Information about the Discharge of Multi-nuclide Removal Equipment Treated Water into the Sea

TEPCO

① Discharge Facilities Overview
② Discharge Facilities Data Disclosure
③ Initial Discharge Method
④ FY2023 Discharge Plan
⑤ Handling Troubles, Etc.
⑥ Notification Announcement/Criteria
⑦ Providing Information to the People of Japan and the International Community
⑧ Status of Compensation

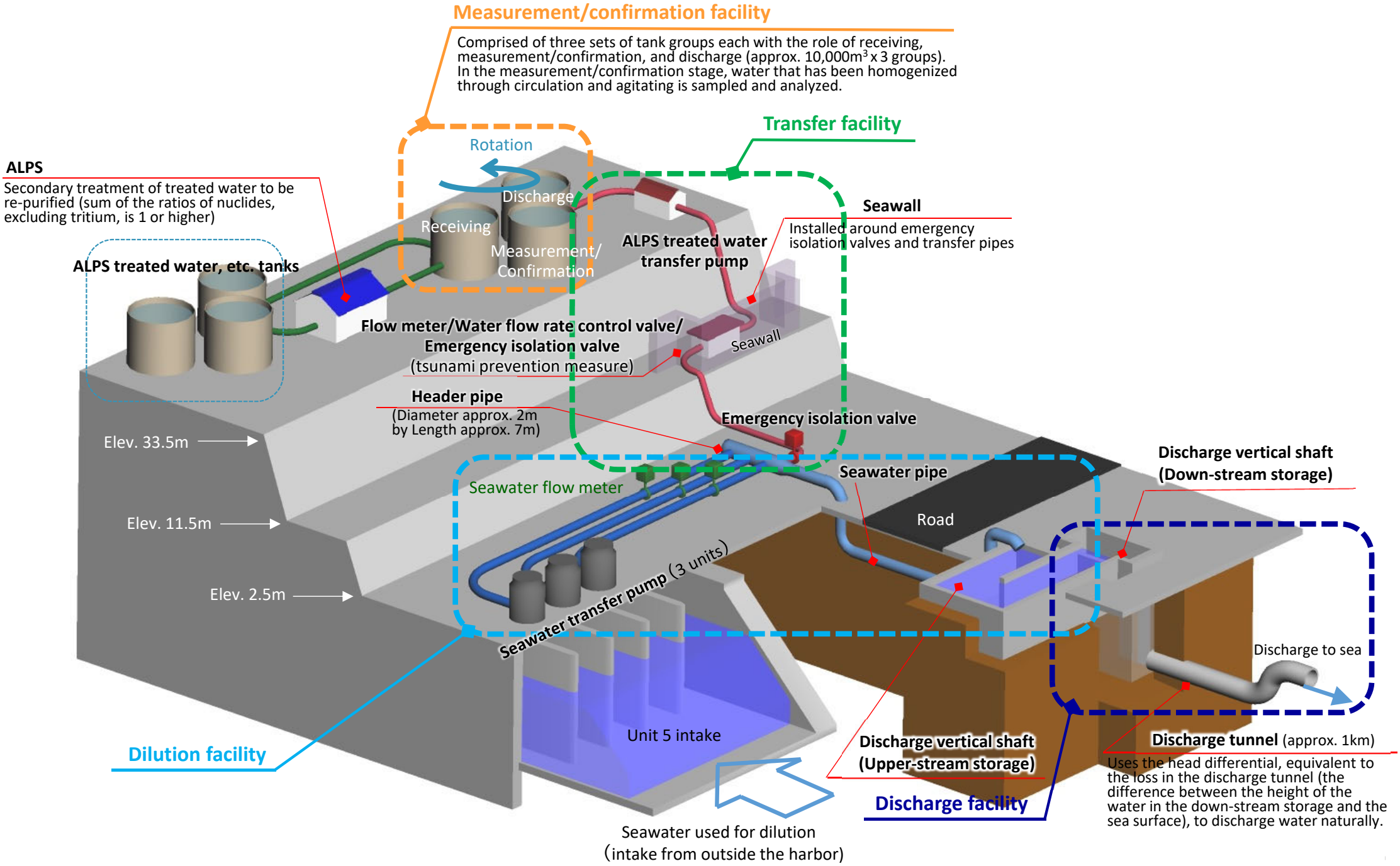
August 22, 2023

Tokyo Electric Power Company Holdings, Inc.

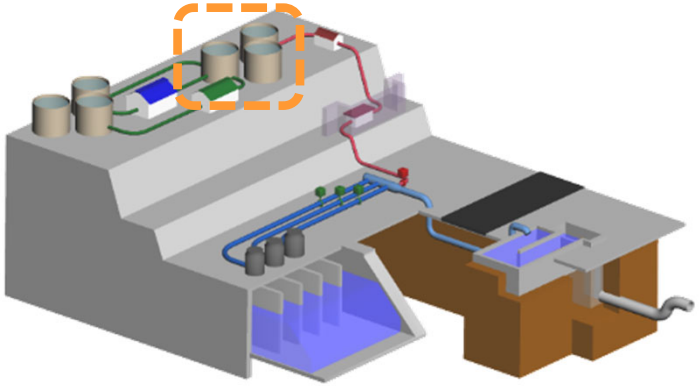
① DISCHARGE FACILITIES OVERVIEW

Overview of Multi-nuclide Removal Equipment treated water dilution/discharge facility and related facilities

TEPCO



Measurement/confirmation facility overview



Measurement/confirmation facility safety measures

After circulating and agitating the multi-nuclide removal equipment treated water (hereinafter, ALPS treated water) to ensure that it is homogeneous, TEPCO and outside agencies measure/confirm the concentrations of each radioactive substance to ensure that only water with a sum of the ratios of legally required concentrations of radioactive substances that meet regulatory requirements (with the exception of tritium) is discharged.

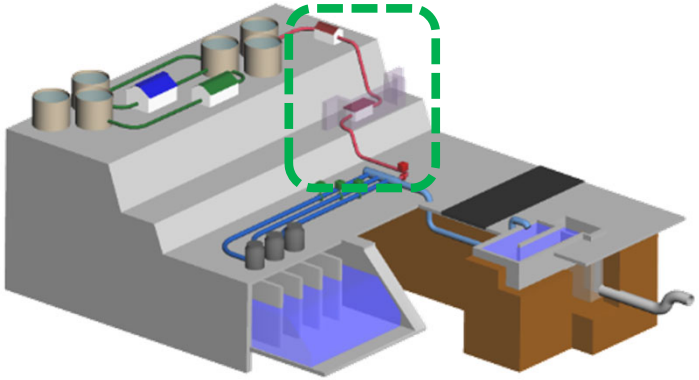
Inspection of the K4 tank area by the International Atomic Energy Agency (IAEA) [Photo taken on June 2, 2023]

The sum of the ratios of the concentration of each radionuclide to the regulatory concentration limit in the ALPS treated water to be discharged first (K4-B tank group) has been measured to be

0.28

(Regulatory requirements call for this value be less than 1)

Transfer facility overview



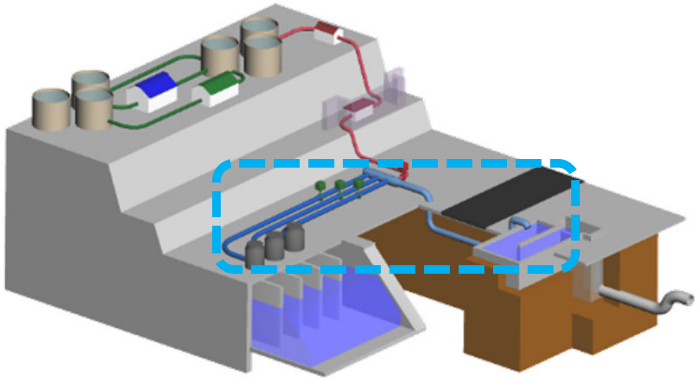
Transfer facility safety measures

If an abnormality is detected during the dilution/discharge of ALPS treated water, an emergency isolation valve will automatically close to stop the discharge into the sea until it can be confirmed that the conditions for discharge are safe.

Inspection of emergency isolation valves by the International Atomic Energy Agency (IAEA) [photo taken on June 2, 2023]

Inspection of transfer facility by the International Atomic Energy Agency (IAEA) [photo taken on May 24, 2023]

Dilution facility overview



Dilution facility safety measures

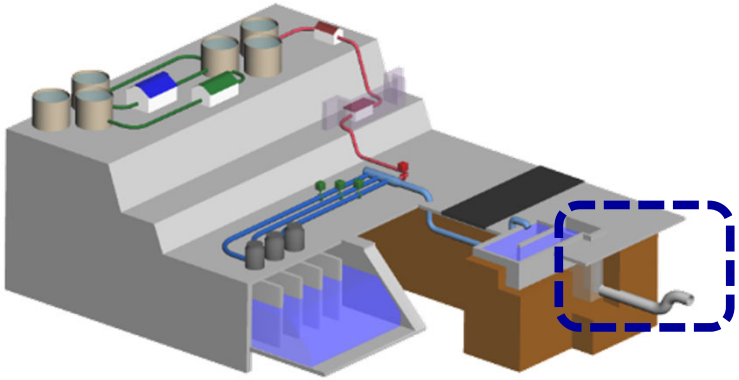
ALPS treated water being discharged must have a concentration of tritium that is less than 1,500Bq/liter ※1, with less than 22 trillion Bq※2 total of tritium discharged annually.

※1 1/40 of government regulatory requirements (60,000Bq/liter)
※2 Target discharge control value of the FDNPS before the accident

Seawater transfer pipes and seawater header pipe
(Header pipe: ALPS treated water is mixed and diluted with seawater)
[photo taken on June 25, 2023]

Discharge vertical shaft (upper-stream storage)
[photo taken on June 23, 2023]

Discharge facility overview



Discharge facility safety measures

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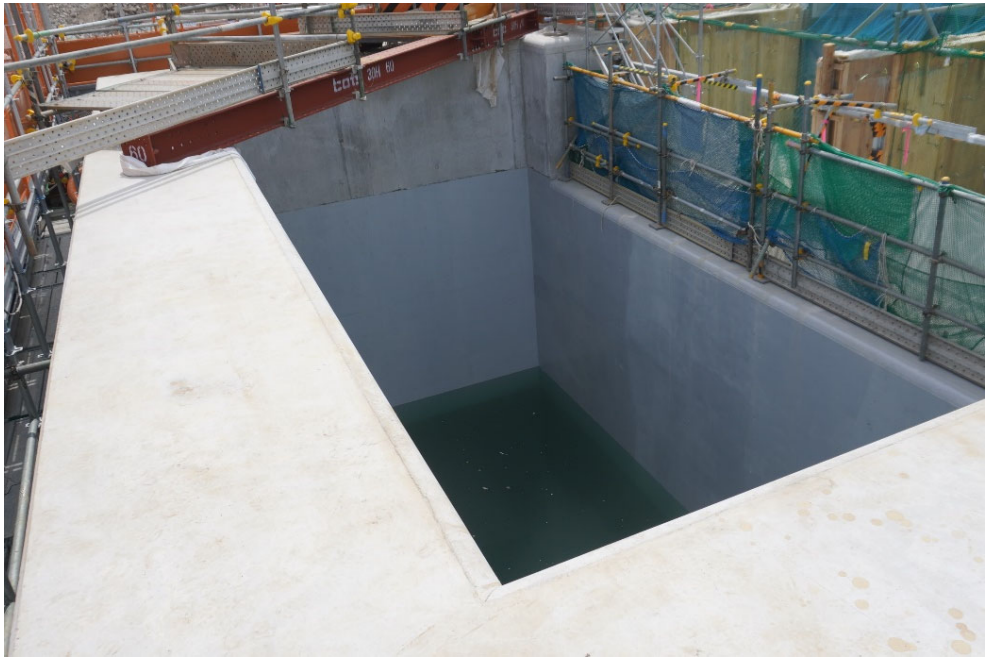


Discharge vertical shaft (down-stream storage)
after it has been filled with water [photo taken on June 6, 2023]

Inside of the discharge tunnel after excavation [photo taken on May 23, 2023]
(The lights and the air ventilation duct were removed prior to discharge)

② DISCHARGE FACILITIES DATA DISCLOSURE

New Release

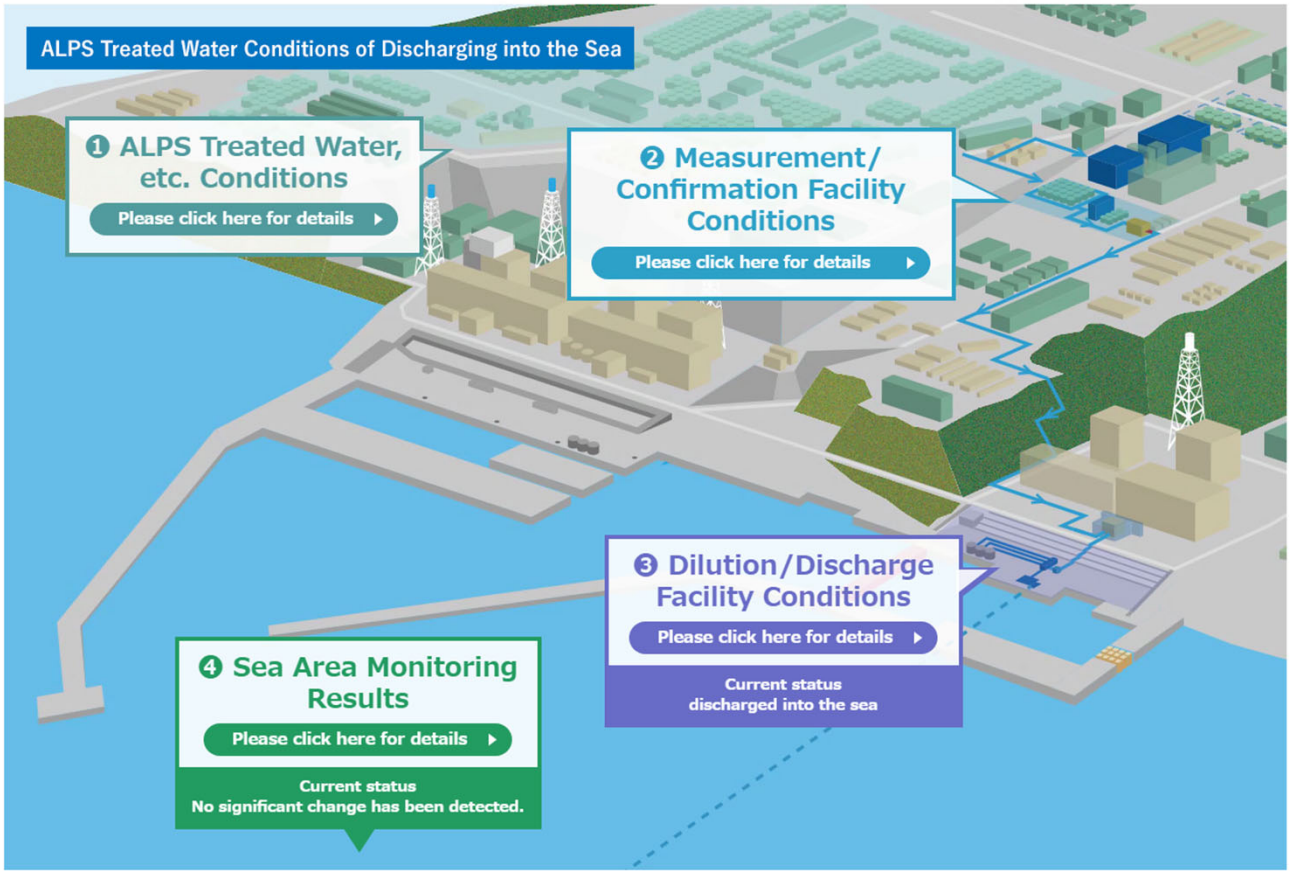
Treated Water Portal Site Page “ALPS Treated Water Conditions of Discharging into the Sea”

- On the Treated Water Portal Site, a page summarizing the status of each of the facilities related to the discharge of ALPS treated water into the sea will be published. (Publication is planned to coincide with the commencement of the Second Stage (refer to page 15)).

Screen image of “Treated Water Portal Site”

Enlarge

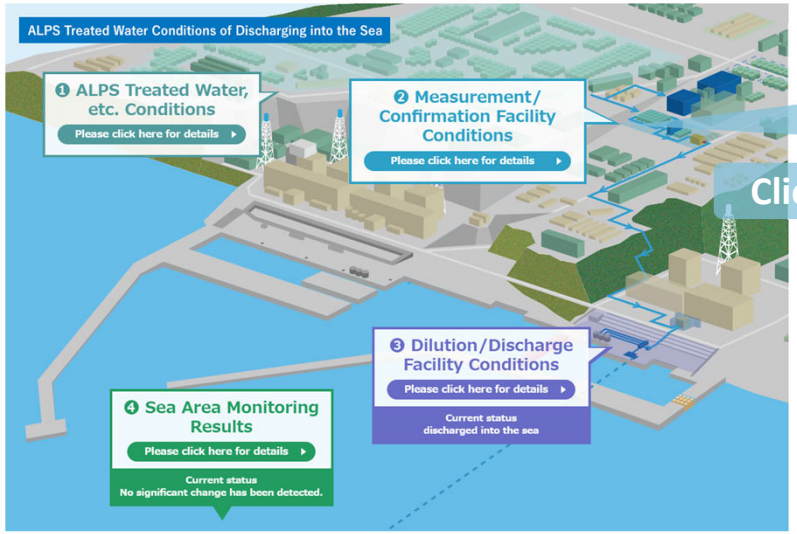
Screen image of “ALPS Treated Water Conditions of Discharging into the Sea”



Webpage for “Measurement/Confirmation Facility Conditions"

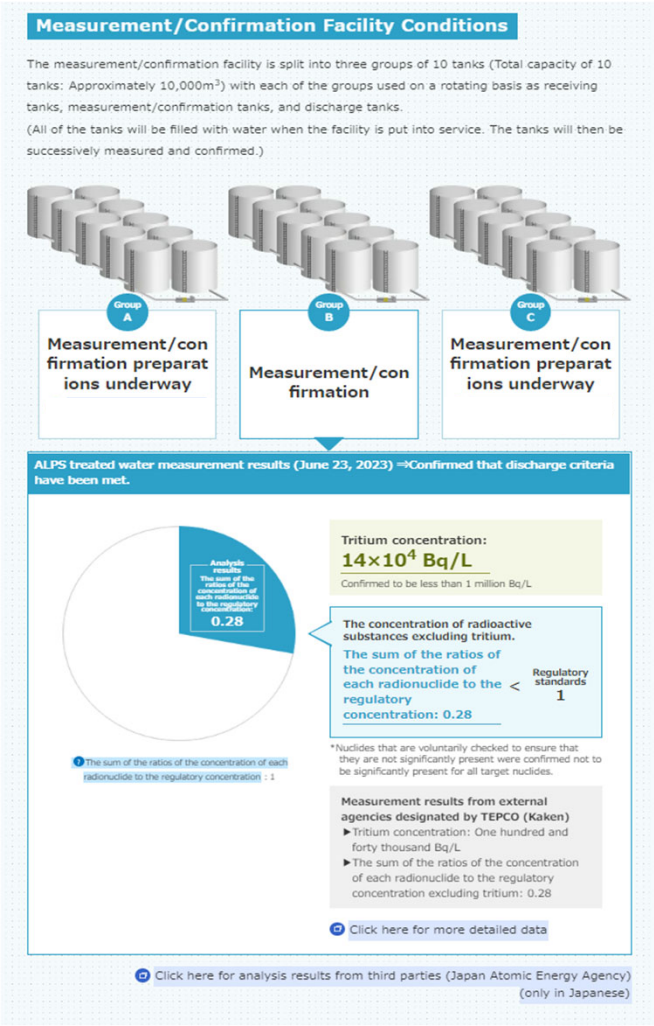
- Status of Measurement/confirmation facility and the analysis results for ALPS treated water in tank groups A,B, and C will be displayed (tritium concentration and the sum of the ratios of the concentration of each radionuclide to the regulatory concentration limit).

Screen image of
"ALPS treated water Conditions of Discharging into the Sea"



Click

**Screen image of
“Measurement/Confirmation Facility Conditions"**

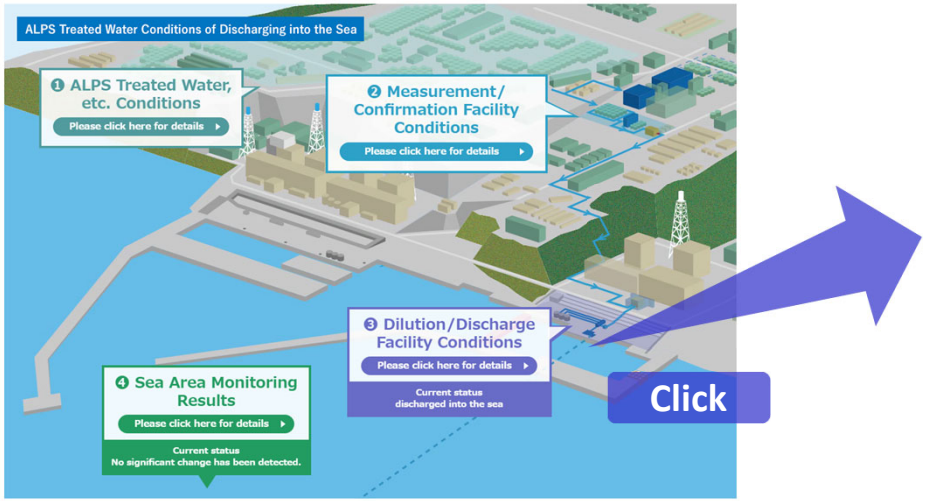


New Release

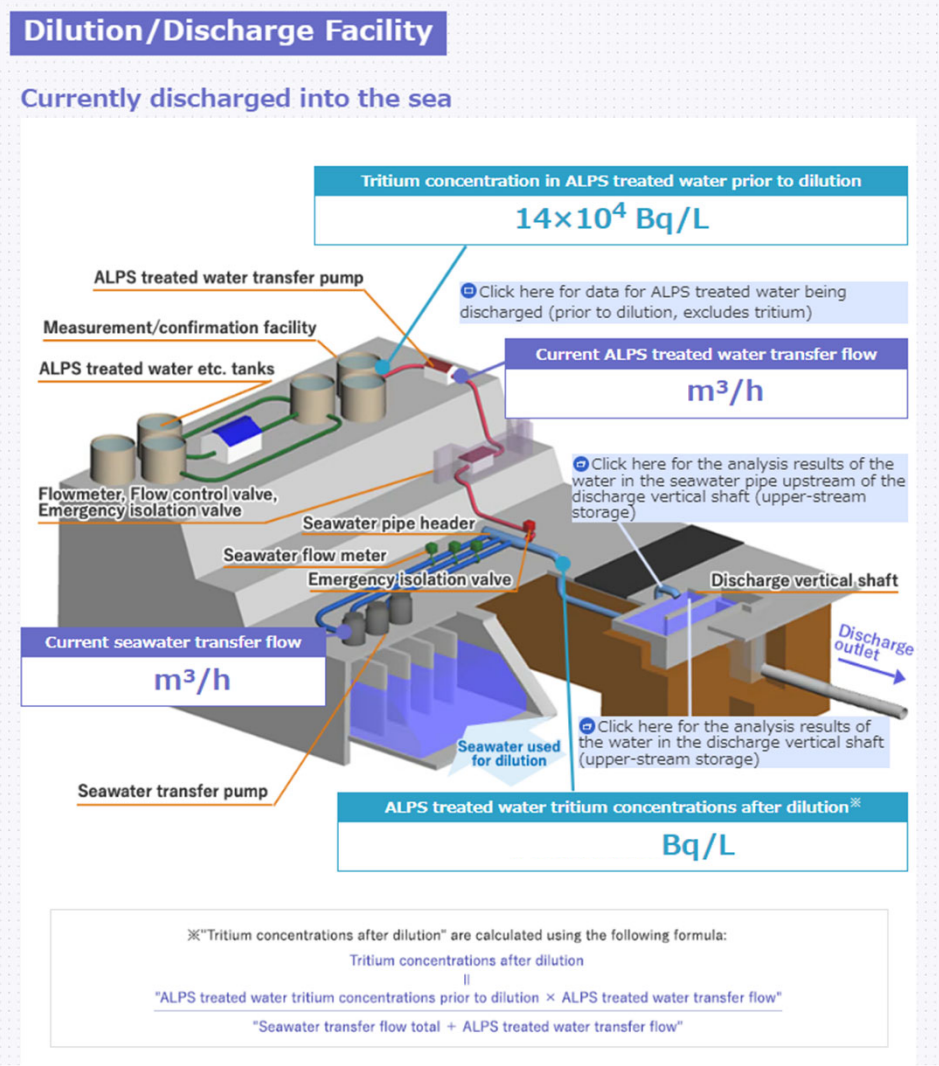
Webpage for "Dilution/Discharge Facility Conditions"

- This page enables users to view real-time data, such as seawater and ALPS treated water flow, at a glance.

Screen image of
"ALPS treated water Conditions of Discharging into the Sea"



Screen image of "Dilution/Discharge Facility Condition"



※Data will be updated once an hour.
[At the start of the discharge, data will be displayed approximately 20 minutes past the first hour]

New Release

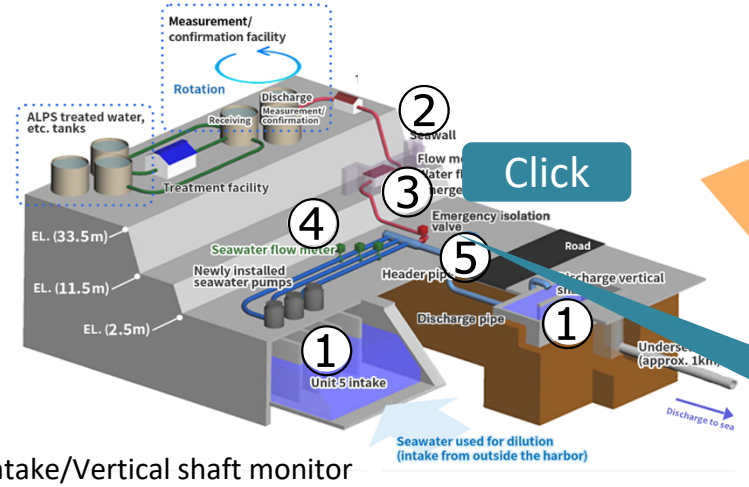
Further disclosure of real-time monitoring data

TEPCO

- Coinciding with the commencement of the discharge, TEPCO plans to disclose various data relating to the discharge of ALPS treated water into the sea on their website in more detail than the “Dilution/Discharge Facility Conditions” page.

Screen image of webpage for real-time data

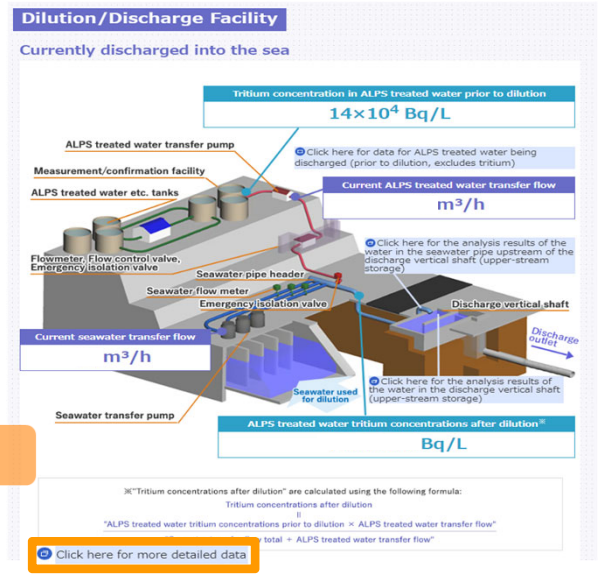
Discharging from ALPS treated water dilution/discharge facilities at the Fukushima Daiichi Nuclear Power Station



① Intake/Vertical shaft monitor (Unit 5 intake/upper-stream storage)
② Radiation monitor (ALPS treated water transfer pump outlet)
③ ALPS treated water transfer line flow rate
④ Seawater flow rate
⑤ Tritium concentration in ALPS treated water that has been diluted with seawater (calculated value)

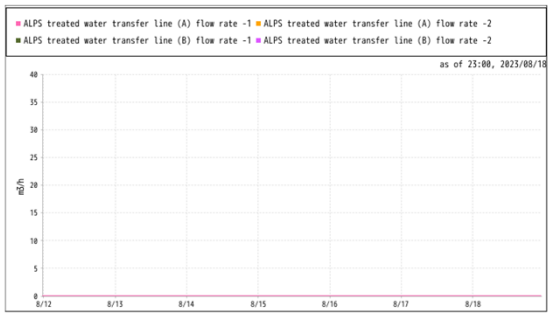
※Data for ① will be updated every 10 minutes.
[At the start of the discharge, data will be displayed after 10 minutes]
※Data for ②-⑤ will be updated once an hour.
[At the start of the discharge, data will be displayed approximately 20 minutes past the first hour]

Screen image of “Treated Water Portal Site"



(3) ALPS treated water transfer line flow rate

Graph

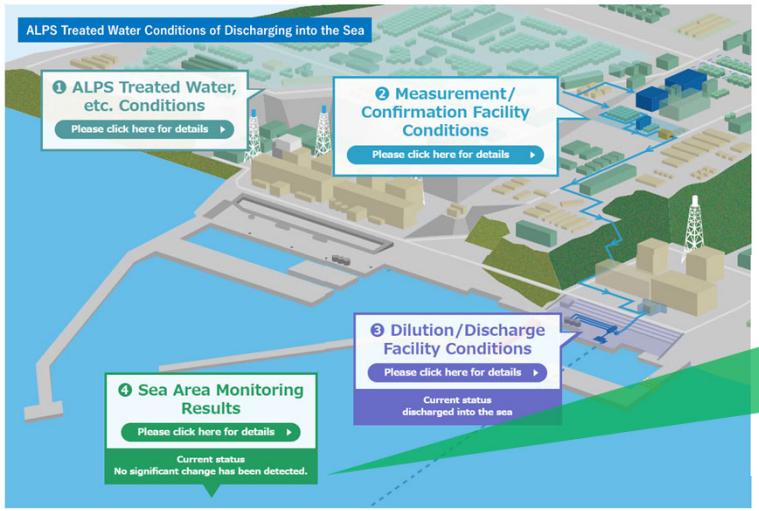


ALPS treated water transfer line (A) flow rate -1	ALPS treated water transfer line (A) flow rate -2	ALPS treated water transfer line (B) flow rate -1	ALPS treated water transfer line (B) flow rate -2	Total ALPS treated water transfer line volume (A)	Total ALPS treated water transfer line volume (B)	ALPS treated water transfer pump (A)	ALPS treated water transfer pump (B)
0	0	0	0	0	0	Stopped	Stopped

Webpage for “Sea Area Monitoring Results”

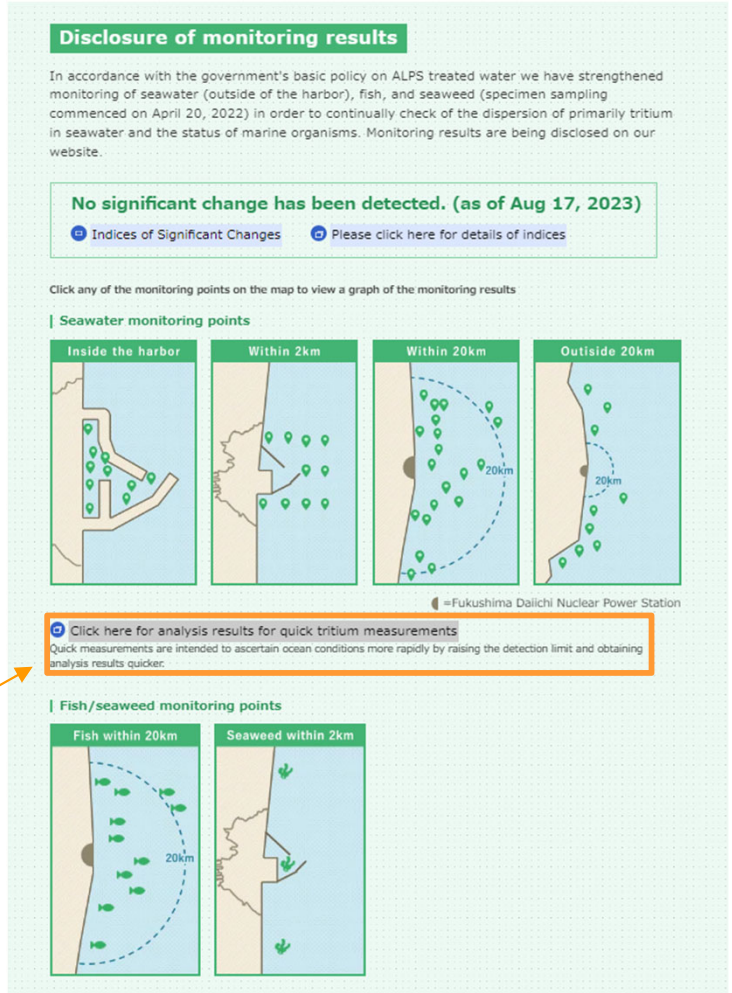
- TEPCO has strengthened monitoring of seawater (outside of the harbor), fish, and seaweed in order to continually check dispersion, primarily of tritium, and the status of marine organisms. Monitoring results are being disclosed on the website.
- In addition, tritium will be measured at 14 locations with the detection limit raised to 10Bq/liter so that it can be quickly ascertained that there are no situations in which the discharged water has not diffused sufficiently.

Screen image of
"ALPS treated water Conditions of Discharging into the Sea"



Click

Screen image of “Sea Area Monitoring Results”

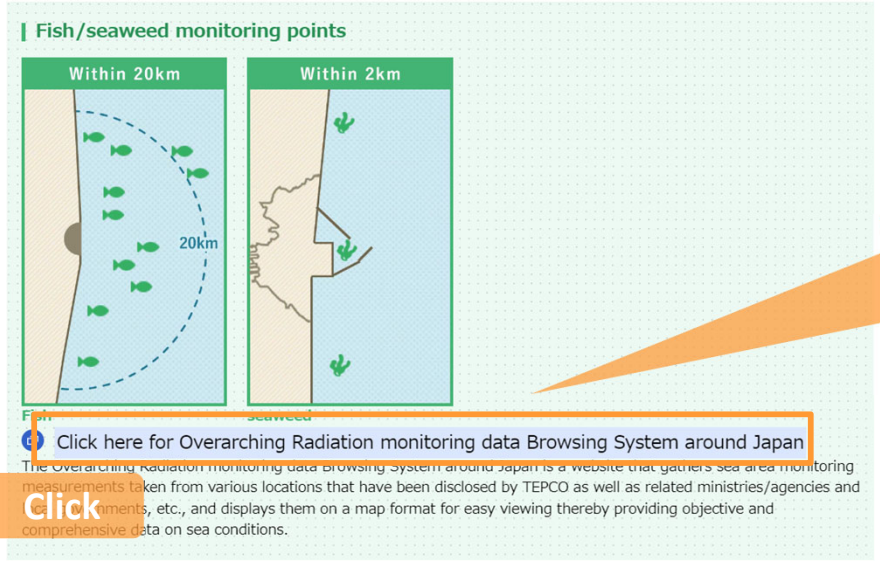


Click to check the results of quick tritium measurements

Overarching Radiation-monitoring data Browsing System (ORBS)

- The Overarching Radiation-monitoring data Browsing System in Japan is a website that gathers sea area monitoring measurements taken from various locations that have been disclosed by TEPCO as well as related ministries/agencies and local governments, etc., and displays them in a map format for easy viewing, thereby providing objective and comprehensive data on sea conditions.
- Monitoring data on the concentrations of cesium and tritium in seawater and fish sampled by Fukushima Prefecture, the Nuclear Regulation Authority, the Ministry of the Environment, and TEPCO are available for viewing. Thereafter more data will be added so that visitors to the website can access information on other nuclides in the sea, as well as the monitoring results from fish and seaweed.

Screen image of
"Sea Area Monitoring Results"



**Screen image of
Overarching Radiation-monitoring data Browsing System**

③ INITIAL DISCHARGE METHOD

The plan to discharge small amounts in the beginning

- In the “the Basic Policy of Handling of Multi-nuclide Removal Equipment (ALPS) Treated Water at TEPCO’s Fukushima Daiichi Nuclear Power Station” announced by The Inter-Ministerial Council for Contaminated Water, Treated Water and Decommissioning issues (April 13, 2021), it states that in regard to the discharge method that should be employed in order to minimize damage to public trust that, "discharge into the sea will **commence by carefully discharging small amounts** while monitoring the impact on the surrounding environment."
- For the time being, TEPCO plans to discharge in two stages in order to "carefully discharge small amounts."

First Stage

Direct verification of the concentration of tritium in diluted ALPS treated water

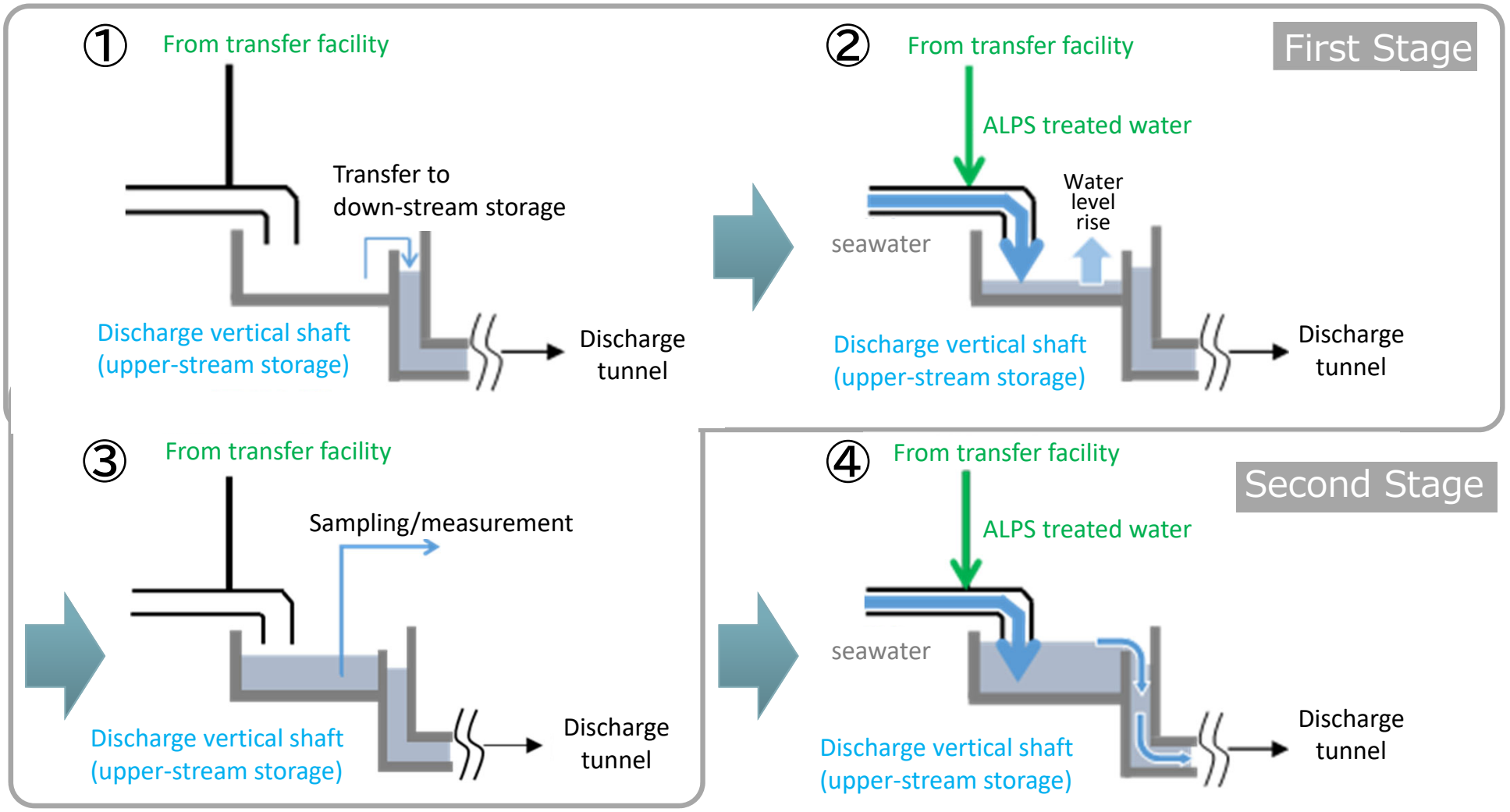
In order to confirm that ALPS treated water is being diluted as planned, a very small amount of ALPS treated water (approximately 1m^3) will be diluted and then held in the discharge vertical shaft (upper-stream storage) in order to directly verify tritium concentration

Second Stage

Discharge to verify facility integrity and operational procedures

In order to verify that seawater transfer pump, etc. facilities are operating soundly and operation procedures are being strictly followed, the ALPS treated water in one of the Measurement/confirmation facility tank groups (and the water that was held in the discharge vertical shaft (upper-stream storage) during the First Stage) will be continuously transferred/diluted and discharged into the sea.

Method of initially discharging small amounts



① The discharge vertical shaft (upper-stream storage) will be emptied. (Upper-stream storage has been emptied as of today)

② A very small amount of (approximately 1m³) ALPS treated water will be diluted with seawater (approximately 1,200m³) and then held in the discharge vertical shaft (upper-stream storage).

③ The water in the discharge vertical shaft (upper-stream storage) will be sampled and the tritium concentration will be measured in order to confirm that actual concentration is approximately the same as the calculated tritium concentration, and that the concentration of tritium is less than 1,500Bq/liter. [Processes ① through ③ comprise the First Stage]

④ Then, TEPCO will move on to the Second Stage which will be continuous discharge into the sea.

④ FY2023 DISCHARGE PLAN

Discharge plan

- As a general rule, TEPCO will start by **discharging water with a low concentration of tritium**

- Based on this general rule, **TEPCO will create a discharge plan for the following fiscal year at the end of each fiscal year and disclose it to the public** while considering tritium concentration, facilities required for decommissioning and the future management of relay tanks.

※Issues that will be considered when formulating the discharge plan

- Based on tritium concentration trends in the water calculated daily, we will decide whether to prioritize the amount of water being generated daily or in storage when discharging water during the next fiscal year in order to reduce the annual amount of tritium to be discharged while ensuring that the concentration of radioactive substances, with the exception of tritium, meet regulatory requirements (sum of the ratios of the concentration of each radionuclide to the regulatory concentration limit is less than 1).
- During the initial stage of discharge, they will discharge stored water that does not requires secondary treatment in order to keep the process smooth.
- Water in tanks close to the measurement/confirmation facility will be discharged first, considering that TEPCO will need to transfer ALPS treated water there during the discharge process.

FY2023 discharge plan

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

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

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

※1 Average value of the tank group that was assessed taking into account the radioactive decay until July 1, 2023
※2 To be transferred to K4 area tank group B that will be empty after the 1st discharge is completed

(Reference) Outline of first discharge for group K4-B

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

※ Comparison of concentrations before/after sea water dilution

	Before dilution		After dilution (740 times)	
29 types	0.28	⇒	0.00038	0.0036 (1/270 of government requirements)
Tritium	2.33	⇒	0.0032	

⑤ HANDLING TROUBLES, ETC.

Methods for shutting down the discharge of ALPS treated water into the sea in the event that an abnormality is detected

TEPCO

- Emergency isolation valves have been installed in the transfer facility in order to be prepared for an event, such as malfunctioning equipment, etc., that results in a "discharge of ALPS treated water into the sea in a manner that is not intentional." If it is determined that there has been a deviation from normal operation status, interlocks will cause emergency isolation valves to close automatically. Actions can also be taken by operators if necessary to shut down discharge.

(1) Interlock (emergency shutdown)

In the following instance, emergency isolation valves will be automatically closed and stop the discharge of ALPS treated water into the sea.

① The dilution and discharge of ALPS treated water will take place after stipulating seawater flow and ALPS treated water transfer flow, but in the event that the sea water pump stops, or if the ALPS treated water transfer flow exceeds the stipulated amount, interlocks have been installed to enable the emergency isolation valves to close automatically.

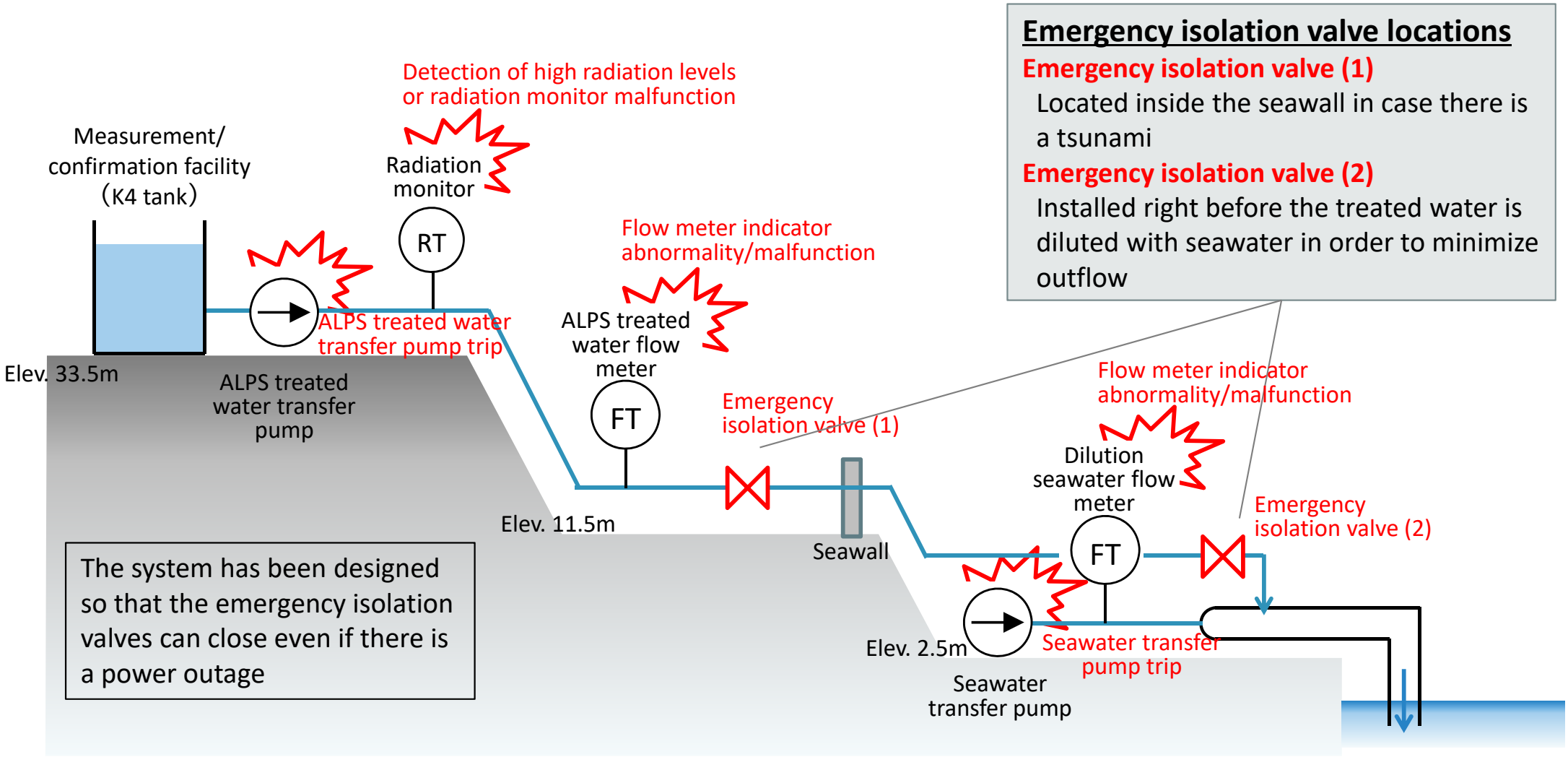
② In the event that an abnormality is detected by radiation monitors installed on the ALPS treated water transfer line, interlocks have been installed to enable the emergency isolation valves to close automatically.

(2) Shut down by operators (manual shutdown)

Operators will shutdown the discharge of ALPS treated water into the sea if a natural phenomenon occurs that may impact ALPS treated water dilution and discharge facilities and/or related facilities, if sea area monitoring detects concentrations of radioactive substances that exceed the "Discharge Suspension Level," or if the Shift Supervisor deems it necessary to shut down discharge for any other reason.

(Reference) What is an emergency isolation valve?

- One emergency isolation valve has been installed right next to the seawater transfer pipe in order to minimize the outflow of ALPS treated water in the event of an abnormality. Another is within the seawall in case of flooding by tsunami, etc.



Emergency shutdown by interlocks

- Emergency shut down by interlocks refers to the following mechanism, by which emergency isolation valves automatically close if the following signals are detected:

ALPS treated water dilution rate is abnormal or cannot be confirmed

	< Detected signal >
ALPS treated water transfer system	Pump malfunction
	Flow meter malfunction
	High flow

	< Detected signal >
Seawater transfer system	Pump malfunction
	Flow meter malfunction
	Low flow

ALPS treated water radiation level is abnormal or cannot be confirmed

	< Detected signal >
ALPS treated water transfer system radiation monitor	Malfunction
	Level high

Emergency isolation valve: Closed ※1

ALPS treated water transfer pump: Shutdown※2

※1： Designed to shut down the discharge of ALPS treated water into the sea in the event of an abnormality, such as a power outage, etc.
※2： Seawater transfer pumps that are working normally will continue operating to enable the dilution of ALPS treated water

Manual shutdown by operators (shutting down discharge due to natural phenomena, etc.)

TEPCO

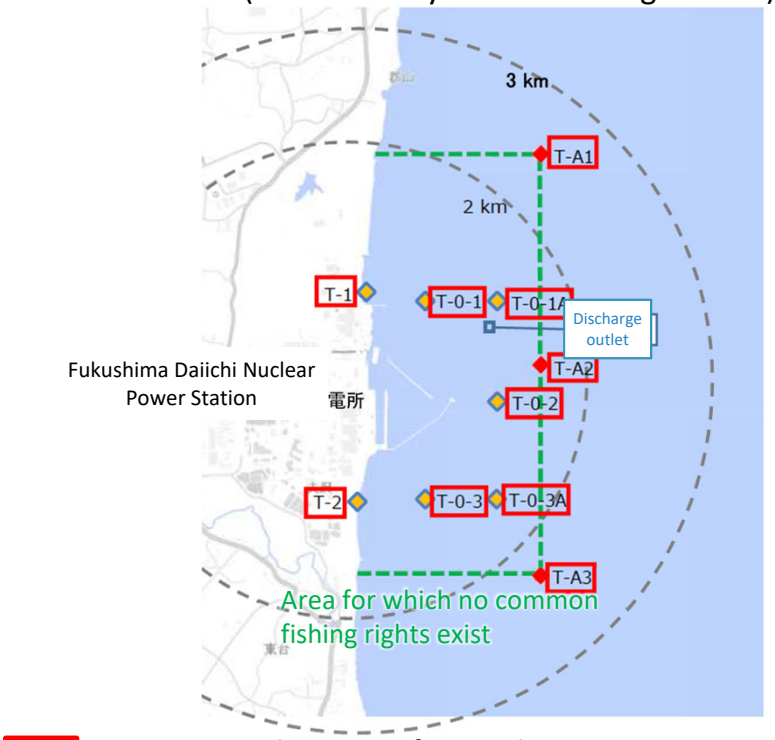
- In the event of the following natural phenomena, etc., operators will manually shut down the discharge.

Earthquake with a seismic intensity of a lower 5 or higher	• In order to minimize the impact of the loss of equipment function due to an earthquake
Tsunami advisory	• Because a tsunami may damage equipment located 2.5m above sea level
Tornado warning	• Because a tornado may damage equipment
Storm surge Warning	• Because the difference in water level between the discharge shaft and the sea surface may hinder normal discharge
Miscellaneous	• If the Shift Supervisor deems that shutdown is necessary due to any other symptoms of abnormalities not mentioned above

Manual shutdown by operators (in response to sea area monitoring)

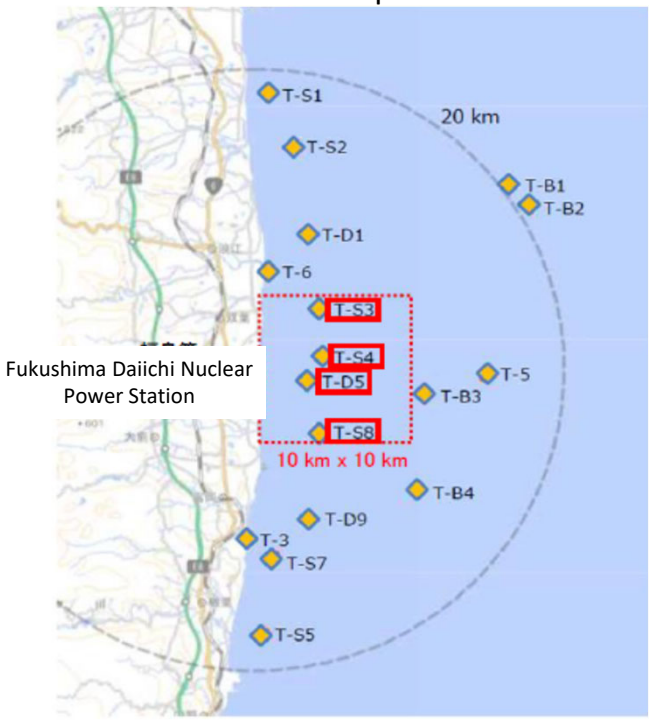
- Seawater tritium analysis is implemented once a week at all points on Figures 1 and 2 below, with the detection limit set to 0.1-0.4Bq/liter.
- In addition, quick tritium measurements with the detection limit set to 10Bq/liter will be implemented at the locations outlined in the red frames in Figures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

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



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

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



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

⑥ NOTIFICATION/ANNOUNCEMENT CRITERIA

Notification/announcement criteria
[ALPS treated water Dilution/Discharge facilities]

TEPCO

Classifications of troubles/accidents, etc.			Notification criteria (timing)	Announcement category ★
Discharges that do not satisfy discharge criteria	Trouble	• If ALPS treated water is discharged without being measured/sufficiently verified due to equipment abnormalities or troubles, etc.	• Notice given within 30min. of event confirmation • Details of emergency measures and implementation period • After implementation of emergency repairs (if implemented) • After repairs have been made	B
Facility shutdown	Trouble	• If facility operation (receiving, measurement/confirmation, discharge) is halted due to facility abnormality or trouble, etc.	• Notice given within 30min. of event confirmation • Details of emergency measures and implementation period • After implementation of emergency repairs (if implemented) • After repairs have been made	C
Discovery of water leaks/ puddles	Trouble	• If the concentrations of radioactive substances in the leaked water exceed discharge criteria and it is possible that the water leaked into the port ❖ Excluding cases where it can be positively determined that the leaked water was only seawater	• Notice given within 30min. of event confirmation (Initial announcement made after the event is discovered, and then a second announcement will be made after more information is received. Subsequent announcements will be made as necessary if changes have been made to leak prevention, emergency repairs, or the implementation period of emergency repairs)	B
	Trouble	• If it cannot be confirmed if the concentrations of radioactive substances in leaked water exceeds discharge criteria ❖ Excluding cases where it can be positively determined that the leaked water is only seawater, cases where the leak has been controlled through the application of tarps, etc., cases where the amount of leakage outside the weir is minuscule, limited in scope (the leaked water has not accumulated) and it has had no impact on surrounding equipment or the external environment. ("minuscule" refers to approximately 1 liter)	• Notice given within 30min. of event confirmation. (Initial announcement made after the event is discovered, and then a second announcement will be made after more information is received. Subsequent announcements will be made as necessary if changes have been made to leak prevention, emergency repairs, or the implementation period of emergency repairs)	C
Intake monitor/ vertical shaft monitor	Trouble	• If there is a “High” alarm from intake monitors/vertical shaft monitors ❖ Excluding cases where alarms are expected due to work being done in the vicinity of the monitors (confirmations, cleaning, etc.)	• Notice given within 30 minutes of confirming through manual analysis that the measurement results exceed the “High" alarm threshold	C
Sampling results	—	• K4 tank sampling results prior to discharge	• Prior to discharge commencement	Misc.
Discharge history	Operation	• Discharge commencement/completion	• Discharge operation commencement/completion record	E
		• Discharge volume record	• Announcement of daily discharge volume record	Misc.

★ Blanket emails will be sent to the mass media for announcement categories B and C. Details will be published in daily logs and explanations will be provided at press conferences as needed, for announcement categories E and "miscellaneous"

⑦ PROVIDING INFORMATION TO THE PEOPLE OF JAPAN AND THE INTERNATIONAL COMMUNITY

Providing information to the people of Japan and the international community

TEPCO

- TEPCO is addressing concerns of stakeholders, including local residents, by explaining its approach to these issues and how they are being handled, and by striving to be highly transparent with monitoring data, etc., and disclose this information in an easy-to-understand manner.

  TEPCO is also disseminating scientifically-based information such as reviews conducted by the International Atomic Energy Agency (IAEA) based on international safety standards, to parties within Japan and overseas.

- The following are some examples of the many ways in which TEPCO is communicating with parties in Japan and overseas.

Initiatives to address concerns by providing scientifically-based information	• P31 Leveraging various opportunities to engage [with stakeholders] • P31 Participation in regional events, etc. • P32 Giving tours and holding symposiums at the Fukushima Daiichi Nuclear Power Station • P32 Online tours (connecting tour participants and tour guides via the Internet) • P33 New initiatives to increase the number of tours • P33 Setting up booths at events in the Tokyo Metropolitan area • P34 Disseminating information via domestic/overseas media
Leveraging various forms of media to provide accurate and easy-to-understand information	• P35・36 Creating/developing tools for disseminating information, such as websites, etc. (including for overseas parties) - Multilingual websites - Explanatory videos/pamphlets • P37 Transportation advertisements throughout the entire country, including the Tokyo Metropolitan area (digital signage) • P38 Disseminating information via the media, etc. (newspaper advertisements/local FM radio stations, etc.) • P39 Marine organisms rearing test and information dissemination
Initiatives to ensure objectivity and transparency	• P40 Safety assessments by the International Atomic Energy Agency (IAEA) • P41 Strengthened sea area monitoring - In response to strengthening of the government's general monitoring plan (April 2022~) - Establishment of an Overarching Radiation-Monitoring Data Browsing System (ORBS)
Initiatives to reduce adverse impact of reputation	• P42 Proactive contribution to the “Sanriku Joban Mono Network”

Providing information to the people of Japan and the international community

Initiatives to address concerns by providing scientifically-based information

- TEPCO is **repeatedly and carefully explaining** its approach and handling of decommissioning and treated water countermeasures at the Fukushima Daiichi Nuclear Power Station in order **to address concerns of stakeholders**

- **Leveraging various opportunities to engage with stakeholders**

  - By leveraging various opportunities, such as home explanations and briefings, etc. **TEPCO is sincerely listening to the opinions of stakeholders and continue to engage with the community** to explain their initiatives, approach, and measures to combat harmful rumors.
    [April 2021 ~July 2023: Approx. 6,600 times]

  - Individual briefings have been given to distributors, retailers and restaurants in the Tokyo metropolitan area
    [April 2021 ~June 2023: 96 times]

Briefings to local residents

- **Participation in regional events, etc.**

  - TEPCO set up booths (in cooperation with the government) at regional events **using dioramas of Fukushima Daiichi and robots to explain decommissioning/treated water countermeasure initiatives** and the current state of decommissioning.
    [Participation since FY2022:11 times, Approx. 3,350 people]

    ※Example of events participated in: : Tomioka Cherry Blossom Festival (2022 and 2023), Shineha Festival 2022, JC Cup U-11 Soccer Tournament, Futaba World 2022 in Futaba, Iwaki FC home game, 2022 Namie Tokaichi Recovery Festival, Zero Carbon Festival 2022 in Okuma, Futaba Town Daruma Market 2023, 2023 Shinmachi Nigiwai Market, etc.

Tomioka Cherry Blossom Festival
(April 8 and 9, 2023)

Providing information to the people of Japan and the international community

Initiatives to address concerns by providing scientifically-based information (cont.)

- **Fukushima Daiichi Nuclear Power Station tours/symposiums**
  - TEPCO is providing tours to residents of Fukushima Prefecture so that they can see the decommissioning site and actual conditions with their own eyes. **They also address concerns and questions on the spot.**
  - **In 2023, TEPCO plans to continue monthly tours for 13 cities and towns and expand the tours to other cities and towns (during the 8 months outside of winter) .**

    [October 2019~July 2023 record]
    - Tours: 14,728 people (1,289 groups)
    - Tours/symposiums (within Fukushima Prefecture): Held 33 times with a total of 480 participants (23 times in 13 cities, towns, and villages, and 10 times throughout the rest of the Prefecture outside of these 13 cities, towns, and villages)

- **Online tours (connecting participants with tour guides via the Internet)**
  - The "Fukushima Daiichi Virtual Tour" available on TEPCO's website is being utilized to meet the needs of domestic and overseas parties.

    [August 2020~April 2023 record]
    Online tour participants: 66 groups, 2,809 people
    (including overseas organizations)

Tours/symposiums are advertised using leaflets that encourage participation

Screenshots from the virtual tour

Providing information to the people of Japan and the international community

Initiatives to address concerns by providing scientifically-based information (cont.)

- **New initiatives to increase the number of tours**
  - TEPCO has started to offer tours for organizations certified to use the Fukushima Prefecture “Hope Tourism” trademark
    （September 2023- beginning of application acceptance)
  - The Fukushima Daiichi Nuclear Power Station has coordinated with the Decommissioning Archives and the midterm storage facility to create a joint plan for providing tours to see the status of decommissioning work and initiatives at the midterm storage facility, and this plan has already been put into use
    (July 4, 2023- ongoing)
  - A new observation platform (Green Deck) that enables viewing of Units 5-6 and ALPS treated water dilution/discharge facilities has been newly built on site at the Fukushima Daiichi Nuclear Power Station. This observation platform was put into use on June 26, 2023.

- **Setting up booths at events in the Tokyo Metropolitan area**
  - TEPCO set up an event booth for children called the, “Bonten-Fuwafuwa Molecule Model Factory" at the Science and Technology Pavilion. Children learned how to make tritium and hydrogen molecules through making models, while their parents/guardians were given explanations of decommissioning initiatives and how ALPS treated water is being handled thereby enabling a two-way exchange of opinions
    (March 26, July 29/30, 2023)
    [March 26, 2023 participants: Approx. 400 (Elementary school kids + parents)]
    [July 29/30, 2023 participants: Approx. 400 (Elementary school kids + parents)]

The Fukushima Daiichi Nuclear Power Station as seen from the midterm storage facility

Viewing Units 5 and 6 from the Green Deck

Event at the Science and Technology Pavilion (March 2023)

Providing information to the people of Japan and the international community

Initiatives to address concerns by providing scientifically-based information (cont.)

- **Disseminating information through domestic/overseas media, etc.**

  - TEPCO gives out press releases, hold press conferences, open the power station to media coverage, and give briefings to **convey scientifically-based information**.

    Example)
    Regular press conferences (every Monday and Thursday),
    Mid/Long-Term Roadmap Press Conference (at the end of each month),
    On-site Tour of ALPS treated water dilution/discharge facility (June 2023)

Press conference (progress status update with the Mid/Long-Term Roadmap given in June 2023)

  - **Tours of the power station are being given to overseas media and foreign Embassy officials and information provided through briefings held by TEPCO and joint briefings with the government. TEPCO also responds to inquiries and interviews by media outlets**.

    Example)
    Fukushima Daiichi on-site press tour held in cooperation with the Foreign Press Center of Japan and TEPCO briefings (July 2023)

On-site press tour for overseas media (July 2023)

Providing information to the people of Japan and the international community

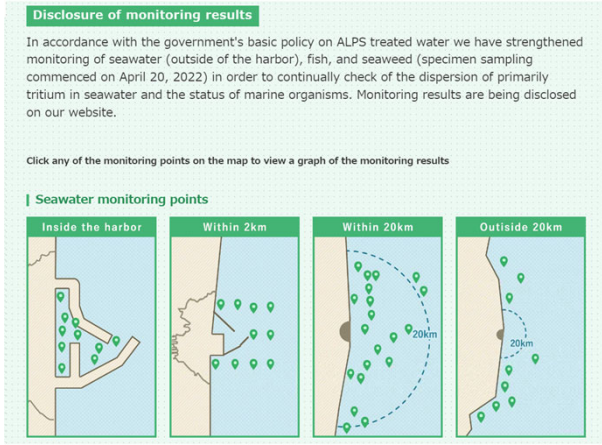
Leveraging various forms of media to provide accurate and easy-to-understand information

- **Creating/developing tools for disseminating information, such as websites, etc. (including for overseas parties)**

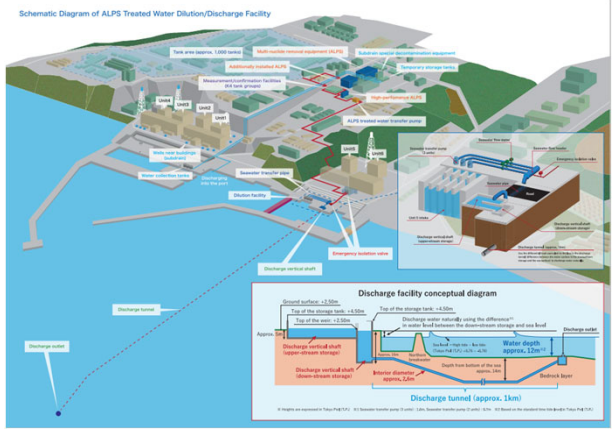
  - Special **Treated Water Portal Site** created within TEPCO's website
    - ✓ Gradually being localized into various languages
      Language is currently available: Japanese, English, Chinese (simplified/ Taiwan traditional/Hong Kong traditional), Korean
    - ✓ In September 2022, a new page for sea area monitoring was newly created and the design change so that sampling locations can be viewed at a glance (see the diagram to the right)

  - **Explanatory pamphlets** on, “What is Tritium," "Radiological Impact Assessment Results," “Overall View of ALPS Treated Water Dilution/Discharge facility," "Marine Organisms rearing Test using ALPS Treated Water," and "IAEA review"
    - ✓ Digital versions also released on TEPCO's website (in Japanese, English, Chinese and Korean)

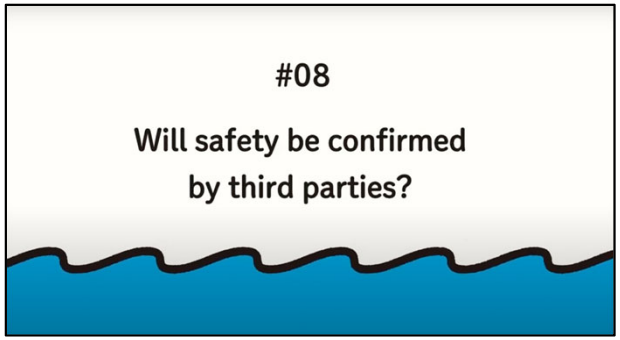
  - **TEPCO Shorts. ALPS treated water** (March 2022~)
    - ✓ TEPCO has been posting a series of short videos (approximately one minute) on YouTube that easily explain to the attributes and handling of ALPS treated water (in Japanese and English)
    - ✓ TEPCO avoids technical words and difficult language, and use simple expressions and illustrations to explain the concepts



Treated Water Portal Site/Sea Area Monitoring



Overall View of ALPS Treated Water Dilution/Discharge facility

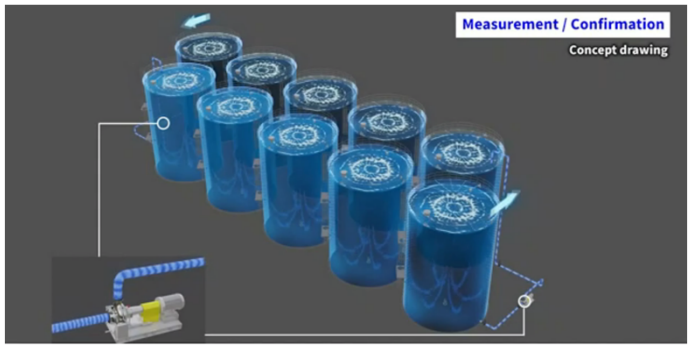


TEPCO Shorts. ALPS treated water

Providing information to the people of Japan and the international community

Leveraging various forms of media to provide accurate and easy-to-understand information (cont.)

- **Videos with computer graphics**
  - ✓ Mechanism of ALPS January 27, 2023-
  - ✓ Overview of Measurement/Confirmation Facility April 18, 2023-
  - ✓ Overview of Transfer/Dilution Facility August 17, 2023-

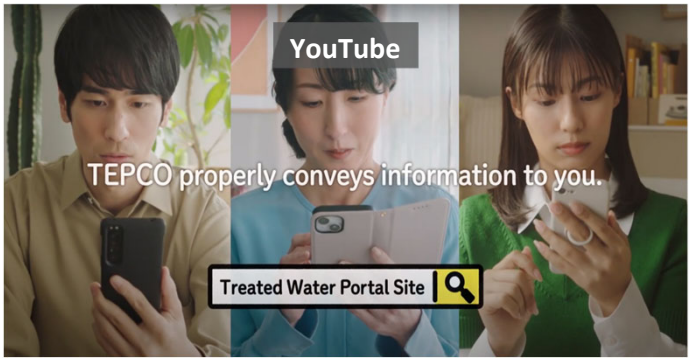


Overview of Measurement/Confirmation Facility

- **What TEPCO would like to convey regarding ALPS treated water**

(February 6, 2023-)

- ✓ TEPCO has compiled 18 messages that include figures/charts, and four videos to convey scientifically-based information about ALPS treated water, posting them on their website and YouTube (English, Chinese, and Korean versions available).
- ✓ The four videos on YouTube have been viewed a total of approximately 22 million times (As of the end of July 2023)
- ✓ **Digital signage at train stations and airports are also being used to convey this information.**



What TEPCO would like to convey regarding ALPS treated water

Providing information to the people of Japan and the international community

Leveraging various forms of media to provide accurate and easy-to-understand information (cont.)

- **Transportation advertisements throughout the entire country, including the Tokyo area**

JR Tokyo Station
February 6 - 19, 2023
May 15 - 21, 2023
May 29 - June 4, 2023

JR Shinagawa Station
March 13 - 26, 2023
August 14 - 20, 2023

Narita Airport (English version)
April 5 - 30, 2023

Haneda Airport (English version)
June 1 - 30, 2023

Kansai International Airport (English version)
May 1 - 31, 2023

Providing information to the people of Japan and the international community

Leveraging various forms of media to provide accurate and easy-to-understand information (cont.)

- **Disseminating information via media in Fukushima Prefecture, neighboring prefectures (Miyagi, Iwate, Ibaraki) and the Tokyo Metropolitan area, etc.**

- **Newspaper advertisements**

✓ TEPCO has published a series of newspaper advertisements in newspapers in Fukushima Prefecture and neighboring prefectures that introduce decommissioning/treated water countermeasure initiatives and answer questions from the local community.
[A total of 26 advertisements have been published between August 2022 - July 2023]

Examples of topics covered:
"What is the tritium contained in ALPS treated water? "
"Ensuring safety when discharging ALPS treated water into the sea "
"Safety review by the International Atomic Energy Agency (IAEA) "

Q&A

May 28, 2023 newspaper advertisement

- **Leveraging radio broadcasts (local FM stations and net apps)**

✓ FM Iwaki Broadcasts a program called, "Decommissioning Today and Tomorrow"
(Every Wednesday evening from 6:14PM - 6:29PM since May 31, 2023)
～ TEPCO employees appear on the program to explain decommissioning/contaminated water/treated water countermeasures

✓ In addition to broadcasts that target the people of Iwaki City, Anyone in the nation can listen via net apps ("Listen Radio" app)

Recording the program for FM Iwaki

Providing information to the people of Japan and the international community

Leveraging various forms of media to provide accurate and easy-to-understand information (cont.)

- **Marine organism rearing tests and information dissemination**

- In order to show that ALPS treated water is safe in a "visible manner" marine organisms (flounder/abalone, etc.) are being reared in two different environments (seawater to which ALPS treated water has been added, and normal seawater) in order to compare and observe growth, etc.
- These marine organisms rearing tests have demonstrated that, "the concentration of tritium in the bodies of living creatures does not exceed the concentration of the rearing environment (seawater in the tank)," and that "when the creatures are returned to normal seawater, tritium concentrations decrease as time passes."
- **Daily rearing logs can be seen on YouTube (live WebCam) and on Twitter (daily rearing log)**. Furthermore, data on the rearing conditions and water quality, etc., **can be found in the monthly report posted to the website.**

Marine organisms rearing test live web camera (example) (in Japanese only)

Marine organisms rearing log (example)

Providing information to the people of Japan and the international community

Initiatives to ensure objectivity and transparency

※1 The 1st and 2nd review were held in February and November 2022. The leaflet of overview of the review was released. Please click here for more details.

- **Safety assessments by the International Atomic Energy Agency (IAEA)**

Technical assessments (reviews) regarding the characteristics of ALPS treated water and water to be discharged, the safety of discharge process, and the radiological impact on the public and the environment, in light of the IAEA's international safety standards, have been held. ※1

"IAEA Comprehensive Report on the Safety Review of the ALPS-Treated Water at the Fukushima Daiichi nuclear Power Station" was published on July 4, 2023 by the IAEA.

The conclusions of the Comprehensive Report

- **The approach to the discharge ALPS treated water into the sea, and associated activities by TEPCO**, NRA and the Government of Japan, **are consistent with relevant international safety standards.**
- The discharge of the ALPS treated water, as currently planned by TEPCO, **will have a negligible radiological impact to people and the environment.**

The IAEA stated that it was committed to engage with Japan to ensure safety on the release of ALPS-treated water before, during, and after release.

TEPCO will continue to receive additional reviews by the IAEA in light of IAEA safety standards and make absolutely sure that safety is confirmed while disseminating information of the results of these reviews based on scientific evidence to parties both in Japan and overseas in a highly transparent manner.

IAEA representatives witnessing the sampling of ALPS treated water

The IAEA delegation being shown the ALPS treated water transfer facility

Providing information to the people of Japan and the international community

Initiatives to ensure objectivity and transparency (cont.)

● Strengthening Sea Area Monitoring

In accordance with the Government's basic policy on the handling of ALPS treated water, **in March 2022, TEPCO strengthened monitoring of the diffusion of radioactive substances (tritium in particular) into the sea, as well as the condition of marine life, and have been publicly releasing the measurement results since April of the same year.**

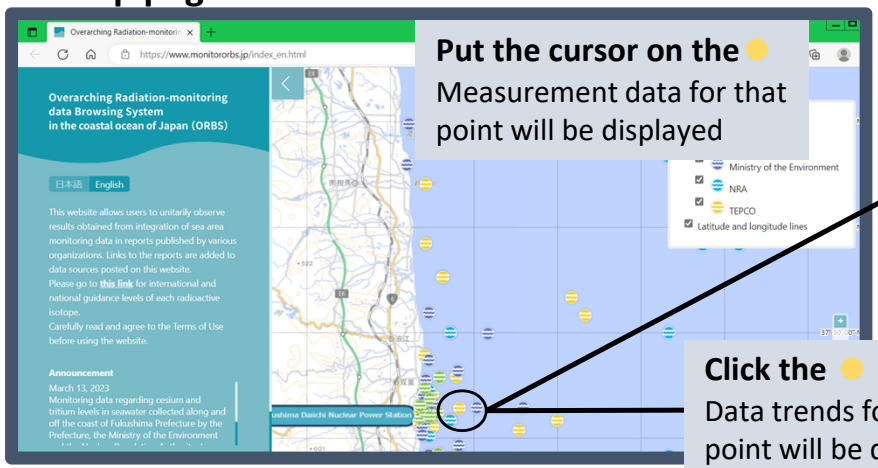
- Sea area monitoring results

✓ Currently, drainage from the Fukushima Daiichi Nuclear Power Station includes wastewater from subdrains, groundwater drains, the groundwater bypass, and site drainage channels, but the concentrations of cesium-137 and tritium are **within the scope of fluctuation of measurements taken from seawater throughout the entire country**.

- Establishment of the Overarching Radiation-monitoring data Browsing System (ORBS) (March 13, 2023~)

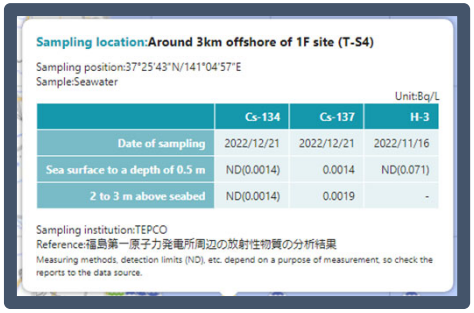
✓ The Overarching Radiation-monitoring data Browsing System around Japan is a website that gathers sea area monitoring measurements taken from various locations that have been disclosed by TEPCO as well as related ministries/agencies and local governments, etc., and displays them on a map format for easy viewing thereby providing objective and comprehensive data on sea conditions.

Top page



Put the cursor on the ●
Measurement data for that point will be displayed

Click the ●
Data trends for that point will be displayed



Providing information to the people of Japan and the international community

Initiatives to reduce adverse impact of reputation

With a strong will to avoid new reputational impact and to contain the further spread of reputational damage, TEPCO will continue to engage in the initiatives around support of manufacturing/processing/circulation/consumption, and further countermeasures in line with communications between related parties.

● Proactive contribution to the “Sanriku Joban Mono Network”

In addition to the activities promoting the circulation of goods manufactured in the region that we have been engaging in, TEPCO is also contributing to the government-led “Sanriku Joban Mono Network,” promoting the delights of and expanded consumption of Sanriku Joban-made products.

<Aided the “Sanriku Joban Weeks”>

<Fukushima Fish Festival>


<Retail shop sales promotion fair>

⑧ STATUS OF COMPENSATION

Status of Compensation

- If there is any reputational damage associated with the discharge of ALPS treated water, TEPCO group will compensate precisely based on the **standards of compensation** announced December 2022.
- If **damage to exports of domestic businesses due to the embargo on imports etc.** announced by foreign governments occur, TEPCO group will compensate accordingly.
- Requests for bills will be accepted from October 2. Receipt of applications will start on November 20 and bills will be sent out in order. In the case of reports on retroactive damages that have already occurred,, TEPCO will respond each situation on a case-by-case basis.
- A **Hotline for inquiries** below will continue to be available, and **the website** for those afflicted by the discharge of treated water has been opened at the TEPCO homepage.

Hotline for those afflicted by the discharge of treated water from the Fukushima Daiichi Nuclear Power Station

0120－429－250

9:00 am -7:00 pm(Monday to Friday (except Holidays)
9:00 am -5:00 pm(Saturday, Sunday and Holidays)

Website for those afflicted by the discharge of treated water from the Fukushima Daiichi Nuclear Power Station

https://www.tepco.co.jp/fukushima_hq/compensation/alps/index-j.html

※FAQ related to claims etc. are published on the website.
※When you call the hotline, **the website will be announced by an automatic voice**.