<0.02	0.2 or less
24	Carbon Tetrachloride	mg/L	<0.002	0.02 or less

25	1,2-Dichloroethane	mg/L	<0.004	0.04 or less
26	1,1-Dichloroethylene	mg/L	<0.1	1 or less
27	Cis-1,2-Dichloroethylene	mg/L	<0.04	0.4 or less
28	1,1,1-Trichloroethane	mg/L	<0.3	3 or less
29	1,1,2-Trichloroethane	mg/L	<0.006	0.06 or less
30	1,3-Dichloropropene	mg/L	<0.002	0.02 or less
31	Thiuram	mg/L	<0.006	0.06 or less
32	Simazine	mg/L	<0.003	0.03 or less
33	Thiobencarb	mg/L	<0.02	0.2 or less
34	Benzene	mg/L	<0.01	0.1 or less
35	Selenium	mg/L	<0.01	0.1 or less
36	Fenitrothion	mg/L	<0.003	0.03 or less
37	Phenols	mg/L	<0.1	1 or less
38	Fluorine	mg/L	<0.5	Sea Area 10 or less
39	Soluble Manganese	mg/L	<1	10 or less
40	Ammonia, Ammonium Compounds	mg/L	<1	
41	Nitrite Compounds and Nitrate Compounds	mg/L	8	100 or less
42	1,4-Dioxane	mg/L	<0.05	0.5 or less
43	n-Hexane Extractables (Mineral Oils)	mg/L	<0.5	1 or less
44	n-Hexane Extractables (Animal and Vegetable Oils and Fats)	mg/L	<1	10 or less

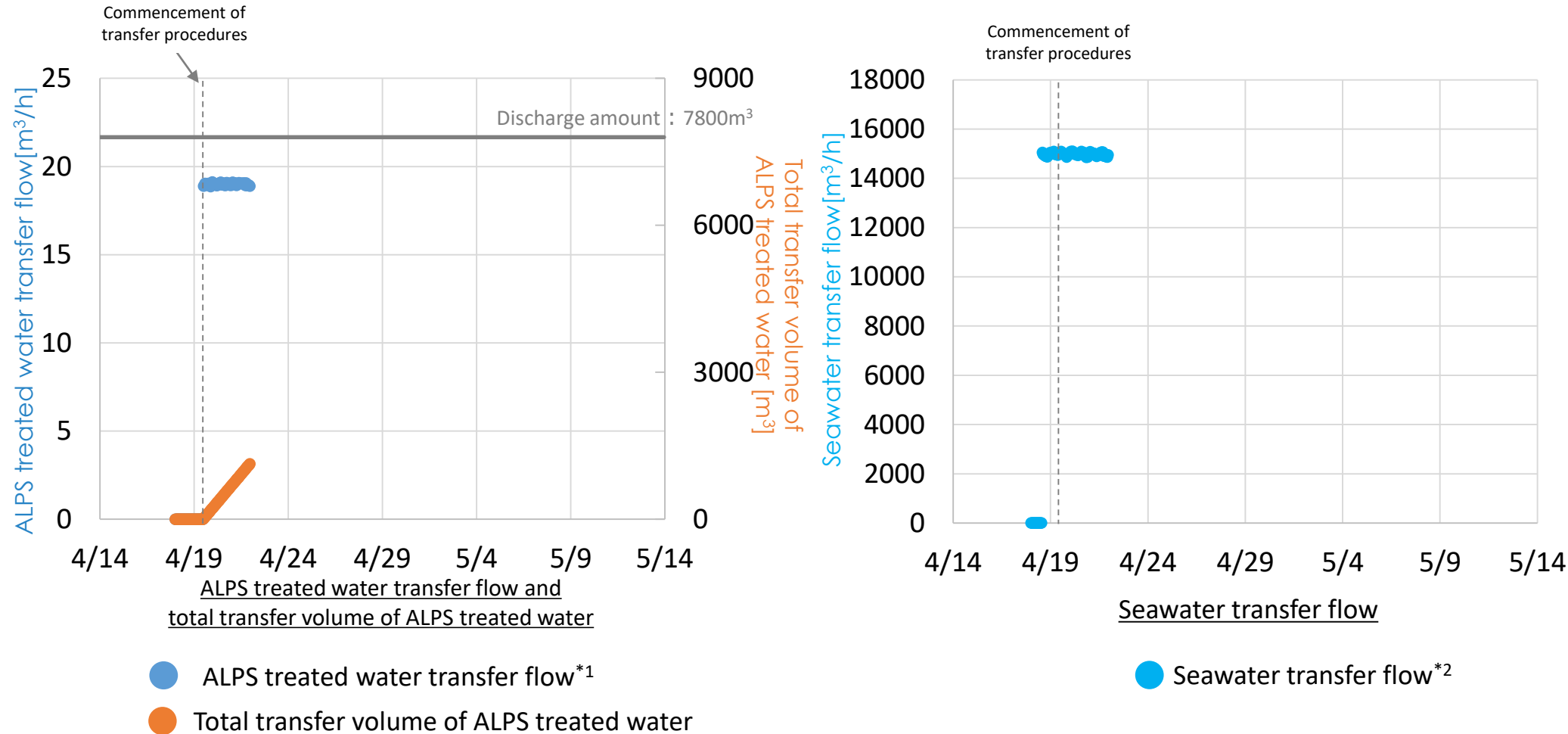
\* A "less than" symbol (<) indicates that the quantity is below quantitation limit.

\*1 In accordance with Fukushima Prefecture's "Ordinance on Discharge Standards Based on the Air Pollution Control Act and Wastewater Standards based on the Water Pollution Prevention Act (attached Chart 2) [大気汚染防止法に基づき排出基準及び水質汚濁防止法に基づき排水基準を定める条例(別表第2)]", and "the Ordinance Enforcement Regulations Pertaining to the Preservation of the Living Environment in Fukushima (attached Chart 5) [福島県生活環境の保全等に関する条例施行規則(別表第5)]".

\*2 "Not Detected" indicates that, as described in "Ministerial Ordinance on Effluent standards (attached Table 1) [排水基準を定める省令(別表第一)]", when the state of water pollution is assessed in discharged water using the methods established by the Minister of the Environment, the result is below the limit of quantification (Alkyl Mercury: 0.0005 mg/liter) of the assessment method.

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

■ We are operating ALPS treated water transfer systems and seawater systems without issue.

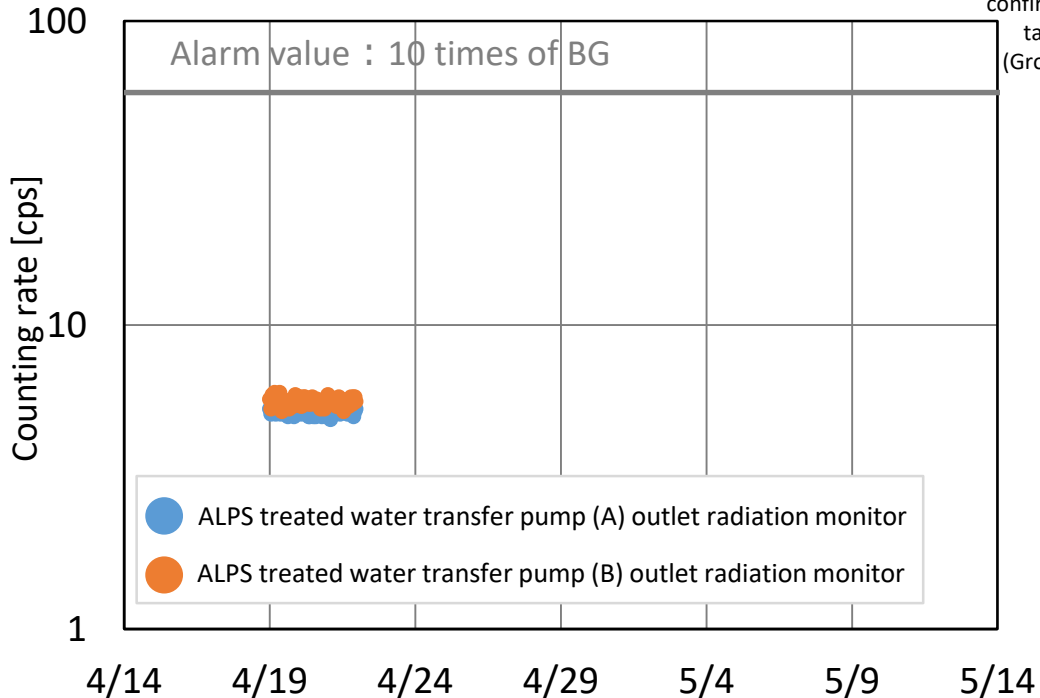
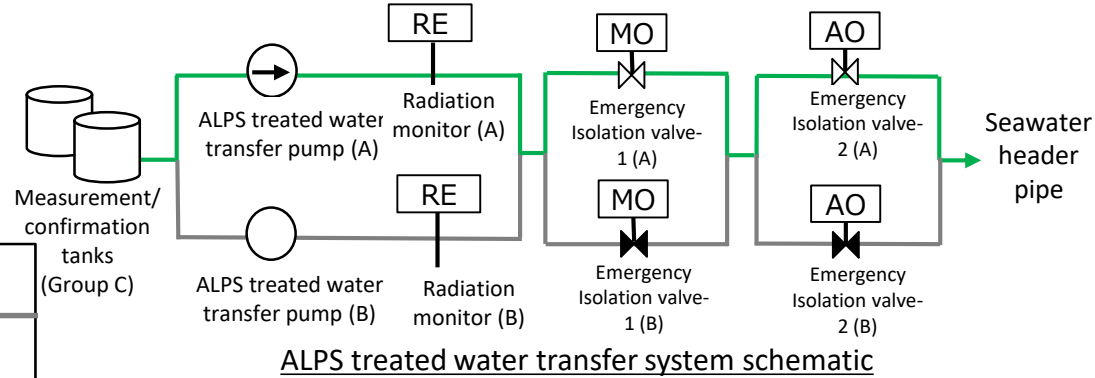


\*1 : The flowmeters are reduplicate, so the higher of the figures from both meters was used.

\*2 : Total for systems A and B

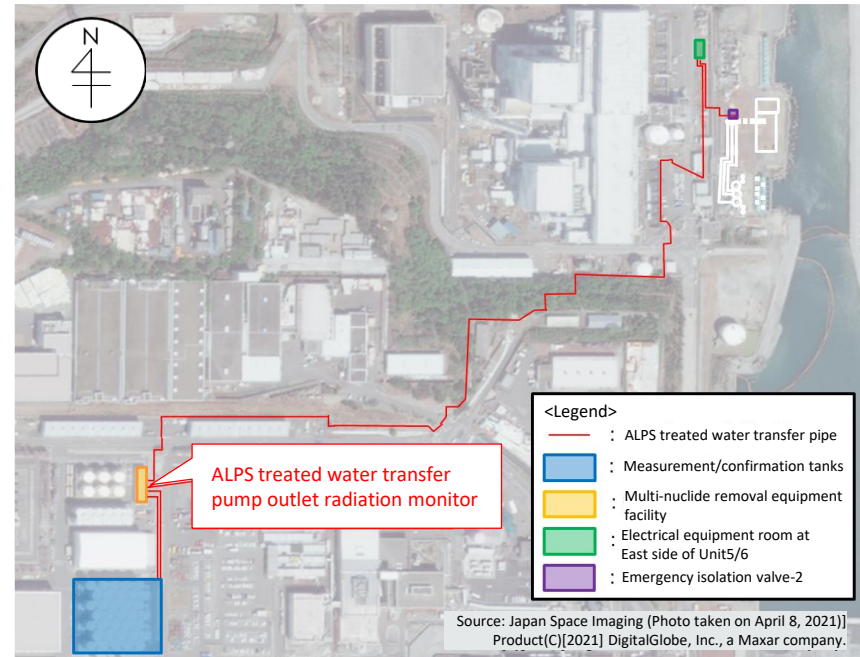
# 1-2. Operating parameter records during the discharge (2/3)

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



Figures of ALPS treated water transfer pump outlet radiation monitor<sup>※</sup>

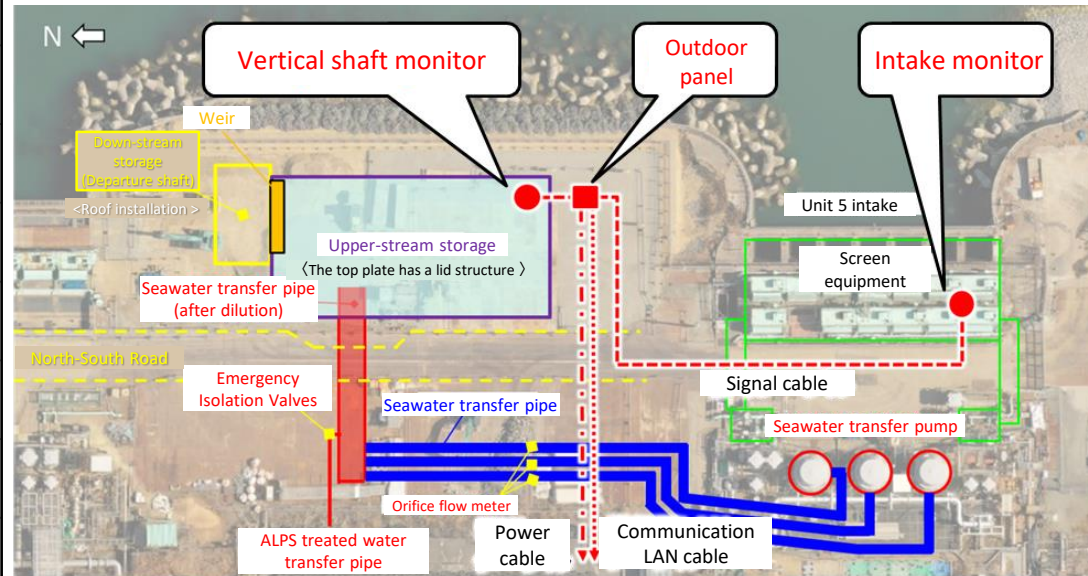
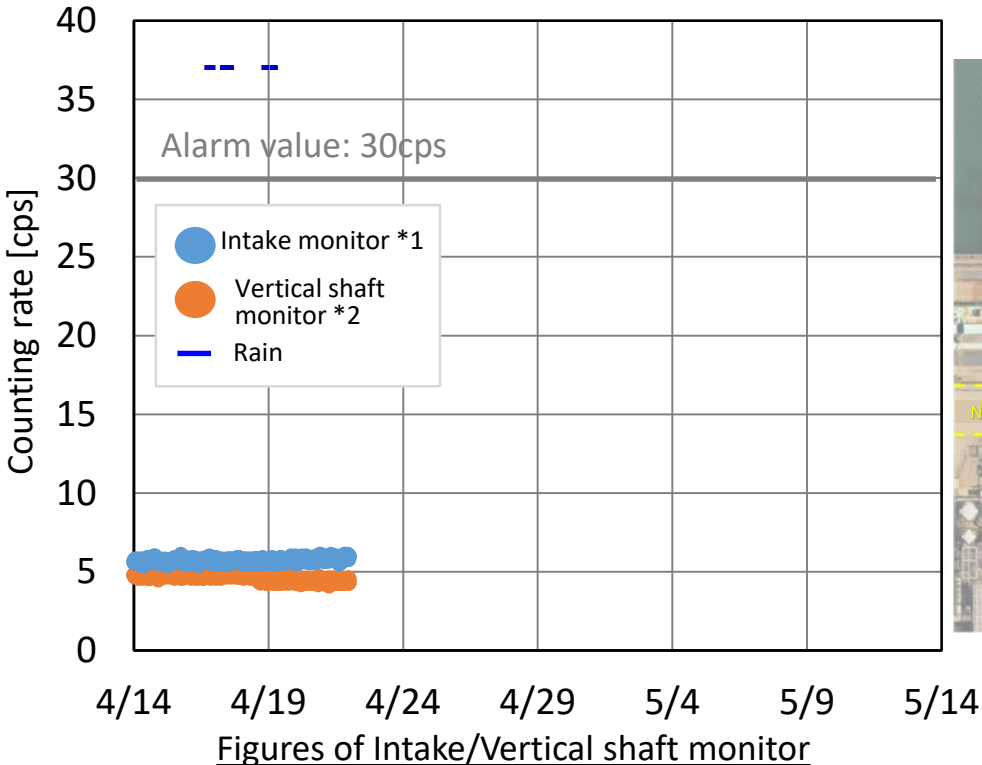
※ : As shown in the schematic on the upper right, during the third discharge, ALPS treated water was passed through System A. (System B was filled with filtrated water)



Overview of ALPS treated water dilution/discharge facility

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

- No abnormalities are seen in intake monitor and vertical shaft monitor.



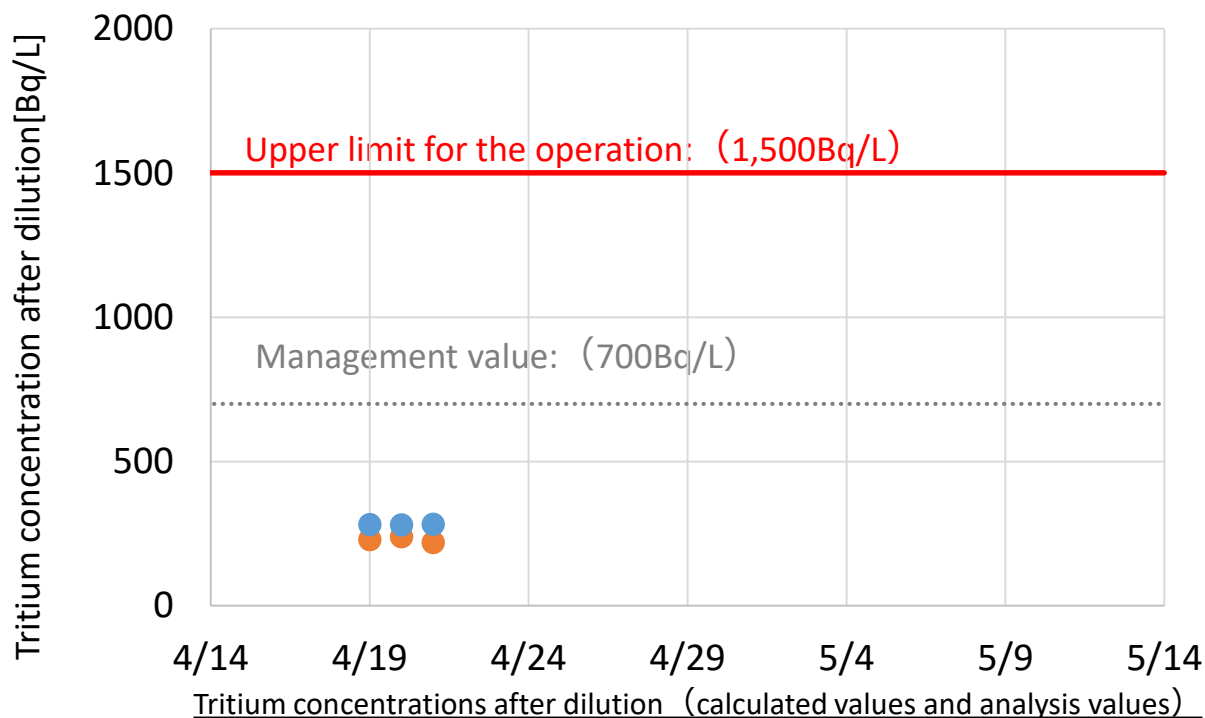
Overview of Intake/Vertical shaft monitor

\*1: The increase in intake monitor readings (●) is assumed to be due to Cs-137 that contained in soil and marine organisms.

\*2: The slight decrease in vertical shaft monitor readings (●) since April 18 is assumed to be due to the rise in water level in the upper-stream storage caused by the activation of seawater transfer pump (which thereby enhanced the shielding effect of water against radiation exposure from the surrounding area).

# 1-3. Tritium concentrations after dilution during the discharge **TEPCO**

- During the discharge period, water is 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<sup>※1</sup>
- Analysis values(Detected values)

※1 : Calculated using the following formula  
( Uncertainty has been considered for each parameter )

Tritium concentrations after dilution (Calculated values)

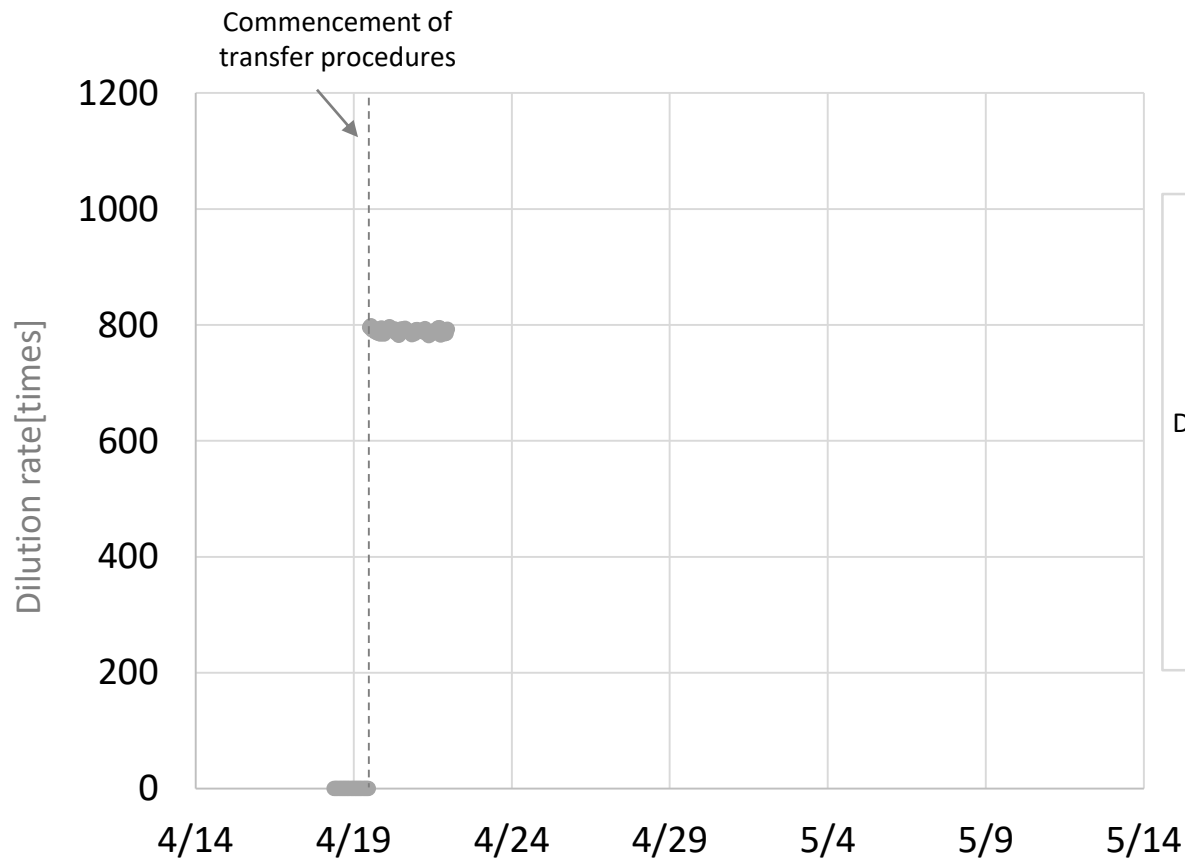
$$= \frac{\text{Tritium concentrations in ALPS treated water } ※2 \times \text{ALPS treated water transfer flow}}{\text{Seawater transfer flow} + \text{ALPS treated water transfer flow}}$$

※2 : Analysis values at measurement/confirmation tanks

	4/19	4/20,21
Calculated value: Time of data acquisition	14:00	7:00
Analysis value: Time of specimen sampling	14:13	7:00~10:00

# [Reference] Dilution rate of ALPS treated water

- The dilution rate has always been kept at over 100 times during the discharge.



● Dilution rate<sup>※1</sup>

※1 : Calculated using the following formula

$$\text{Dilution rate} = \frac{\text{Seawater flow rate}^{\text{※2}} + \text{ALPS treated water flow rate}^{\text{※3}}}{\text{ALPS treated water flow rate}^{\text{※3}}}$$

※2 : Total for systems A and B

※3 : The flowmeters are reduplicate, so the higher of the figures from both meters was used for calculation

Dilution rate of ALPS treated water

# 1-4. Sea area monitoring history

- 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) since the commencement of the first discharge on August 24, 2023, are all below indices (discharge suspension level and investigation level).
- For quick tritium measurements taken in the vicinity of the discharge outlet, since December 26, 2023, we have changed its frequency so that it focuses during the discharge period, and we have continued its monitoring.

(Unit : Bq/liter)

	Sampling location	Frequency	April, 2024		
			19 *1	20	21
In the vicinity of the discharge outlet	T-1	Twice a week*	<6.0	—	—
	T-2	Twice a week*	<6.1	—	—
	T-0-1	Once a day*	—*2	<7.8	<7.5
	T-0-1A	Once a day*	—*2	<6.9	<7.5
	T-0-2	Once a day*	—*2	<7.8	<7.5
	T-0-3A	Twice a week*	—*2	<6.9	—
	T-0-3	Twice a week*	—*2	<7.9	—
	T-A1	Twice a week*	—*2	<6.4	—
	T-A2	Once a day*	—*2	<6.6	<7.5
	T-A3	Twice a week*	—*2	<6.4	—
Outside the vicinity of the discharge outlet	T-D5	Once a week	—	—	—
	T-S3	Once a month	—	—	—
	T-S4	Once a month	—	—	—
	T-S8	Once a month	—	—	—

※ : A “less than” symbol (<) indicates that the analysis result was less than the detection limit.

: Term of discharge of ALPS treated water (Management number: 24-1-5)

\*1 : Sampled after the commencement of discharge at 2PM

\*2 : Sampling suspended due to bad weather condition

\* : Monitored daily for the time being after the commencement of discharge. In order to place importance on the discharge period, frequency of the measurement was changed from December 26, 2023 as follows;

4 locations in the vicinity of the discharge outlet (T-0-1, T-0-1A, T-0-2, T-A2) : Conduct daily during the discharge period and for one week following the completion of discharge

Conduct twice a week outside the discharge period, excluding one week following the completion of discharge

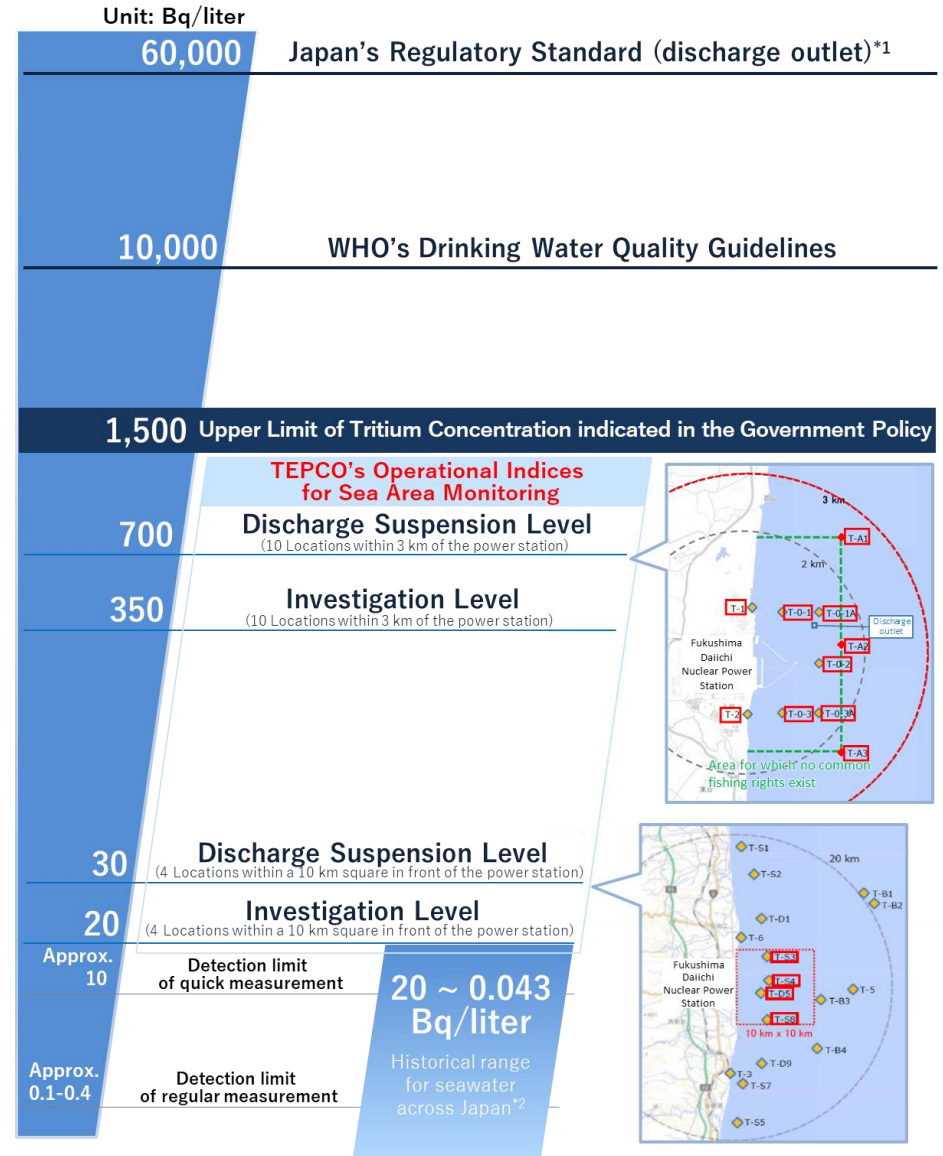
Other 6 locations (T-1, T-2, T-0-3A, T-0-3, T-A1, T-A3) : Conduct twice a week during the discharge period and for one week following the completion of discharge

Conduct once a month outside the discharge period, excluding one week following the completion of discharge



# [Reference] Comparison of tritium concentration in seawater

- Tritium concentrations measured during sea area monitoring after the commencement of discharge are within the range of fluctuation identified through past seawater monitoring performed throughout the entirety of Japan.
- In the future, it is possible that concentrations of tritium in the seawater may be affected by the concentrations of tritium in the ALPS treated water that is discharged, and exceed those observed in the past.
- However, even if this occurs, sea dispersion simulation results for discharged water performed during the radiological impact assessment have shown that these fluctuations will be within predicted levels and below the investigation level.

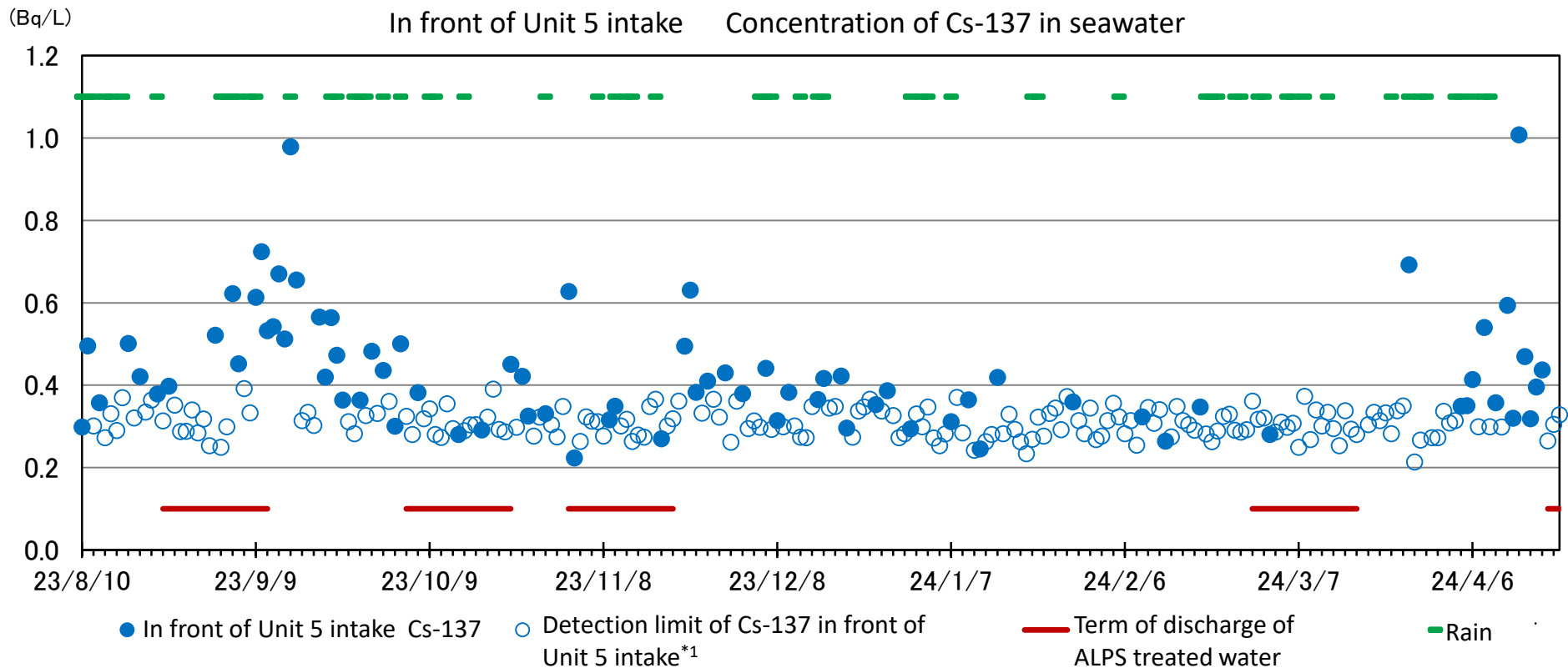


\*1: This standard has been stipulated based on the calculation that if a person were to drink approximately 2L of the water coming out of the discharge outlet of a nuclear facility every day for one year, his/her exposure would be 1mSv.

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

# 1-5. 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.

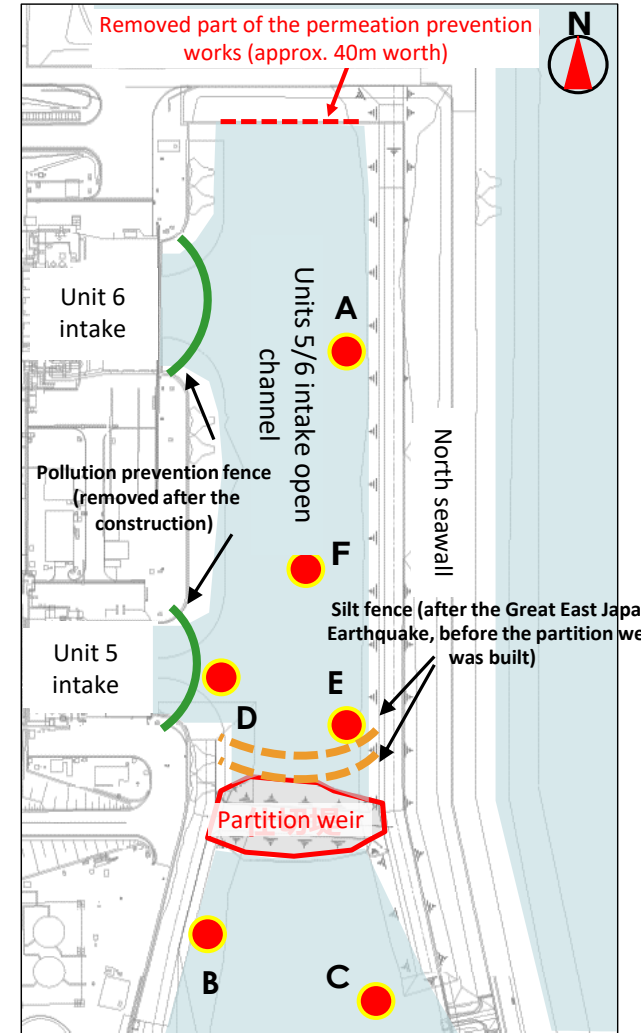
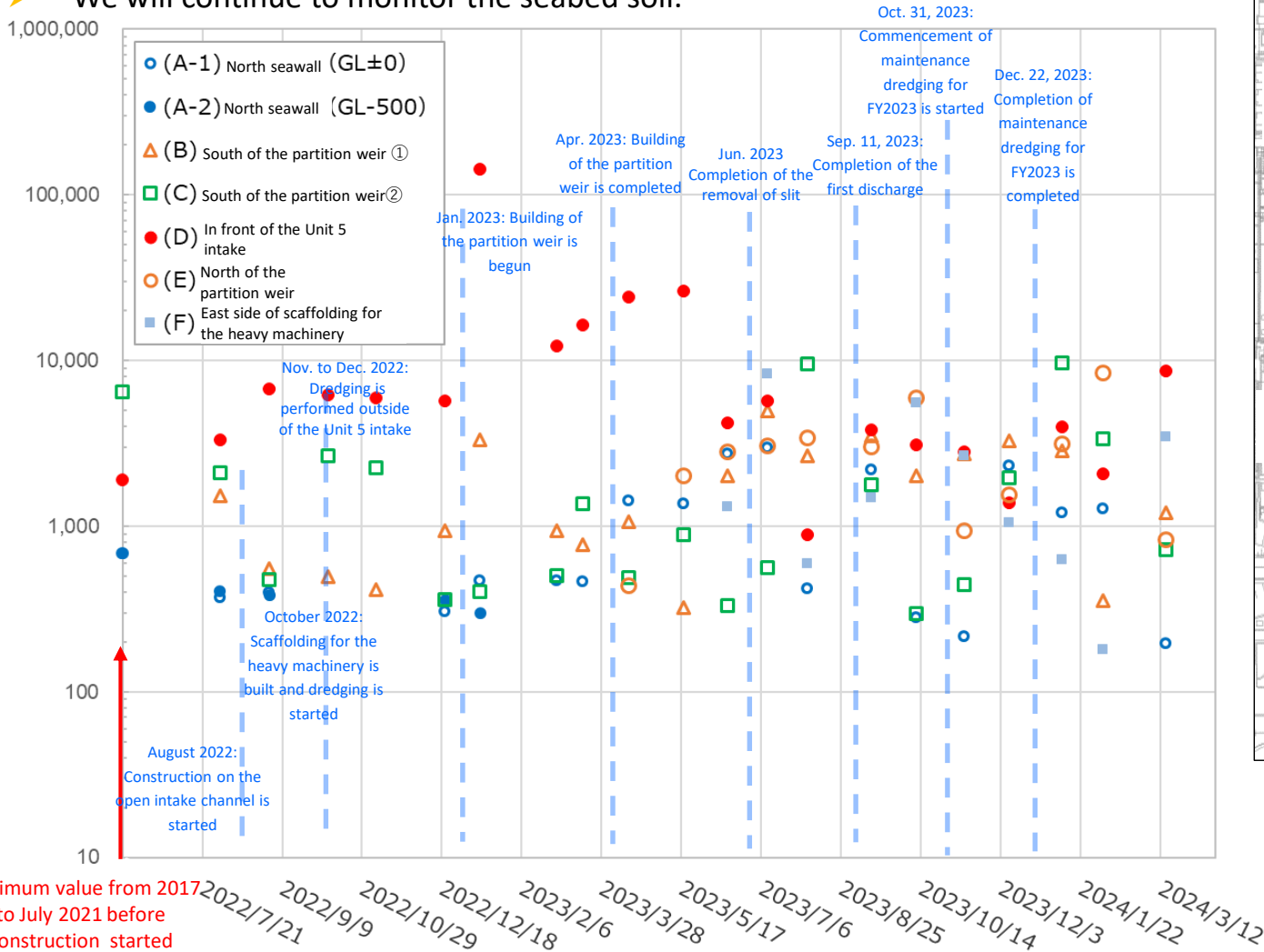


\*1: Detection limit is displayed on the graph when the concentration is lower than detection limit.

※The location of seawater monitoring inside the Unit 5/6 intake open channel has been changed to the sampling location near the intake for seawater to be used for dilution (changed from “in front of the Unit 6 intake” to “in front of the Unit 5 intake”).

# 1-6. 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 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.

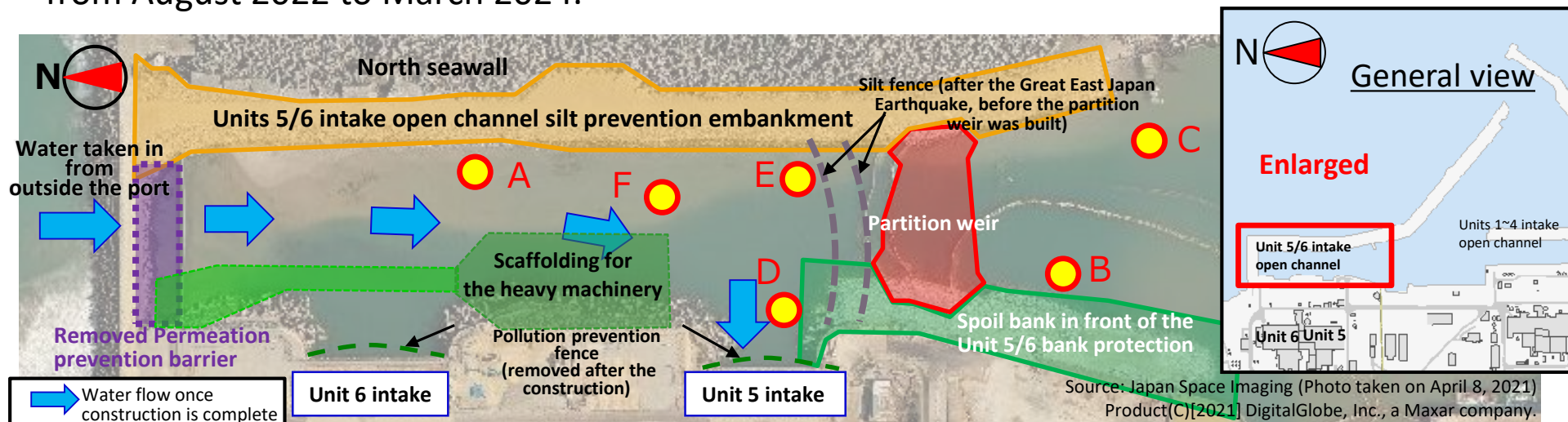


<Legend>

- : Sampling location in construction
- : Silt fence (before the partition weir was built)
- : Pollution prevention fence

# 1-6. 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 March 2024.

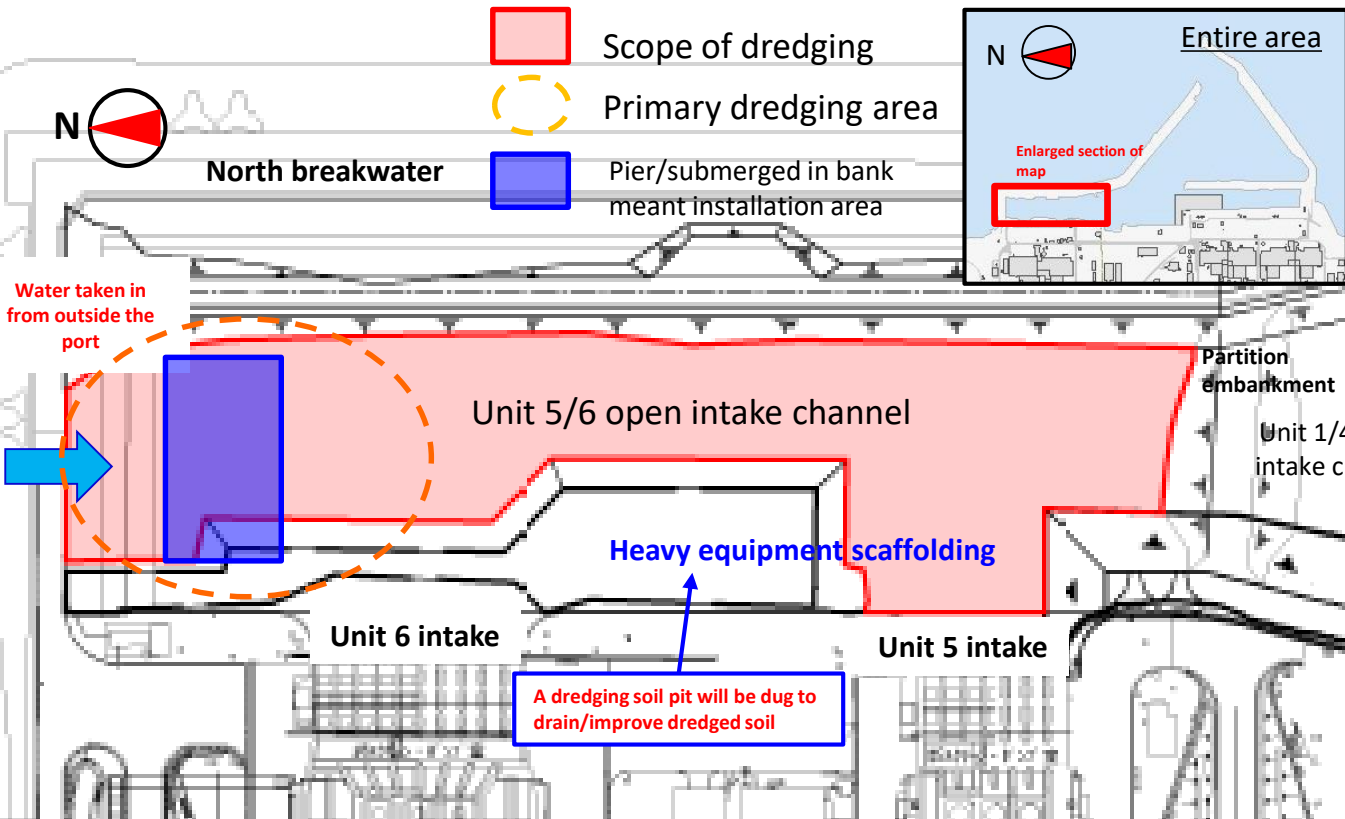


Sampling points		Before construction 2017 to July 2021	2022					2023										2024				
			Aug.	Sep.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.
A-1 North side of the Unit 5/6 open channel North side of the silt fence (GL ± 0m)	Cs-134	4.4~52.3	33.2	36.0	-	-	31.5	37.2	39.8	39.8	40.1	33.9	66.5	65.5	33.6	65.9	34.6	32.0	69.5	44.5	51.1	34.6
	Cs-137	163.6~678.6	371.6	398.8	-	-	303.2	468.1	460.2	460.2	1,414.0	1,360.0	2,752.0	2,957.0	422.3	2,195.0	281.8	216.7	2,322.0	1,210.0	1,270.0	195.2
A-2 North side of the Unit 5/6 open channel North side of the silt fence (GL-0.5m)	Cs-134	14.4~58.5	33.6	32.5	-	-	38.3	33.4	※Only sampled from the surface (GL ± 0m) since sand was removed during dredging													
	Cs-137	310.0~689.8	404.0	383.2	-	-	356.4	299.1														
B South side of the partition weir ① (South side of the silt fence)	Cs-134	723.0	34.5	42.1	65.6	55.4	46.7	73.9	49.1	43.1	62.6	47.8	60.1	97.1	59.9	92.5	52.4	53.2	83.7	75.2	38.2	52.8
	Cs-137	6,475.0	1,528.0	553.9	492.4	412.8	936.0	3,331.0	936.1	777.0	1,061.0	323.8	2,008.0	4,943.0	2,649.0	3,528.0	2,004.0	2,732.0	3,287.0	2,868.0	353.9	1,205.0
C South side of the partition weir ② (South side of the silt fence)	Cs-134	183.0	51.3	47.2	68.7	59.7	51.8	40.3	30.9	40.3	44.6	61.6	59.5	47.7	234.8	59.3	37.1	39.6	44.0	153.3	115.8	42.4
	Cs-137	1,893.0	2,114.0	476.0	2,671.0	2,242.0	360.8	400.5	503.5	1,356.0	485.9	886.9	330.5	560.6	9,519.0	1,773.0	295.9	441.2	1,970.0	9,737.0	3,345.0	723.9
D Unit 5 intake	Cs-134	-	101.6	184.0	213.7	160.4	108.7	3,546.0	167.4	472.0	690.7	586.2	63.7	141.4	64.5	75.2	70.7	50.2	50.5	61.8	50.3	177.8
	Cs-137	-	3,301.0	6,714.0	6,198.0	5,941.0	5,678.0	144,000.0	12,290.0	16,972.0	24,760.7	26,400.0	4,189.0	5,699.0	951.7	3,876.2	3,085.0	2,810.0	1,387.0	3,981.0	2,069.0	8,661.0
E North side of the partition weir	Cs-134	-	-	-	-	-	-	-	-	-	42.8	59.8	86.8	98.7	96.8	56.9	147.0	35.6	45.5	64.4	161.2	46.4
	Cs-137	-	-	-	-	-	-	-	-	-	437.1	2,022.0	2,822.0	3,069.0	3,438.0	3,022.0	5,975.0	936.5	1,546.0	3,145.0	8,371.0	829.4
F East side of scaffolding for the heavy machinery	Cs-134	-	-	-	-	-	-	-	-	-	-	-	40.2	166.1	45.3	53.7	98.0	52.4	51.4	58.6	31.3	55.3
	Cs-137	-	-	-	-	-	-	-	-	-	-	-	1,312.0	8,303.0	592.4	1,481.0	5,569.0	2,676.0	1,049.0	630.9	178.7	3,446.0

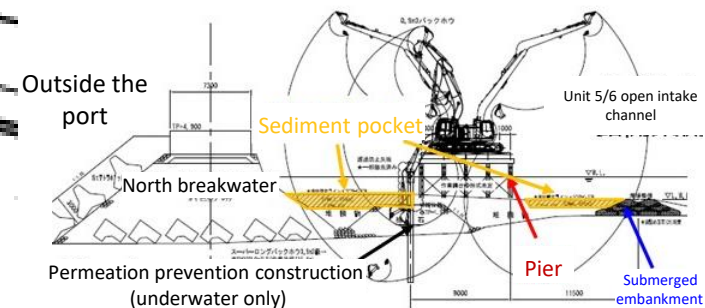
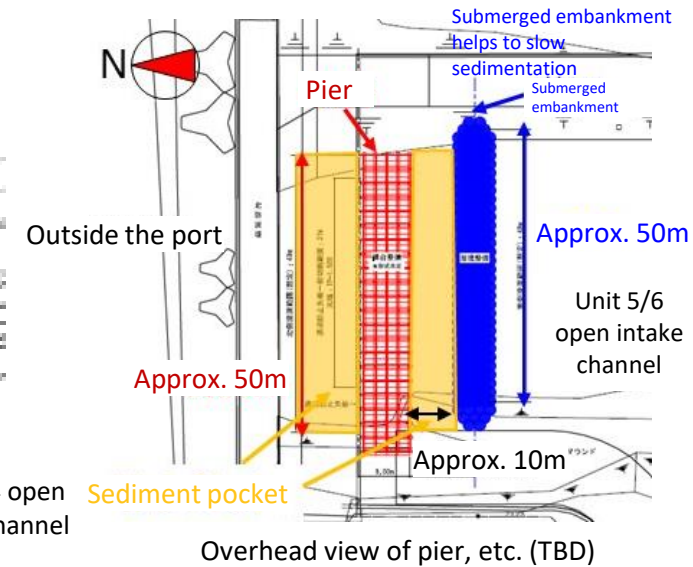
※Unit: Bq/liter, Figures in gray were below the detection limit

# 1-7. Unit 5/6 open intake channel construction plan (FY2024)

- During FY2024 we will continue to dredge the Unit 5/6 open intake channel in order to maintain※ the intake environment.
- ※ Dredging is necessary to control the amount of sediment caused by sand flowing in from outside the port
- The dredged soil is stored in a temporary soil storage area on site. (Surface dose level requirement for soil to be stored in this area:  $\gamma$  : Less than 0.01 mSv/hour,  $\beta$  : No detection)
- Furthermore, pier and submerged embankment will be built in the locations indicated with blue hatching on the map below in order to steadily improve the intake environment.
- Placing heavy equipment on top of these piers will enable the effective dredging from land of sediment pockets.
- The submerged embankments will help to slow sedimentation on the south side of the intake channel.



Unit 5/6 open intake channel construction plan (to be implemented during FY2024)

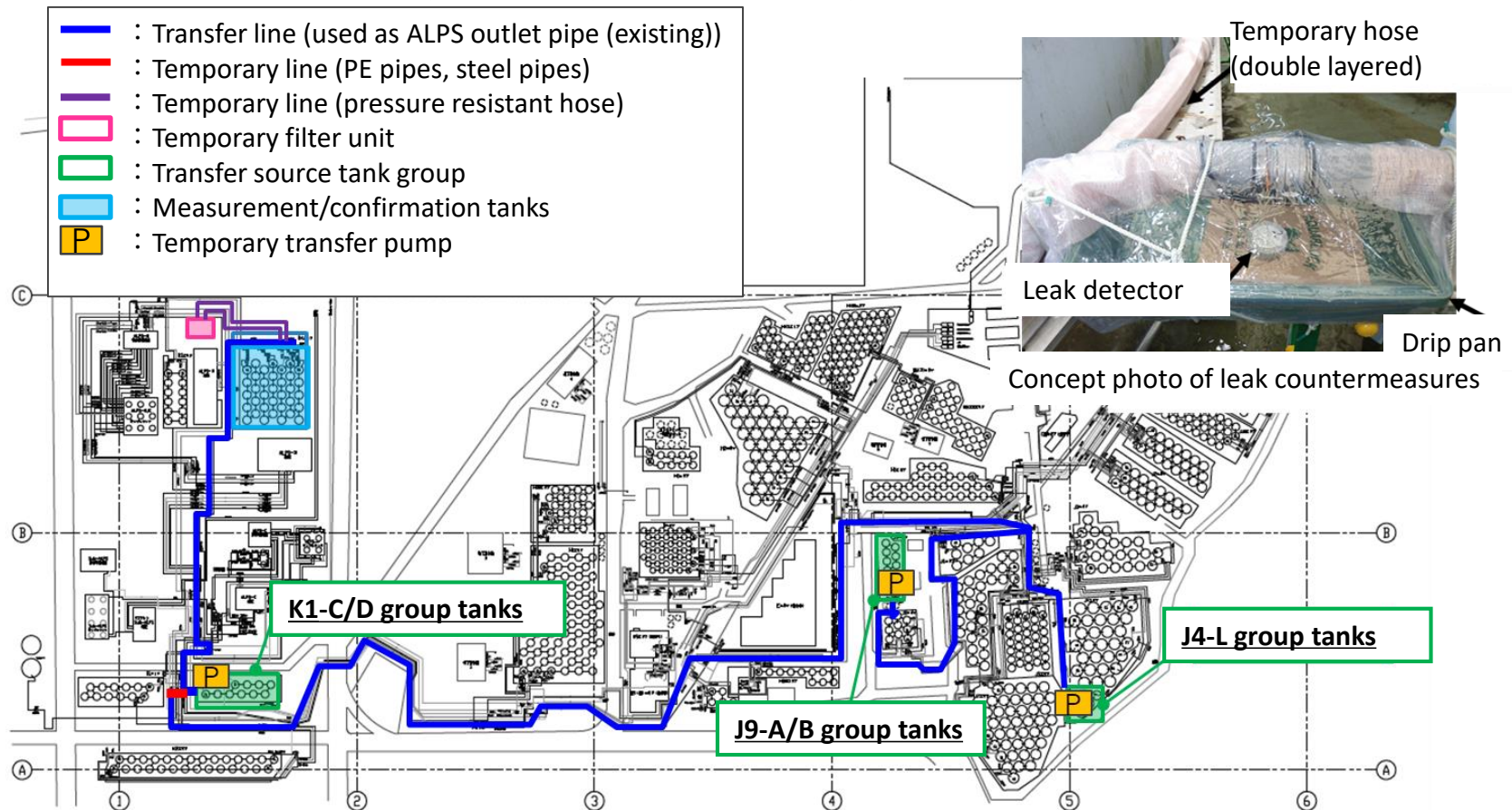


Concept diagram of dredging from a pier

- 
1. Status of work for the 5<sup>th</sup> discharge of ALPS treated water
  - 2. Transfer of ALPS treated water in preparation for the 6<sup>th</sup> and 7<sup>th</sup> discharges**
  3. Countermeasures to prevent marine organisms from adhering to dilution/discharge facility
- (Reference) Sea area monitoring history after the commencement of discharge

## 2. Transfer of ALPS treated water in preparation for the 6th and 7th discharges

- Transfer of ALPS treated water from J4 area Group L and J9 area Group A/B to measurement/confirmation facility tank group A in preparation for the 6th discharge was conducted (transfer commenced on February 20 and completed on March 14. Circulation/agitation commenced on March 18. Sample was taken on March 25 ). The water is currently being analyzed.
- Transfer of ALPS treated water from J9 area Group A/B and K1 area Group C/D to measurement/confirmation facility tank group B in preparation for the 7th discharge was conducted (transfer commenced on March 19 and completed on April 11. Circulation/agitation commenced on April 16. Sample was taken on April 23 ).



- 
1. Status of work for the 5<sup>th</sup> discharge of ALPS treated water
  2. Transfer of ALPS treated water in preparation for the 6<sup>th</sup> and 7<sup>th</sup> discharges

- 3. Countermeasures to prevent marine organisms from adhering to dilution/discharge facility**

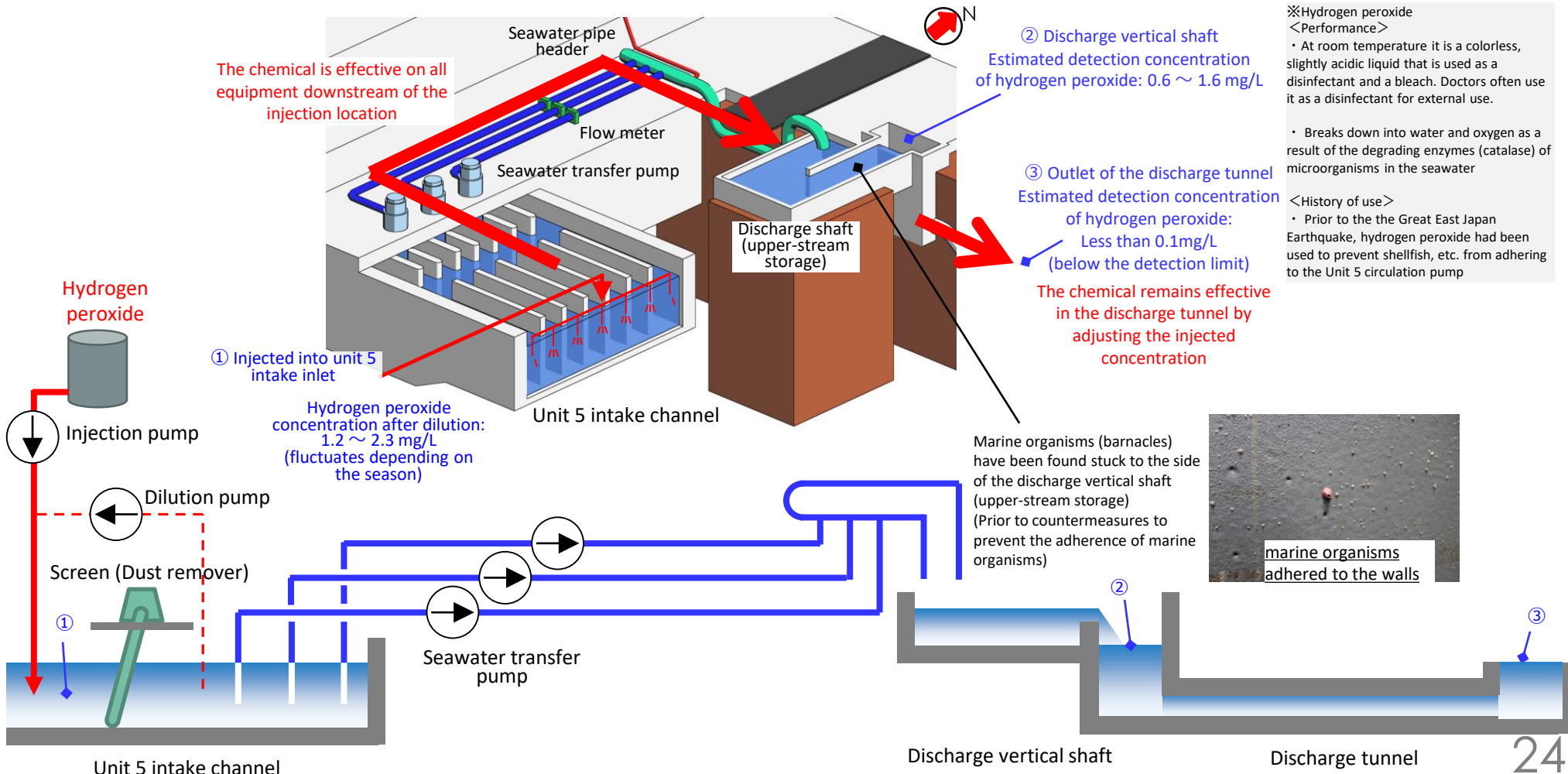
(Reference) Sea area monitoring history after the commencement of discharge



# 3-1. Facility overview



- Hydrogen peroxide  $\text{H}_2\text{O}_2$  will be injected into the unit 5 intake channel as a measure to prevent marine organisms from adhering to dilution/discharge facility.
- We expect that this will mitigate marine organisms from adhering to the seawater transfer pumps, seawater transfer pipes, and discharge vertical shaft (upper-stream storage and down-stream storage) and the discharge tunnel, which are all downstream of the intake channel.



※Hydrogen peroxide  
<Performance>

- At room temperature it is a colorless, slightly acidic liquid that is used as a disinfectant and a bleach. Doctors often use it as a disinfectant for external use.
- Breaks down into water and oxygen as a result of the degrading enzymes (catalase) of microorganisms in the seawater

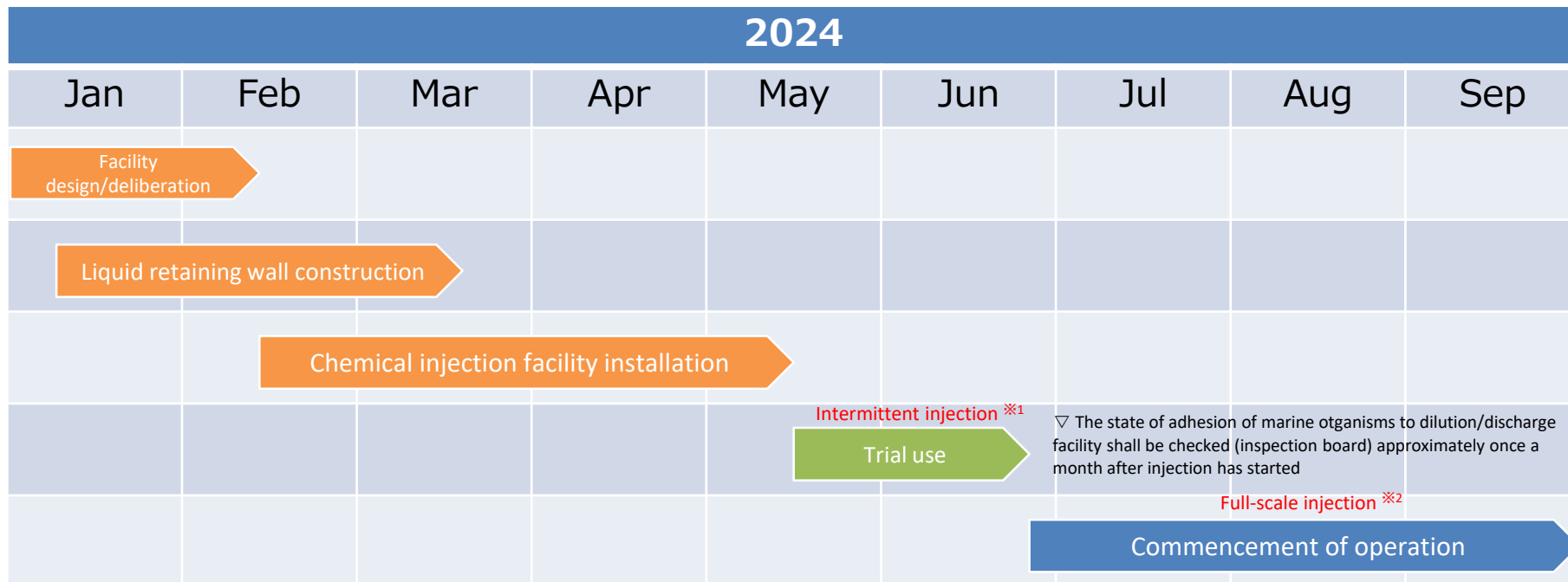
<History of use>

- Prior to the the Great East Japan Earthquake, hydrogen peroxide had been used to prevent shellfish, etc. from adhering to the Unit 5 circulation pump

## 3-2. Future schedule

- The installation of facility used as part of countermeasures to prevent marine organisms from adhering to dilution/discharge facility is scheduled to be completed by mid-May.
- Trial use is scheduled to ensue on mid-May and full-scale injection of hydrogen peroxide (H<sub>2</sub>O<sub>2</sub>) is scheduled to start from the end of June.

### 【 Facility installation schedule 】



※1: In conjunction with trial operation, hydrogen peroxide will be injected for a few hours each day (injection concentration : 1.2~2.3mg/liter (will fluctuate depending on the season))

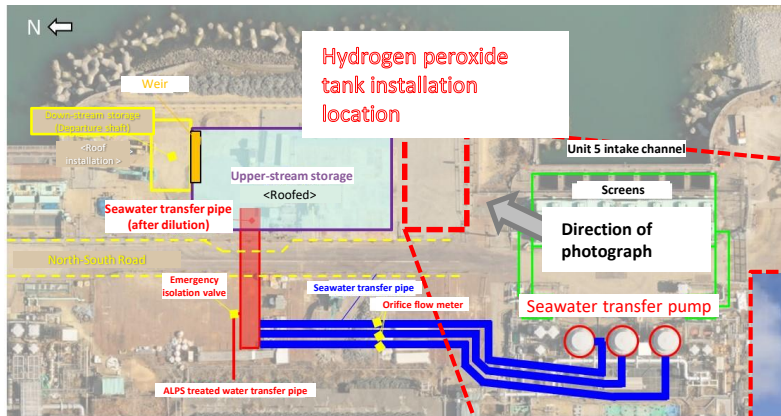
※2: In conjunction with the commencement of operation, hydrogen peroxide will be continuously injected 24-hours a day (injection concentration : 1.2~2.3mg/liter (will fluctuate depending on the season))

### 【 Post-operation monitoring targets 】

- An inspection board will be used to check the state of adhesion of marine organisms (approximately once a month)
- Residual concentrations of chemical will be measured downstream of the injection point (approximately once a month)

# [Reference] Facility installation status

- Tanks and operating panels have already been installed and pipes, etc. will be attached going forward.



1. Status of work for the 5<sup>th</sup> discharge of ALPS treated water
2. Transfer of ALPS treated water in preparation for the 6<sup>th</sup> and 7<sup>th</sup> discharges
3. Measures to prevent marine creatures from adhering to the dilution/discharge facility

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

# (Reference) Sea area monitoring history (1/21)

○ 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) since the commencement of the first discharge on August 24, 2023, are all below indices (discharge suspension level and investigation level).

○ For quick tritium measurements taken in the vicinity of the discharge outlet, we increased the frequency from once a week to daily after the commencement of the discharge, continuing until December 25, 2023, and we have promptly disclosed the results.

(Unit: Bq/liter)

	Sampling location	Frequency	August, 2023											
			24 *1	24 Normal *1,2	25	26	26 Normal *3	27	28	29	30	30 Normal *2,3	31	31 Normal *3
In the vicinity of the discharge outlet	T-1	Once a week*	<6.3	<0.34	<5.6	<6.6	0.97	<6.2	<7.3	<5.9	<6.4	1.0	<6.8	—
	T-2	Once a week*	<6.3	<0.33	<5.5	<6.5	1.1	<6.2	<7.3	<5.9	<6.3	1.3	<6.8	—
	T-0-1	Once a week*	<8.0	<0.34	<6.8	<6.1	0.66	<6.1	—*4	—*4	<6.8	<0.32	<8.2	—
	T-0-1A	Once a week*	<4.6	2.6	<7.6	<6.2	0.087	<6.1	—*4	—*4	<6.9	0.43	10	—
	T-0-2	Once a week*	<8.1	<0.35	<6.8	<6.1	0.92	<6.1	—*4	—*4	<6.8	1.4	<8.2	—
	T-0-3A	Once a week*	<4.7	<0.33	<7.6	<6.8	<0.068	<6.8	—*4	—*4	<7.6	<0.32	<5.1	—
	T-0-3	Once a week*	<8.0	<0.34	<6.9	<6.1	0.14	<6.1	—*4	—*4	<6.8	<0.31	<8.3	—
	T-A1	Once a week*	<6.6	<0.32	<7.6	<6.8	0.13	<6.8	—*4	—*4	<7.6	1.1	<5.1	—
	T-A2	Once a week*	<6.6	<0.32	<7.6	<6.8	0.065	<6.8	—*4	—*4	<7.7	1.5	<5.1	—
	T-A3	Once a week*	<6.6	<0.32	<6.9	<6.8	<0.072	<6.8	—*4	—*4	<7.6	1.1	<5.2	—
Outside the vicinity of the discharge outlet	T-D5	Once a week	—	—	—	—	—	—	—	—	—	<6.8	0.59	
	T-S3	Once a month	—	—	—	—	—	—	—	—	<7.6	0.070	—	
	T-S4	Once a month	—	—	—	—	—	—	—	—	<7.7	0.073	—	
	T-S8	Once a month	—	—	—	—	—	—	—	—	<7.7	0.062	—	

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

: Term of discharge of ALPS treated water (Management number: 23-1-1)

\* : Monitored daily for the time being after the commencement of discharge

\*1 : Sampled after the commencement of discharge at 3PM

\*3 : Detection limit 0.1 Bq/liter

\*2 : Detection limit 0.4 Bq/liter

\*4 : Sampling suspended due to rough seas

# (Reference) Sea area monitoring history (2/21)

(Unit: Bq/liter)

	Sampling location	Frequency	September, 2023											
			1	2	3	4	4 Normal *1	5	6	6 Normal *1	7	8	9	10
In the vicinity of the discharge outlet	T-1	Once a week*	<7.2	<6.8	<5.8	<6.6	0.68	<7.1	<7.1	—	<6.1	<5.9	<6.0	<7.8
	T-2	Once a week*	<7.4	<6.8	<5.8	<6.6	0.90	<7.1	<7.1	—	<6.1	<5.9	<6.0	<7.8
	T-0-1	Once a week*	<7.3	<7.3	<6.8	<6.9	<0.34	<6.6	<6.6	—	<8.7	<6.9	<8.0	<7.0
	T-0-1A	Once a week*	<7.3	<8.2	<6.8	<6.9	<0.33	<7.0	<6.6	—	<8.7	<6.9	<8.0	<7.1
	T-0-2	Once a week*	<7.3	<7.3	<6.7	<7.0	0.74	<6.5	<6.6	—	<8.6	<6.8	<8.0	<7.0
	T-0-3A	Once a week*	<7.0	<7.8	<6.5	<5.9	<0.33	<7.6	<6.3	—	<5.3	<7.4	<6.5	<6.5
	T-0-3	Once a week*	<7.3	<8.2	<6.7	<6.8	<0.34	<7.8	<6.6	—	<8.7	<6.9	<8.0	<7.1
	T-A1	Once a week*	<7.1	<7.9	<6.5	<5.9	1.1	<7.6	<6.3	—	<5.3	<7.4	<6.4	<6.5
	T-A2	Once a week*	<7.1	<7.8	<6.5	<7.3	0.88	<7.6	<6.2	—	<5.3	<7.3	<6.6	<6.4
	T-A3	Once a week*	<7.1	<7.9	<6.5	<7.3	0.82	<7.6	<6.3	—	<5.3	<7.3	<6.5	<6.5
Outside the vicinity of the discharge outlet	T-D5	Once a week	—	—	—	—	—	—	<7.1	<0.34	—	—	—	—
	T-S3	Once a month	—	—	—	—	—	—	—	—	—	—	—	—
	T-S4	Once a month	—	—	—	—	—	—	—	—	—	—	—	—
	T-S8	Once a month	—	—	—	—	—	—	—	—	—	—	—	—

※ : A “less than” symbol (<) indicates that the analysis result was less than the detection limit.

\*1 : Detection limit 0.4 Bq/liter

: Term of discharge of ALPS treated water (Management number: 23-1-1)

\* : Monitored daily for the time being after the commencement of discharge

# (Reference) Sea area monitoring history (3/21)

(Unit: Bq/liter)

	Sampling location	Frequency	September, 2023											
			11 *1	11 Normal *1,2	12	12 Normal *2	13	13 Normal *2	14	15	16	17	18	18 Normal *3
In the vicinity of the discharge outlet	T-1	Once a week*	<7.0	0.21	<7.2	—	<7.2	—	<6.5	<7.3	<6.7	<7.0	<7.6	<0.31
	T-2	Once a week*	<7.0	0.24	<7.2	—	<7.2	—	<6.5	<7.4	<6.8	<6.9	<7.6	<0.31
	T-0-1	Once a week*	<6.8	0.10	<7.7	—	<6.6	—	<7.5	<7.8	<7.6	<7.8	<7.4	<0.36
	T-0-1A	Once a week*	<6.8	0.12	<7.8	—	<6.5	—	<7.5	<7.7	<7.5	<7.7	<7.3	<0.34
	T-0-2	Once a week*	<6.8	0.13	<7.7	—	<6.5	—	<7.5	<7.7	<7.6	<7.7	<7.3	<0.31
	T-0-3A	Once a week*	<6.2	0.10	<7.0	—	<5.9	—	<6.6	<7.4	<6.8	<6.9	<7.6	<0.35
	T-0-3	Once a week*	<6.8	0.16	<7.8	—	<6.5	—	<7.5	<7.7	<7.5	<7.8	<7.3	<0.34
	T-A1	Once a week*	<7.0	0.078	<7.0	—	<5.9	—	<6.7	<5.5	<7.2	<5.5	<6.7	<0.31
	T-A2	Once a week*	<7.0	0.097	<7.0	—	<5.9	—	<6.7	<5.5	<7.3	<5.4	<6.7	<0.31
	T-A3	Once a week*	<7.0	0.16	<7.0	—	<5.9	—	<6.7	<5.5	<7.2	<5.5	<6.7	<0.31
Outside the vicinity of the discharge outlet	T-D5	Once a week	—	—	—	—	<7.2	0.11	—	—	—	—	—	—
	T-S3	Once a month	—	—	<7.1	<0.068	—	—	—	—	—	—	—	—
	T-S4	Once a month	—	—	<7.1	0.087	—	—	—	—	—	—	—	—
	T-S8	Once a month	<6.2	0.098	—	—	—	—	—	—	—	—	—	—

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

: Term of discharge of ALPS treated water (Management number: 23-1-1)

\* : Monitored daily for the time being after the commencement of discharge

\*1 : Sampled before 9AM, prior to the completion of the discharge

\*2 : Detection limit 0.1 Bq/liter

\*3 : Detection limit 0.4 Bq/liter

# (Reference) Sea area monitoring history (4/21)

(Unit: Bq/liter)

	Sampling location	Frequency	September, 2023											
			19	20	20 Normal *1	21	22	23	24	25	25 Normal *1	26	27	27 Normal *1
In the vicinity of the discharge outlet	T-1	Once a week*	<5.0	<6.9	—	<5.0	<5.3	<6.5	<6.7	<7.2	<0.31	<5.6	<6.2	—
	T-2	Once a week*	<5.0	<6.9	—	<5.0	<5.3	<6.5	<6.7	<7.2	<0.31	<5.6	<6.3	—
	T-0-1	Once a week*	<5.5	<7.9	—	<6.5	<6.3	<6.5	<7.6	<8.7	<0.35	<7.9	<6.2	—
	T-0-1A	Once a week*	<5.6	<8.2	—	<6.5	<6.3	<6.5	<7.5	<8.7	<0.35	<7.9	<6.2	—
	T-0-2	Once a week*	<5.6	<7.9	—	<6.5	<6.2	<6.5	<7.5	<8.7	<0.30	<7.9	<6.2	—
	T-0-3A	Once a week*	<5.0	<6.1	—	<5.0	<5.3	<6.5	<6.7	<7.2	<0.35	<5.6	<6.2	—
	T-0-3	Once a week*	<5.5	<7.9	—	<6.5	<6.3	<6.5	<7.5	<8.7	<0.35	<7.9	<6.2	—
	T-A1	Once a week*	<6.9	<5.9	—	<6.6	<7.0	<7.6	<5.1	<6.3	<0.30	<7.3	<6.6	—
	T-A2	Once a week*	<6.9	<5.9	—	<6.7	<7.0	<7.6	<5.1	<6.3	<0.30	<7.3	<6.7	—
	T-A3	Once a week*	<7.0	<6.3	—	<6.6	<7.0	<7.6	<5.1	<6.3	<0.29	<7.3	<6.6	—
Outside the vicinity of the discharge outlet	T-D5	Once a week	—	<6.1	<0.34	—	—	—	—	—	—	—	<6.3	<0.35
	T-S3	Once a month	—	—	—	—	—	—	—	—	—	—	—	—
	T-S4	Once a month	—	—	—	—	—	—	—	—	—	—	—	—
	T-S8	Once a month	—	—	—	—	—	—	—	—	—	—	—	—

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

\*1 : Detection limit 0.4 Bq/liter

\* : Monitored daily for the time being after the commencement of discharge



# (Reference) Sea area monitoring history (5/21)

(Unit: Bq/liter)

	Sampling location	Frequency	September, 2023			October, 2023								
			28	29	30	1	2	2 Normal *1	3	4	4 Normal *1	5 *2	5 Normal *1,2	6
In the vicinity of the discharge outlet	T-1	Once a week*	<6.7	<4.9	<7.3	<6.0	<5.8	<0.34	<6.7	<6.9	—	<5.8	<0.31	<5.8
	T-2	Once a week*	<6.7	<4.7	<7.3	<6.0	<5.7	<0.33	<6.6	<6.8	—	<5.7	<0.31	<5.7
	T-0-1	Once a week*	<6.8	<6.8	<7.9	<8.3	<7.0	<0.35	<6.5	<7.3	—	<7.8	<0.31	<7.0
	T-0-1A	Once a week*	<6.8	<6.8	<7.9	<8.0	<6.9	<0.35	<6.4	<7.3	—	<7.6	5.2	<7.4
	T-0-2	Once a week*	<6.8	<6.9	<8.0	<8.4	<7.0	<0.36	<6.4	<7.2	—	<7.6	<0.33	<7.0
	T-0-3A	Once a week*	<6.7	<4.7	<7.4	<6.2	<5.8	<0.35	<6.8	<6.9	—	<5.9	<0.32	<5.8
	T-0-3	Once a week*	<6.8	<7.0	<7.7	<8.0	<7.0	<0.35	<6.4	<7.2	—	<7.7	<0.32	<6.4
	T-A1	Once a week*	<9.3	<7.8	<8.1	<8.0	<5.6	<0.30	<7.3	<7.5	—	<7.7	<0.30	<7.0
	T-A2	Once a week*	<5.5	<7.8	<8.0	<8.0	<5.7	<0.30	<7.5	<7.5	—	<7.7	<0.31	<7.0
	T-A3	Once a week*	<7.2	<7.6	<8.0	<8.1	<5.6	<0.30	<7.4	<7.4	—	<7.6	<0.30	<7.1
Outside the vicinity of the discharge outlet	T-D5	Once a week	—	—	—	—	—	—	—	<6.8	<0.35	—	—	—
	T-S3	Once a month	—	—	—	—	—	—	—	—	—	—	—	—
	T-S4	Once a month	—	—	—	—	—	—	—	—	—	—	—	—
	T-S8	Once a month	—	—	—	—	—	—	—	—	—	—	—	—

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

: Term of discharge of ALPS treated water (Management number: 23-2-2)

\* : Monitored daily for the time being after the commencement of discharge

\*1 : Detection limit 0.4 Bq/liter

\*2 : Sampled after the commencement of discharge at 2PM

# (Reference) Sea area monitoring history (6/21)

(Unit: Bq/liter)

	Sampling location	Frequency	October, 2023											
			7	8	9	9 Normal *1	10	11	12	12 Normal *1	13	14	15	16
In the vicinity of the discharge outlet	T-1	Once a week*	<5.8	<6.1	<7.2	0.40	<6.9	<6.5	<6.3	—	<6.5	<6.1	<5.5	<6.0
	T-2	Once a week*	<5.8	<6.1	<7.1	0.77	<6.9	<6.6	<6.3	—	<6.5	<6.2	<5.5	<6.0
	T-0-1	Once a week*	<6.7	<8.2	<7.9	1.4	—*2	<7.3	<7.3	—	<7.3	<8.7	<7.3	<7.8
	T-0-1A	Once a week*	9.4	<8.2	11	12	—*2	<7.3	14	—	11	<8.7	14	16
	T-0-2	Once a week*	<6.8	<8.1	<7.9	0.43	—*2	<7.3	<7.3	—	<7.3	<8.7	<7.3	<7.8
	T-0-3A	Once a week*	<5.8	<6.1	<7.2	<0.072	—*2	<6.8	<6.3	—	<6.5	<6.1	<5.6	<6.0
	T-0-3	Once a week*	<6.7	<8.2	<7.8	0.45	—*2	<7.3	<7.2	—	<7.2	<8.6	<7.3	<7.8
	T-A1	Once a week*	<6.4	<5.5	<6.7	0.43	—*2	<6.8	<8.7	—	<8.6	<6.2	<7.2	<7.2
	T-A2	Once a week*	<5.9	<5.5	<6.7	0.25	—*2	<6.8	<8.6	—	<8.6	<5.6	<7.2	<7.2
	T-A3	Once a week*	<5.8	<5.5	<6.8	<0.073	—*2	<6.8	<8.6	—	<8.6	<5.7	<7.2	<7.2
Outside the vicinity of the discharge outlet	T-D5	Once a week	—	—	—	—	—	—	<6.4	<0.070	—	—	—	—
	T-S3	Once a month	—	—	—	—	—	—	<6.4	<0.071	—	—	—	—
	T-S4	Once a month	—	—	—	—	—	—	<6.4	<0.070	—	—	—	—
	T-S8	Once a month	—	—	—	—	—	—	<6.5	0.065	—	—	—	—

※ : A “less than” symbol (<) indicates that the analysis result was less than the detection limit.

: Term of discharge of ALPS treated water (Management number: 23-2-2)

\* : Monitored daily for the time being after the commencement of discharge

\*1 : Detection limit 0.1 Bq/liter

\*2 : Sampling suspended due to bad weather condition

# (Reference) Sea area monitoring history (7/21)

(Unit: Bq/liter)

	Sampling location	Frequency	October, 2023											
			16 Normal *1	17	18	19	19 Normal *1	20	21	22	23 *2	23 Normal *1,2	24	25
In the vicinity of the discharge outlet	T-1	Once a week*	4.3	<6.5	<7.1	<7.2	–	<5.5	<5.6	<5.3	<6.5	1.3	<6.5	<5.8
	T-2	Once a week*	0.66	<6.5	<7.1	<7.1	–	<5.5	<5.6	<5.2	<6.5	0.80	<6.5	<5.8
	T-0-1	Once a week*	1.0	<6.7	<5.9	<8.3	–	<7.0	<6.8	<7.3	<6.7	1.3	<7.8	<7.5
	T-0-1A	Once a week*	14	<6.7	<5.8	<8.5	–	<7.0	22	16	<6.7	0.71	<7.7	<7.5
	T-0-2	Once a week*	1.2	<6.7	8.9	<8.4	–	<7.0	<6.8	<7.3	<6.7	0.40	<7.7	<7.5
	T-0-3A	Once a week*	0.74	<6.5	<7.1	<7.1	–	<5.5	<5.6	<5.3	<6.5	<0.33	<6.5	<5.8
	T-0-3	Once a week*	1.0	<6.7	<6.7	<8.4	–	<7.0	<6.8	<7.3	<6.7	1.0	<7.7	<7.5
	T-A1	Once a week*	0.50	<8.3	<7.2	<7.5	–	<7.5	<8.5	<5.7	<6.8	0.37	<7.5	<7.8
	T-A2	Once a week*	0.56	<8.3	<7.2	<7.5	–	<7.5	<8.4	<5.7	<6.9	<0.31	<7.5	<7.8
	T-A3	Once a week*	0.80	<8.3	<7.2	<7.5	–	<7.5	<8.5	<5.7	<6.8	<0.32	<7.5	<7.8
Outside the vicinity of the discharge outlet	T-D5	Once a week	–	–	–	<7.5	<0.34	–	–	–	<6.9	<0.32	–	–
	T-S3	Once a month	–	–	–	–	–	–	–	–	–	–	–	–
	T-S4	Once a month	–	–	–	–	–	–	–	–	–	–	–	–
	T-S8	Once a month	–	–	–	–	–	–	–	–	–	–	–	–

※ : A “less than” symbol (<) indicates that the analysis result was less than the detection limit.

: Term of discharge of ALPS treated water (Management number: 23-2-2)

\* : Monitored daily for the time being after the commencement of discharge

\*1 : Detection limit 0.4 Bq/liter

\*2 : Sampled before 9AM, prior to the completion of the discharge

# (Reference) Sea area monitoring history (8/21)

(Unit: Bq/liter)

	Sampling location	Frequency	October, 2023						November, 2023					
			26	27	28	29	30	31	1	1 Normal *2	2 *3	2 Normal *2,3	3	4
In the vicinity of the discharge outlet	T-1	Once a week*	<6.5	<6.4	<7.2	<6.8	<6.4	<7.1	<7.9	<0.32	<6.0	0.35	<8.1	<8.0
	T-2	Once a week*	<6.6	<6.3	<7.2	<6.8	<6.4	<7.1	<7.9	<0.33	<8.3	0.36	<8.1	<8.2
	T-0-1	Once a week*	<7.6	<7.8	<8.3	<7.8	—*1	—*1	<7.8	<0.35	<8.0	<0.36	<6.2	<6.3
	T-0-1A	Once a week*	<7.7	<7.8	<8.3	<7.9	—*1	—*1	<7.8	<0.34	<8.0	6.9	7.1	<6.2
	T-0-2	Once a week*	<7.6	<7.8	<8.3	<7.9	—*1	—*1	<7.8	<0.33	<8.1	<0.37	<6.2	<6.2
	T-0-3A	Once a week*	<6.6	<6.3	<7.3	<6.9	—*1	—*1	<7.9	<0.32	<5.4	<0.26	<8.1	<8.2
	T-0-3	Once a week*	<7.6	<7.8	<8.3	<7.9	—*1	—*1	<7.8	<0.34	<8.0	<0.36	<6.2	<6.2
	T-A1	Once a week*	<6.2	<6.6	<6.6	<6.6	—*1	—*1	<6.6	<0.31	<8.2	<0.31	<5.7	<9.2
	T-A2	Once a week*	<6.2	<6.5	<6.6	<6.6	—*1	—*1	<6.4	<0.31	<8.2	<0.30	<5.7	<9.2
	T-A3	Once a week*	<6.2	<6.6	<6.6	<6.6	—*1	—*1	<6.6	<0.32	<8.2	<0.31	<5.7	<9.2
Outside the vicinity of the discharge outlet	T-D5	Once a week	—	—	—	—	—	—	<7.9	<0.33	—	—	—	—
	T-S3	Once a month	—	—	—	—	—	—	—	—	—	—	—	—
	T-S4	Once a month	—	—	—	—	—	—	—	—	—	—	—	—
	T-S8	Once a month	—	—	—	—	—	—	—	—	—	—	—	—

※ : A “less than” symbol (<) indicates that the analysis result was less than the detection limit.

: Term of discharge of ALPS treated water (Management number: 23-3-3)

\* : Monitored daily for the time being after the commencement of discharge

\*1 : Sampling suspended due to bad weather condition

\*2 : Detection limit 0.4 Bq/liter

\*3 : Sampled after the commencement of discharge at 2PM

# (Reference) Sea area monitoring history (9/21)

(Unit: Bq/liter)

	Sampling location	Frequency	November, 2023											
			5	6	6 Normal *1	7	8	8 Normal *3	9	9 Normal *1	10	11	12	13
In the vicinity of the discharge outlet	T-1	Once a week*	<7.6	<5.6	<0.34	<6.9	<5.5	—	<5.5	—	<6.9	<5.8	<7.0	<6.3
	T-2	Once a week*	<7.5	<5.5	0.38	<6.9	<5.5	—	<5.5	—	<7.0	<5.8	<6.9	<6.3
	T-0-1	Once a week*	<7.5	<7.2	0.36	—*2	<6.7	—	<6.4	—	<8.1	—*2	<4.7	<9.0
	T-0-1A	Once a week*	<7.6	9.0	9.5	—*2	<6.8	—	<6.4	—	11	—*2	<4.6	<9.0
	T-0-2	Once a week*	<7.5	<7.1	<0.31	—*2	<6.7	—	<8.4	—	<8.1	—*2	<4.7	<8.9
	T-0-3A	Once a week*	<7.6	<5.4	0.54	—*2	<5.5	—	<5.6	—	<7.0	—*2	<6.9	<6.3
	T-0-3	Once a week*	<7.5	<7.1	<0.31	—*2	<6.7	—	<6.4	—	<8.1	—*2	<5.1	<9.0
	T-A1	Once a week*	<5.7	<6.5	<0.39	—*2	<7.2	—	<7.5	—	<6.9	—*2	<7.8	<7.6
	T-A2	Once a week*	<5.7	<6.5	<0.38	—*2	<7.2	—	<7.5	—	<6.9	—*2	<7.8	<7.6
	T-A3	Once a week*	<5.7	<6.5	<0.39	—*2	<7.2	—	<7.6	—	<6.8	—*2	<7.8	<7.6
Outside the vicinity of the discharge outlet	T-D5	Once a week	—	—	—	—	—	—	<7.5	<0.34	—	—	—	—
	T-S3	Once a month	—	—	—	—	<7.7	0.12	—	—	—	—	—	—
	T-S4	Once a month	—	—	—	—	<7.7	0.10	—	—	—	—	—	—
	T-S8	Once a month	—	—	—	—	<7.8	0.097	—	—	—	—	—	—

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

: Term of discharge of ALPS treated water (Management number: 23-3-3)

\* : Monitored daily for the time being after the commencement of discharge

\*1 : Detection limit 0.4 Bq/liter

\*2 : Sampling suspended due to bad weather condition

\*3 : Detection limit 0.1 Bq/liter

# (Reference) Sea area monitoring history (10/21)

(Unit: Bq/liter)

	Sampling location	Frequency	November, 2023											
			13 Normal *1	14	15	15 Normal *1	16	17	18	19	20 *3	20 Normal *3,4	21	21 Normal *4
In the vicinity of the discharge outlet	T-1	Once a week*	0.25	<5.8	<6.9	—	<8.8	<7.8	<9.3	<6.3	<7.0	1.7	<6.6	—
	T-2	Once a week*	0.25	<5.9	<6.9	—	<8.6	<7.7	<9.3	<6.2	<7.1	0.60	<6.5	—
	T-0-1	Once a week*	0.15	<6.6	<6.2	—	<7.1	<7.9	—*2	<7.4	<8.1	1.2	<7.0	—
	T-0-1A	Once a week*	0.14	7.2	10	—	<7.3	<7.9	—*2	<7.4	<8.1	1.0	<7.0	—
	T-0-2	Once a week*	0.17	<6.5	<6.2	—	7.9	<7.8	—*2	<7.4	<8.1	0.77	<7.1	—
	T-0-3A	Once a week*	0.49	<5.7	<6.9	—	<8.8	<8.0	—*2	<6.3	<7.0	0.87	<6.7	—
	T-0-3	Once a week*	0.44	<6.6	<6.2	—	<7.3	<7.9	—*2	<7.3	<8.1	0.92	<7.2	—
	T-A1	Once a week*	0.082	<6.8	<8.6	—	<8.8	<5.5	—*2	<8.6	<7.3	1.5	<9.0	—
	T-A2	Once a week*	0.16	<6.8	<8.8	—	<8.6	<5.5	—*2	<8.8	<7.2	0.60	<8.9	—
	T-A3	Once a week*	0.15	<7.0	<8.6	—	<8.8	<5.5	—*2	<8.8	<7.2	0.37	<8.9	—
Outside the vicinity of the discharge outlet	T-D5	Once a week	—	—	<8.6	0.12	—	—	—	—	—	—	<7.2	<0.33
	T-S3	Once a month	—	—	—	—	—	—	—	—	—	—	—	—
	T-S4	Once a month	—	—	—	—	—	—	—	—	—	—	—	—
	T-S8	Once a month	—	—	—	—	—	—	—	—	—	—	—	—

※ : A “less than” symbol (<) indicates that the analysis result was less than the detection limit.

: Term of discharge of ALPS treated water (Management number: 23-3-3)

\* : Monitored daily for the time being after the commencement of discharge

\*1 : Detection limit 0.1 Bq/liter

\*2 : Sampling suspended due to bad weather condition

\*3 : Sampled before 8AM, prior to the completion of the discharge

\*4 : Detection limit 0.4 Bq/liter

# (Reference) Sea area monitoring history (11/21)

(Unit: Bq/liter)

	Sampling location	Frequency	November, 2023										December, 2023	
			22	23	24	25	26	27	27 Normal *1	28	29	30	1	2
In the vicinity of the discharge outlet	T-1	Once a week*	<6.5	<5.5	<5.3	<6.3	<7.1	<5.7	<0.34	<5.5	<6.0	<7.4	<4.9	<5.5
	T-2	Once a week*	<6.4	<5.5	<5.2	<6.3	<7.1	<5.8	<0.34	<5.5	<6.0	<7.4	<4.9	<5.5
	T-0-1	Once a week*	<7.1	<6.4	<7.2	<7.3	<8.1	<6.4	0.38	<6.8	<5.9	<7.3	<7.3	<6.8
	T-0-1A	Once a week*	<7.0	<6.4	<7.2	<7.3	<8.2	<6.5	<0.33	<6.7	<5.8	<7.2	<7.2	<6.7
	T-0-2	Once a week*	<7.0	<6.5	<7.3	<7.3	<8.1	<6.5	<0.26	<6.7	<5.8	<7.3	<7.2	<6.7
	T-0-3A	Once a week*	<6.6	<5.5	<5.2	<6.3	<7.1	<5.7	<0.33	<5.5	<6.0	<7.4	<4.9	<5.5
	T-0-3	Once a week*	<7.1	<6.5	<7.3	<7.3	<8.2	<6.4	<0.33	<6.8	<5.9	<7.3	<7.2	<6.7
	T-A1	Once a week*	<7.4	<7.2	<5.7	<5.2	<5.7	<7.8	<0.36	<6.7	<5.9	<6.8	<8.8	<8.1
	T-A2	Once a week*	<7.7	<7.2	<5.7	<5.2	<5.6	<7.8	<0.36	<6.7	<5.9	<6.8	<8.8	<8.1
	T-A3	Once a week*	<7.6	<7.2	<5.6	<5.2	<5.7	<7.8	<0.36	<6.7	<5.9	<6.8	<8.8	<8.1
Outside the vicinity of the discharge outlet	T-D5	Once a week	—	—	—	—	—	<7.8	<0.34	—	—	—	—	—
	T-S3	Once a month	—	—	—	—	—	—	—	—	—	—	—	—
	T-S4	Once a month	—	—	—	—	—	—	—	—	—	—	—	—
	T-S8	Once a month	—	—	—	—	—	—	—	—	—	—	—	—

※ : A “less than” symbol (<) indicates that the analysis result was less than the detection limit.

\*1 : Detection limit 0.4 Bq/liter

\* : Monitored daily for the time being after the commencement of discharge

# [Reference] Sea area monitoring history (12/21)

(Unit: Bq/liter)

	Sampling location	Frequency	December, 2023											
			3	4	4 Normal *1	5	6	7	7 Normal *2	8	9	9 Normal *1	10	11
In the vicinity of the discharge outlet	T-1	Once a week*	<6.7	<6.0	<0.31	<6.3	<5.8	<5.0	—	<5.2	<6.1	—	<6.2	<6.3
	T-2	Once a week*	<6.7	<6.1	<0.31	<6.2	<5.7	<5.0	—	<5.2	<6.1	—	<6.3	<6.2
	T-0-1	Once a week*	<5.1	<5.8	<0.35	<7.5	<8.0	<7.3	—	<6.3	<8.3	—	<4.8	<6.5
	T-0-1A	Once a week*	<5.1	<5.8	<0.33	<7.5	<8.0	<7.3	—	<6.3	<8.4	—	<6.2	<6.5
	T-0-2	Once a week*	<5.1	<5.8	<0.30	<7.5	<7.9	<7.2	—	<6.3	<8.5	—	<4.9	<6.5
	T-0-3A	Once a week*	<6.9	<6.0	<0.33	<6.2	<5.9	<5.0	—	<5.2	<6.0	—	<6.2	<6.3
	T-0-3	Once a week*	<5.1	<5.8	<0.33	<7.4	<8.0	<7.2	—	<6.3	<8.3	—	<7.4	<6.5
	T-A1	Once a week*	<6.1	<8.1	<0.36	<8.4	<5.2	<6.5	—	<8.6	<7.9	—	<6.8	<5.2
	T-A2	Once a week*	<6.1	<8.1	<0.36	<8.3	<7.5	<6.5	—	<8.6	<7.8	—	<6.8	<5.3
	T-A3	Once a week*	<6.1	<8.1	<0.36	<8.3	<5.3	<6.5	—	<8.7	<7.9	—	<6.9	<5.3
Outside the vicinity of the discharge outlet	T-D5	Once a week	—	—	—	—	—	—	—	—	<6.0	<0.34	—	—
	T-S3	Once a month	—	—	—	—	—	—	—	—	—	—	—	—
	T-S4	Once a month	—	—	—	—	—	—	—	—	—	—	—	—
	T-S8	Once a month	—	—	—	—	—	<6.6	0.057	—	—	—	—	—

※ : A “less than” symbol (<) indicates that the analysis result was less than the detection limit.

\* : Monitored daily for the time being after the commencement of discharge

\*1 : Detection limit 0.4 Bq/liter

\*2 : Detection limit 0.1 Bq/liter



# (Reference) Sea area monitoring history (13/21)

(Unit: Bq/liter)

	Sampling location	Frequency	December, 2023											
			11 Normal *1	12	13	14	14 Normal *1	15	16	17	18	18 Normal *3	19	19 Normal *3
In the vicinity of the discharge outlet	T-1	Once a week*	0.15	<7.0	<6.7	<6.7	—	<6.1	<6.9	<6.5	<5.8	<0.36	<5.7	—
	T-2	Once a week*	0.12	<7.0	<6.7	<6.7	—	<6.1	<6.9	<6.5	<5.8	<0.36	<5.7	—
	T-0-1	Once a week*	0.076	—*2	—*2	<7.0	—	<5.9	<6.8	—*2	<5.8	<0.34	<8.2	—
	T-0-1A	Once a week*	<0.073	—*2	—*2	<5.5	—	<5.8	<6.7	—*2	<5.9	<0.35	<8.2	—
	T-0-2	Once a week*	0.083	—*2	—*2	<5.9	—	<5.9	<6.8	—*2	<5.9	<0.33	<8.2	—
	T-0-3A	Once a week*	<0.074	—*2	—*2	<6.7	—	<6.1	<6.9	—*2	<5.7	<0.34	<5.8	—
	T-0-3	Once a week*	<0.075	—*2	—*2	<8.1	—	<5.9	<7.0	—*2	<5.9	<0.35	<8.2	—
	T-A1	Once a week*	0.095	—*2	—*2	<8.1	—	<6.5	<7.5	—*2	<6.8	<0.36	<7.5	—
	T-A2	Once a week*	0.081	—*2	—*2	<8.1	—	<6.5	<7.5	—*2	<6.8	<0.36	<7.5	—
	T-A3	Once a week*	0.13	—*2	—*2	<8.1	—	<6.5	<7.5	—*2	<6.8	<0.36	<7.5	—
Outside the vicinity of the discharge outlet	T-D5	Once a week	—	—	—	<8.1	0.079	—	—	—	—	—	<7.5	<0.34
	T-S3	Once a month	—	—	—	—	—	—	—	—	—	—	—	—
	T-S4	Once a month	—	—	—	—	—	—	—	—	—	—	—	—
	T-S8	Once a month	—	—	—	—	—	—	—	—	—	—	—	—

※ : A “less than” symbol (<) indicates that the analysis result was less than the detection limit.

\* : Monitored daily for the time being after the commencement of discharge

\*1 : Detection limit 0.1 Bq/liter

\*2 : Sampling suspended due to bad weather condition

\*3 : Detection limit 0.4 Bq/liter

# (Reference) Sea area monitoring history (14/21)

○ For quick tritium measurements taken in the vicinity of the discharge outlet, we changed the frequency in order to place importance on the discharge period from December 26, 2023, and have been continuing the monitoring.

(Unit: Bq/liter)

	Sampling location	Frequency	December, 2023									January, 2024		
			20	20 Normal *1	21	22	23	24	25	25 Normal *2	26	1	3	3 Normal *2
In the vicinity of the discharge outlet	T-1	Once a week*	<6.7	—	<7.2	<6.6	<7.0	<7.1	<6.1	<0.33	<5.0	<5.6	—	<0.33
	T-2	Once a week*	<6.7	—	<7.1	<6.6	<7.0	<7.2	<6.1	<0.33	<4.9	<5.5	—	<0.33
	T-0-1	Once a week*	<7.5	—	<8.0	<7.1	<6.6	<7.3	<7.3	<0.27	<6.9	—*3	<6.5	<0.27
	T-0-1A	Once a week*	<7.5	—	<8.0	<7.1	<6.5	<7.3	<7.3	<0.34	<5.8	—*3	<6.5	<0.35
	T-0-2	Once a week*	<7.5	—	<8.0	<7.1	<6.6	<7.3	<7.3	<0.31	<6.8	—*3	<6.5	<0.32
	T-0-3A	Once a week*	<6.5	—	<7.3	<6.6	<7.0	<7.2	<6.1	<0.34	<5.0	—*3	<8.1	<0.34
	T-0-3	Once a week*	<7.5	—	<8.1	<7.1	<6.5	<7.4	<7.4	<0.34	<7.0	—*3	<6.5	<0.34
	T-A1	Once a week*	<6.5	—	<6.9	<6.1	<6.2	<7.3	<7.8	<0.36	<9.2	—*3	<8.1	<0.37
	T-A2	Once a week*	<6.5	—	<6.9	<6.2	<6.2	<7.2	<7.9	<0.36	<9.2	—*3	<8.1	<0.37
T-A3	Once a week*	<6.5	—	<6.9	<6.2	<6.2	<7.2	<7.8	<0.36	<9.2	—*3	<8.2	<0.37	
Outside the vicinity of the discharge outlet	T-D5	Once a week	—	—	—	—	—	—	<7.9	<0.33	—	—	—	—
	T-S3	Once a month	<6.7	0.12	—	—	—	—	—	—	—	—	—	—
	T-S4	Once a month	<6.7	0.075	—	—	—	—	—	—	—	—	—	—
	T-S8	Once a month	—	—	—	—	—	—	—	—	—	—	—	—

※ : A "less than" symbol (<) indicates that the analysis result was less than the detection limit. \*1 : Detection limit 0.1 Bq/liter \*2 : Detection limit 0.4 Bq/liter \*3 : Sampling suspended due to bad weather condition

\* : Monitored daily for the time being after the commencement of discharge. In order to place importance on the discharge period, frequency of the measurement was changed from December 26, 2023 as follows;  
 4 locations in the vicinity of the discharge outlet (T-0-1, T-0-1A, T-0-2, T-A2) : Conduct daily during the discharge period and for one week following the completion of discharge  
 Conduct twice a week outside the discharge period, excluding one week following the completion of discharge  
 Other 6 locations (T-1, T-2, T-0-3A, T-0-3, T-A1, T-A3) : 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 one week following the completion of discharge

# (Reference) Sea area monitoring history (15/21)



(Unit: Bq/liter)

	Sampling location	Frequency	January, 2024											
			6	6 Normal *1	8	8 Normal *2	9	9 Normal *2	11	11 Normal *2	15	15 Normal *1	17	17 Normal *2
In the vicinity of the discharge outlet	T-1	Twice a week*	—	—	—	being measured	—	—	—	—	—	<0.37	—	—
	T-2	Twice a week*	—	—	—	being measured	—	—	—	—	—	<0.37	—	—
	T-0-1	Once a day*	—	—	<6.5	0.045	—	—	—	—	<6.2	<0.27	—	—
	T-0-1A	Once a day*	—	—	<7.2	0.21	—	—	—	—	<4.2	<0.33	—	—
	T-0-2	Once a day*	—	—	<6.6	being measured	—	—	—	—	<6.2	<0.31	—	—
	T-0-3A	Twice a week*	—	—	—	0.23	—	—	—	—	—	<0.33	—	—
	T-0-3	Twice a week*	—	—	—	0.16	—	—	—	—	—	<0.33	—	—
	T-A1	Twice a week*	—	—	—	<0.071	—	—	—	—	—	<0.36	—	—
	T-A2	Once a day*	—	—	<7.6	0.11	—	—	—	—	<4.2	<0.36	—	—
	T-A3	Twice a week*	—	—	—	0.079	—	—	—	—	—	<0.36	—	—
Outside the vicinity of the discharge outlet	T-D5	Once a week	<8.1	<0.35	—	—	<7.0	being measured	—	—	—	—	—	—
	T-S3	Once a month	—	—	—	—	—	—	—	—	—	—	<7.8	being measured
	T-S4	Once a month	—	—	—	—	—	—	—	—	—	—	<7.7	being measured
	T-S8	Once a month	—	—	—	—	—	—	<6.8	being measured	—	—	—	—

※ : A “less than” symbol (<) indicates that the analysis result was less than the detection limit.

\*1 : Detection limit 0.4 Bq/liter \*2 : Detection limit 0.1 Bq/liter

\* : 4 locations in the vicinity of the discharge outlet : Conduct daily during the discharge period and for one week following the completion of discharge  
 Conduct twice a week outside the discharge period, excluding one week following the completion of discharge  
 Other 6 locations : 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 one week following the completion of discharge

# (Reference) Sea area monitoring history (16/21)



(Unit: Bq/liter)

	Sampling location	Frequency	January, 2024				February, 2024							
			24	24 Normal *1	29	29 Normal *1	5	5 Normal *1	7	7 Normal *2	12	12 Normal *2	13	13 Normal *2
In the vicinity of the discharge outlet	T-1	Twice a week*	—	<0.37	—	<0.34	<6.1	<0.33	—	—	—	being measured	—	—
	T-2	Twice a week*	—	<0.37	—	<0.35	<6.1	<0.33	—	—	—	being measured	—	—
	T-0-1	Once a day*	<7.8	<0.37	<5.9	<0.29	<7.7	<0.34	—	—	<7.0	being measured	—	—
	T-0-1A	Once a day*	<7.3	<0.34	<7.6	<0.33	<7.6	<0.32	—	—	<6.6	being measured	—	—
	T-0-2	Once a day*	<7.7	<0.32	<8.2	<0.38	<7.6	<0.36	—	—	<7.1	being measured	—	—
	T-0-3A	Twice a week*	—	<0.33	—	<0.33	<6.0	<0.32	—	—	—	being measured	—	—
	T-0-3	Twice a week*	—	<0.33	—	<0.33	<7.5	<0.34	—	—	—	being measured	—	—
	T-A1	Twice a week*	—	<0.37	—	<0.35	<7.0	<0.36	—	—	—	<0.073	—	—
	T-A2	Once a day*	<7.3	<0.37	<7.6	<0.35	<6.8	<0.36	—	—	<6.7	<0.068	—	—
	T-A3	Twice a week*	—	<0.37	—	<0.35	<6.9	<0.36	—	—	—	<0.068	—	—
Outside the vicinity of the discharge outlet	T-D5	Once a week	—	—	<6.9	<0.33	<6.1	<0.33	—	—	—	—	<8.1	being measured
	T-S3	Once a month	—	—	—	—	—	—	<6.2	being measured	—	—	—	—
	T-S4	Once a month	—	—	—	—	—	—	<6.1	being measured	—	—	—	—
	T-S8	Once a month	—	—	—	—	—	—	—	—	—	—	—	—

※ : A “less than” symbol (<) indicates that the analysis result was less than the detection limit.

\*1 : Detection limit 0.4 Bq/liter \*2 : Detection limit 0.1 Bq/liter

\* : 4 locations in the vicinity of the discharge outlet : Conduct daily during the discharge period and for one week following the completion of discharge  
 Conduct twice a week outside the discharge period, excluding one week following the completion of discharge  
 Other 6 locations : 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 one week following the completion of discharge

# (Reference) Sea area monitoring history (17/21)

(Unit: Bq/liter)

	Sampling location	Frequency	February, 2024								March, 2024			
			19	19 Normal *1	21	21 Normal *1	26	26 Normal *1	28	29	1	1 Normal *1	2	3
In the vicinity of the discharge outlet	T-1	Twice a week*	—	<0.32	—	—	—	<0.34	—*2	<6.9	<9.3	<0.34	—	—
	T-2	Twice a week*	—	<0.31	—	—	—	<0.33	—*2	<6.8	<9.2	<0.33	—	—
	T-0-1	Once a day*	<6.6	<0.27	—	—	<7.9	<0.27	—*2	—*2	<6.5	<0.35	—*2	<7.3
	T-0-1A	Once a day*	<6.4	<0.32	—	—	<7.9	<0.33	—*2	—*2	<6.4	<0.34	—*2	12
	T-0-2	Once a day*	<6.5	<0.37	—	—	<7.9	<0.36	—*2	—*2	<9.5	<0.36	—*2	<7.8
	T-0-3A	Twice a week*	—	<0.33	—	—	—	<0.32	—*2	—*2	<8.2	<0.34	—	—
	T-0-3	Twice a week*	—	<0.33	—	—	—	<0.32	—*2	—*2	<6.6	<0.34	—	—
	T-A1	Twice a week*	—	<0.36	—	—	—	<0.35	—*2	—*2	<7.8	<0.37	—	—
	T-A2	Once a day*	<6.8	<0.36	—	—	<7.9	<0.35	—*2	—*2	<7.8	<0.37	—*2	<8.2
T-A3	Twice a week*	—	<0.36	—	—	—	<0.35	—*2	—*2	<7.8	<0.37	—	—	
Outside the vicinity of the discharge outlet	T-D5	Once a week	—	—	<5.5	<0.34	—	—	—*2	—	—*2	—*2	—	—
	T-S3	Once a month	—	—	—	—	—	—	—	—	—	—	—	—
	T-S4	Once a month	—	—	—	—	—	—	—	—	—	—	—	—
	T-S8	Once a month	—	—	—	—	—*2	—*2	—	—	—	—	—	—

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

\*1 : Detection limit 0.4 Bq/liter \*2 : Sampling suspended due to bad weather condition

: Term of discharge of ALPS treated water (Measurement number: 23-4-4)

\* : 4 locations in the vicinity of the discharge outlet : Conduct daily during the discharge period and for one week following the completion of discharge

Conduct twice a week outside the discharge period, excluding one week following the completion of discharge

Other 6 locations : 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 one week following the completion of discharge

# (Reference) Sea area monitoring history (18/21)

(Unit: Bq/liter)

	Sampling location	Frequency	March, 2024											
			4	4 Normal *1,2	5	6	7	8	9	10	11	11 Normal *2	12	13
In the vicinity of the discharge outlet	T-1	Twice a week*	<7.4	0.50	—	—	<8.1	<7.2	<6.7	<6.4	<6.1	being measured	—	—
	T-2	Twice a week*	<7.4	0.33	—	—	<8.1	<7.4	<6.7	<6.3	<6.1	being measured	—	—
	T-0-1	Once a day*	<9.0	<0.36	<7.9	—*3	—*3	—*3	—*3	—*3	<6.8	being measured	<8.8	—*3
	T-0-1A	Once a day*	<6.9	<0.34	16	—*3	—*3	—*3	—*3	—*3	9.5	being measured	<7.5	—*3
	T-0-2	Once a day*	<9.0	<0.36	<8.0	—*3	—*3	—*3	—*3	—*3	<6.1	being measured	<7.6	—*3
	T-0-3A	Twice a week*	<9.0	3.6	—	—	—*3	—*3	—*3	—*3	<6.8	being measured	—	—
	T-0-3	Twice a week*	<9.1	1.1	—	—	—*3	—*3	—*3	—*3	<6.9	being measured	—	—
	T-A1	Twice a week*	<6.8	0.58	—	—	—*3	—*3	—*3	—*3	<7.1	<0.072	—	—
	T-A2	Once a day*	<6.9	<0.36	<7.9	—*3	—*3	—*3	—*3	—*3	<7.0	0.10	<7.5	—*3
	T-A3	Twice a week*	<6.9	<0.36	—	—	—*3	—*3	—*3	—*3	<6.9	0.11	—	—
Outside the vicinity of the discharge outlet	T-D5	Once a week	<8.8	<0.33	—	—	—	—	—	—	<6.9	being measured	—	—
	T-S3	Once a month	<6.8	being measured	—	—	—	—	—	—	—	—	—	—
	T-S4	Once a month	<6.9	being measured	—	—	—	—	—	—	—	—	—	—
	T-S8	Once a month	<9.1	being measured	—	—	—	—	—	—	—	—	—	—

※ : A “less than” symbol (<) indicates that the analysis result was less than the detection limit.

: Term of discharge of ALPS treated water (Management number: 23-4-4)

\* : Monitored daily for the time being after the commencement of discharge

\* : 4 locations in the vicinity of the discharge outlet : Conduct daily during the discharge period and for one week following the completion of discharge  
Conduct twice a week outside the discharge period, excluding one week following the completion of discharge

Other 6 locations : 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 one week following the completion of discharge

\*1 : Detection limit 0.4Bq/liter

\*2 : Detection limit 0.1 Bq/liter

\*3 : Sampling suspended due to bad weather condition

# (Reference) Sea area monitoring history (19/21)

(Unit: Bq/liter)

	Sampling location	Frequency	March, 2024											
			14	15 Normal *1	16	17 Normal *2	18	19	19 Normal *4	20	21	22	23	24
In the vicinity of the discharge outlet	T-1	Twice a week*	<8.0	—	—	—	—*3	<6.7	<0.32	—	<6.3	—	<6.2	—
	T-2	Twice a week*	<8.0	—	—	—	—*3	<6.8	<0.33	—	<6.4	—	<6.1	—
	T-0-1	Once a day*	<7.1	<6.6	<7.1	<6.2	—*3	<5.8	<0.27	<7.6	—*3	—*3	—*3	<7.6
	T-0-1A	Once a day*	<6.9	<6.1	<7.2	<7.7	—*3	<5.9	<0.34	<7.6	—*3	—*3	—*3	<5.5
	T-0-2	Once a day*	<6.9	<6.1	<7.3	<7.7	—*3	<5.7	<0.29	<7.6	—*3	—*3	—*3	<7.4
	T-0-3A	Twice a week*	<8.3	—	—	—	—*3	<5.9	<0.34	—	—*3	—*3	—*3	<5.4
	T-0-3	Twice a week*	<7.0	—	—	—	—*3	<5.9	<0.33	—	—*3	—*3	—*3	<7.5
	T-A1	Twice a week*	<8.4	—	—	—	—*3	<7.6	<0.36	—	—*3	—*3	—*3	<6.9
	T-A2	Once a day*	<8.4	<6.1	<7.3	<7.6	—*3	<7.5	<0.36	<7.5	—*3	—*3	—*3	<6.7
	T-A3	Twice a week*	<8.3	—	—	—	—*3	<7.5	<0.36	—	—*3	—*3	—*3	<6.9
Outside the vicinity of the discharge outlet	T-D5	Once a week	—	—	—	—	—*3	<6.9	being measured	—	—	—	—	—
	T-S3	Once a month	—	—	—	—	—	—	—	—	—	—	—	—
	T-S4	Once a month	—	—	—	—	—	—	—	—	—	—	—	—
	T-S8	Once a month	—	—	—	—	—	—	—	—	—	—	—	—

※ : A “less than” symbol (<) indicates that the analysis result was less than the detection limit.

: Term of discharge of ALPS treated water (23-4-4)

\* : Monitored daily for the time being after the commencement of discharge

\* : 4 locations in the vicinity of the discharge outlet : Conduct daily during the discharge period and for one week following the completion of discharge  
 Conduct twice a week outside the discharge period, excluding one week following the completion of discharge

Other 6 locations : 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 one week following the completion of discharge

\*1 : Sampled during the suspension due to the earthquake

\*2 : Sampled before 8AM, prior to the completion of the discharge

\*3 : Sampling suspended due to bad weather condition

\*4 : Detection limit 0.4Bq/liter

# (Reference) Sea area monitoring history (20/21)

(Unit: Bq/liter)

	Sampling location	Frequency	March, 2024				April, 2024							
			25	25 Normal *1,2	28	28 Normal *1	1	1 Normal *1	2	2 Normal *1	8	8 Normal *2	11	11 Normal *2
In the vicinity of the discharge outlet	T-1	Twice a week*	<5.8	<0.33	—	—	<6.7	being measured	—	—	—	—	—	—
	T-2	Twice a week*	<5.9	<0.34	—	—	<6.8	being measured	—	—	—	—	—	—
	T-0-1	Once a day*	<6.4	<0.33	—	—	<8.0	being measured	—	—	<5.7	being measured	—	—
	T-0-1A	Once a day*	<7.2	<0.33	—	—	<8.0	being measured	—	—	<7.0	being measured	—	—
	T-0-2	Once a day*	<6.5	<0.30	—	—	<8.1	being measured	—	—	<5.7	being measured	—	—
	T-0-3A	Twice a week*	<6.8	<0.33	—	—	<6.9	being measured	—	—	—	—	—	—
	T-0-3	Twice a week*	<7.2	<0.33	—	—	<8.0	being measured	—	—	—	—	—	—
	T-A1	Twice a week*	<6.7	0.39	—	—	<6.9	being measured	—	—	—	—	—	—
	T-A2	Once a day*	<6.7	<0.34	—	—	<6.9	being measured	—	—	<7.0	being measured	—	—
T-A3	Twice a week*	<7.2	0.34	—	—	<7.0	being measured	—	—	—	—	—	—	
Outside the vicinity of the discharge outlet	T-D5	Once a week	—	—	<5.9	being measured	—	—	<7.5	being measured	<5.7	being measured	—	—
	T-S3	Once a month	—	—	—	—	—	—	—	—	—	—	<6.5	being measured
	T-S4	Once a month	—	—	—	—	—	—	—	—	—	—	<6.6	being measured
	T-S8	Once a month	<7.1	being measured	—	—	—	—	—	—	—	—	—	—

※ : A “less than” symbol (<) indicates that the analysis result was less than the detection limit.

\*1 : Detection limit 0.4 Bq/liter \*2 : Detection limit 0.1 Bq/liter

\*3 : Sampling suspended due to bad weather condition

\* : Monitored daily for the time being after the commencement of discharge. In order to place importance on the discharge period, frequency of the measurement was changed from December 26, 2023 as follows;

4 locations in the vicinity of the discharge outlet : Conduct daily during the discharge period and for one week following the completion of discharge

Conduct twice a week outside the discharge period, excluding one week following the completion of discharge

Other 6 locations : 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 one week following the completion of discharge



# (Reference) Sea area monitoring history (21/21)

(Unit: Bq/liter)

	Sampling location	Frequency	April, 2024					
			15	15 Normal *1,2	19 Normal *3	19 Normal *3	20	21
In the vicinity of the discharge outlet	T-1	Twice a week*	—	—	<6.0	being measured	—	—
	T-2	Twice a week*	—	—	<6.1	being measured	—	—
	T-0-1	Once a day*	<	being measured	—*4	—*4	<7.8	<7.5
	T-0-1A	Once a day*	<	being measured	—*4	—*4	<6.9	<7.5
	T-0-2	Once a day*	<	being measured	—*4	—*4	<7.8	<7.5
	T-0-3A	Twice a week*	—	—	—*4	—*4	<6.9	—
	T-0-3	Twice a week*	—	—	—*4	—*4	<7.9	—
	T-A1	Twice a week*	—	—	—*4	—*4	<6.4	—
	T-A2	Once a day*	<7.7	being measured	—*4	—*4	<6.6	<7.5
	T-A3	Twice a week*	—	—	—*4	—*4	<6.4	—
Outside the vicinity of the discharge outlet	T-D5	Once a week	<8.0	being measured	—	—	—	—
	T-S3	Once a month	—	—	—	—	—	—
	T-S4	Once a month	—	—	—	—	—	—
	T-S8	Once a month	<8.0	being measured	—	—	—	—

※ : A “less than” symbol (<) indicates that the analysis result was less than the detection limit.

\*1 : Detection limit 0.4 Bq/liter \*2 : Detection limit 0.1 Bq/liter

: Term of discharge of ALPS treated water (Management number: 24-1-5)

\*3 : Sampled after 2M, after the completion of the discharge

\*4 : Sampling suspended due to bad weather condition

\* : Monitored daily for the time being after the commencement of discharge. In order to place importance on the discharge period, frequency of the measurement was changed from December 26, 2023 as follows;

4 locations in the vicinity of the discharge outlet : Conduct daily during the discharge period and for one week following the completion of discharge

Conduct twice a week outside the discharge period, excluding one week following the completion of discharge

Other 6 locations : 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 one week following the completion of discharge