

Information (12:00), October 1, 2024

To All Missions (Embassies, Consular posts and International Organizations in Japan)

Report on the discharge record and the seawater monitoring results at Fukushima Daiichi Nuclear Power Station during June

The Ministry of Foreign Affairs wishes to provide all international Missions in Japan with a report on the discharge record and seawater monitoring results with regard to groundwater pumped from the sub-drain and groundwater drain systems, as well as bypassing groundwater pumped during the month of June at Fukushima Daiichi Nuclear Power Station (NPS).

1. Summary of decommissioning and contaminated water management

In June the summary of monthly progress on decommissioning and contaminated water management of Fukushima Daiichi NPS was issued shown in Appendix 1. For more information, please see the following URL: <https://www.meti.go.jp/english/earthquake/nuclear/decommissioning/pdf/mp202406.pdf>

2. Sub-drain and Groundwater Drain Systems

In June purified groundwater pumped from the sub-drain and groundwater drain systems was discharged on the dates shown in Appendix 2. Prior to every discharge, an analysis on the quality of the purified groundwater to be discharged was conducted by Tokyo Electric Power Company (TEPCO) and the results were announced.

All the test results during the month of June have confirmed that the radiation levels of sampled water were substantially below the operational targets set by TEPCO (these operational targets are well below the density limit specified by the Reactor Regulation). The results of these analyses were also confirmed by third-party organization (Tohoku Ryokka Kankyohozen Co.).

In addition, TEPCO and Japan Atomic Energy Agency (JAEA), at the request of the Government of Japan, regularly conduct more detailed analyses on the purified groundwater. The results of JAEA's latest analyses confirmed that TEPCO's analyses were accurate and verified that the radiation levels of sampled groundwater was substantially below the operational target (see Appendix 3).

Moreover, TEPCO publishes the results of analyses conducted on seawater sampled during the discharge operation at the nearest seawater sampling post from the discharge point (see Appendix 4). The results show that the radiation levels of

seawater remain lower than the density limit specified by the Reactor Regulation and significant change in the radioactivity has not been observed.

3. Groundwater Bypassing

In June, the pumped bypassing groundwater was discharged on the dates shown in Appendix 5. Prior to every discharge, an analysis on the quality of the groundwater to be discharged was conducted by TEPCO and the results were announced.

All the test results during the month of June have confirmed that the radiation levels of sampled water were substantially below the operational targets set by TEPCO (these operational targets are well below the density limit specified by the Reactor Regulation). The results of these analyses were also confirmed by Japan Chemical Analysis Center.

In addition, TEPCO and JAEA, at the request of the Government of Japan, regularly conduct more detailed analyses on the groundwater. The results of JAEA's latest analyses confirmed that TEPCO's analyses were accurate and verified that the radiation levels of the sampled groundwater were substantially below the operational target (see Appendix 6).

Moreover, TEPCO publishes analysis results on seawater sampled during the discharge operation at the nearest seawater sampling post from the discharge point (see Appendix 7). The result shows that the radiation levels in seawater remain lower than the density limit specified by the Reactor Regulation and significant change in the radioactivity has not been observed. The analysis had been conducted once a month until March 2017. Since April 2017, it is conducted four times a year because there has been no significant fluctuation in the concentration of radioactive materials in the sea water, and no influence on the surrounding environment has been confirmed.

The sampling process for analyses conducted this month is the same as the one conducted in the information disseminated last month. Results of the analyses are shown in the attached appendices:

(For further information, please contact TEPCO at (Tel: 03-6373-1111) or refer to the TEPCO's website:<http://www.tepco.co.jp/en/nu/fukushima-np/handouts/index-e.html>)

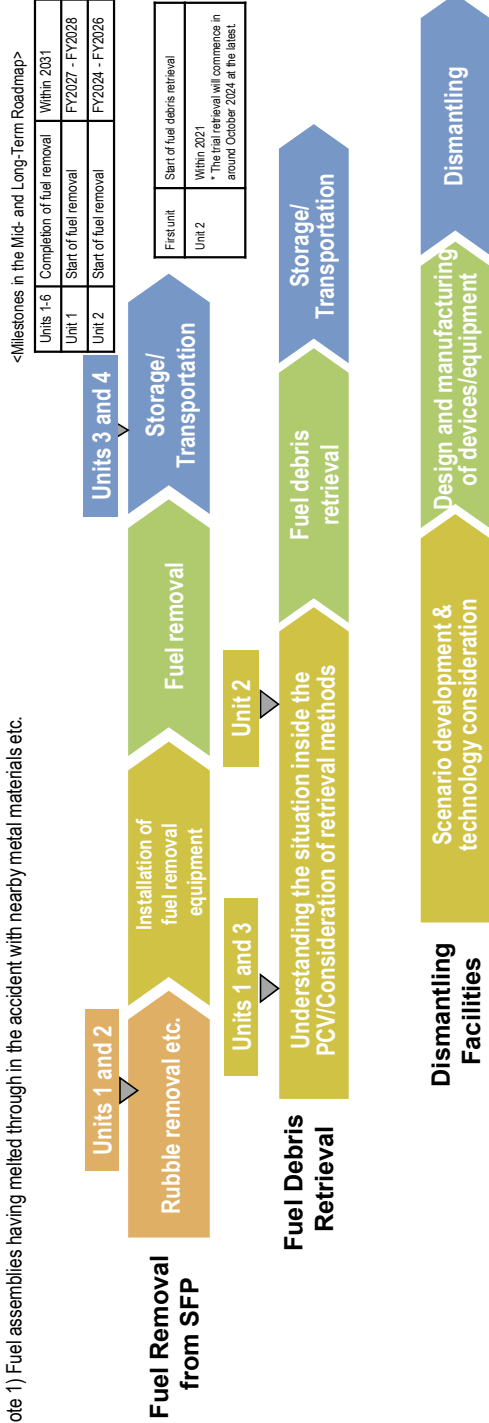
Contact: International Nuclear Energy Cooperation Division,

Ministry of Foreign Affairs, Tel 03-5501-8227

Main decommissioning work and steps

Fuel removal from the spent fuel pool was completed in December 2014 at Unit 4 and on February 28 2021 at Unit 3.
Work continues sequentially toward the start of fuel removal from Units 1 and 2 and debris (Note 1) retrieval from Units 1-3.

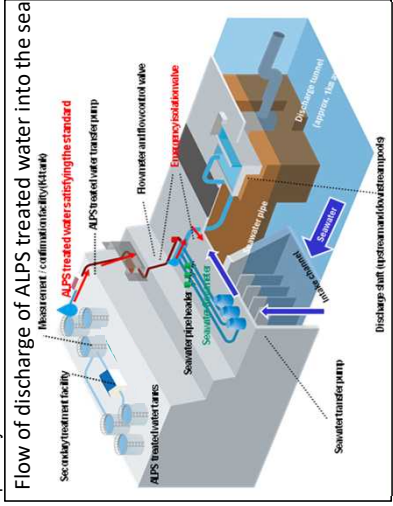
(Note 1) Fuel assemblies having melted through in the accident with nearby metal materials etc.



Measures for treated water

Handling of ALPS treated water

Regarding the discharge of ALPS treated water into the sea, TEPCO must comply with regulatory and other safety standards to safeguard the public, the surrounding environment and agricultural, forestry and fishery products. To minimize adverse impacts on reputation, forestry and fishery enhanced monitoring, ensuring objectivity and transparency by engaging with third-party experts and having safety checked by the IAEA, will continue. Moreover, accurate information will be disseminated with full transparency.



(1) Efforts to promote contaminated water management based on the three basic policies

① "Remove" the source of water contamination ② "Redirect" fresh water from contaminated areas

③ "Retain" contaminated water from leakage

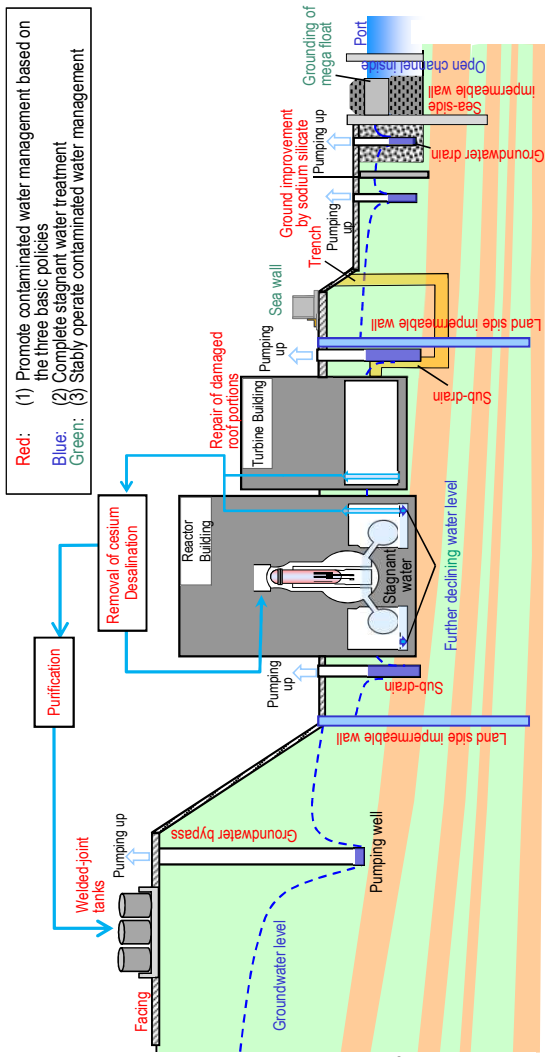
- Strontium-reduced water from other equipment is being re-treated in the Advanced Liquid Processing System (ALPS: multi-nuclide removal equipment) and stored in welded-joint tanks.
- Multi-layered contaminated water management measures, including land-side impermeable walls and sub-drains, have stabilized the groundwater at a low level and the increased contaminated water generated during rainfall is being suppressed by repairing damaged portions of building roofs facing onsite. Through these measures, the generation of contaminated water has been suppressed and reduced, from approx. 540 m³/day (in May 2014) before implementing measures to approx. 80 m³/day (in FY2023), achieving the milestone of "suppressing the amount of contaminated water generated to 100 m³/day or less during average rainfall within FY2025."
- Measures will proceed to further reduce the amount of contaminated water generated and suppress it to approx. 50-70 m³/day by FY2028.

(2) Efforts to complete stagnant water treatment

- To reduce the stagnant water levels in buildings as planned, work to install additional stagnant water transfer equipment is underway.
- In 2020, treatment of stagnant water in buildings was completed, except for the Unit 1-3 Reactor Buildings, Process Main Building and High-Temperature Incinerator Building.
- While assessing the dust impact, measures to reduce the stagnant water level were implemented. In March 2023, the target water level in each building was achieved. For the Units 1-3 Reactor Buildings, "reducing stagnant water in the Reactor Buildings to about half the amount at the end of 2020 during the period FY2022-2024" was achieved.
- For zeolite sandbags on the basement floors of the Process Main Building and High-Temperature Incinerator Building, measures to reduce the radiation dose are being examined with stabilization in mind.

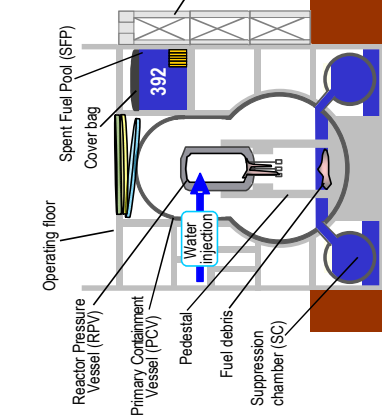
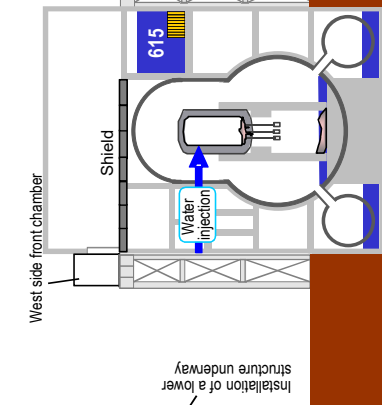
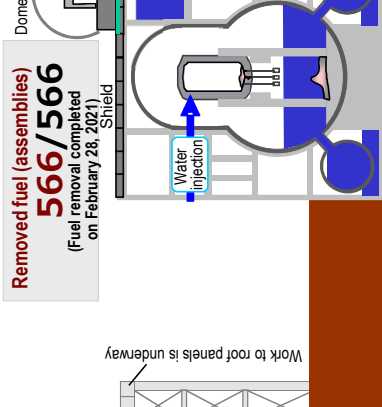
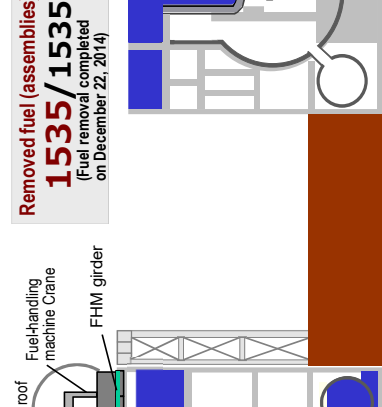
(3) Efforts to stably operate contaminated water management

- As part of the tsunami countermeasures, openings in buildings were closed and work to install sea walls was completed. As countermeasures for heavy rain, sandbags are being installed to suppress direct inflow into buildings while work to enhance drainage channels and other measures is being implemented as planned.



Progress status

◆ The temperatures of the Reactor and the Primary Containment Vessel of Units 1-3 have been maintained stable. There was no significant change in the concentration of radioactive materials newly released from Reactor Buildings into the air. It was concluded that the comprehensive cold shutdown condition had been maintained.

Discharge of ALPS treated water into the sea	Dismantling of tanks	Unit 2 Status of preparation for fuel debris trial retrieval
The 2nd discharge of ALPS treated water in FY2024 was completed on June 4 as planned. In preparation for the 3rd discharge of ALPS treated water in FY2024, Tank Group B of the measurement/confirmation facility was analyzed and TEPCO and an external institute confirmed that the analytical results satisfied the discharge requirement. Following the confirmation, discharge of ALPS treated water of Tank Group B of the measurement/confirmation facility into the sea will commence from June 28. Regarding tritium in seawater, TEPCO will continue to confirm that the discharge is conducted safely as planned while satisfying the discharge requirement based on daily quick analyses conducted by TEPCO and others.	Regarding the welded-joint tanks in the J8 and J9 areas, where facilities related to Unit 3 fuel debris retrieval will be installed, an implementation plan will be submitted after preparation is completed. Dismantling of tanks will be conducted from late FY2024 to the end of FY2025 and preparation, including treating residual water in tanks and removing peripheral interferences, will be conducted from July. Work will continue carefully, while prioritizing safety above all.	The telescopic-type equipment, which will be used in the fuel debris trial retrieval, underwent a pre-service (pressure proof) test by the Nuclear Regulation Authority (NRA) at the factory on June 18 and was determined as "good." At present, preparation for transporting to the Fukushima Daiichi Nuclear Power Station is underway and the equipment will also undergo a test after installation. On site, connection of the connection structure and pipes to the penetration (X-6) was completed on June 26. Preparation for installing the telescopic-type equipment to the Reactor Building will continue. At present, the trial retrieval is expected to commence from around August to October 2024. Work will continue steadily, prioritizing safety above all.
 Unit 1	 Unit 2	 Unit 3
 Unit 4	 Unit 5	

Measures pertaining to the fish inside the port

In addition to multilayered measures pertaining to the fish inside the port, which have been implemented, the mesh of the net was made finer to prevent the fish from leaving and the net to prevent fish from leaving at the east sea wall was replaced. Construction to re-cover the seafloor of the Units 1-4 intake open channel was completed on June 13. This formed a covering layer, thereby improving the environment and has further enhanced measures for the fish inside the port.

TEPCO will continue to inspect the seabed soil inside the port and boost the water quality in drainage channel K, among other efforts, so as to implement measures, which include improving the overall environment in the port.



< Seafloor re-covering construction (layer of cover) >

Implementation status of the operational safety inspection

In response to bodily contamination, water leakage from buildings, station power outage and others, which occurred last year, an operational safety inspection was conducted for all works in the station and was completed on June 7. Items to be improved, matters perceived and other issues identified are being improved.

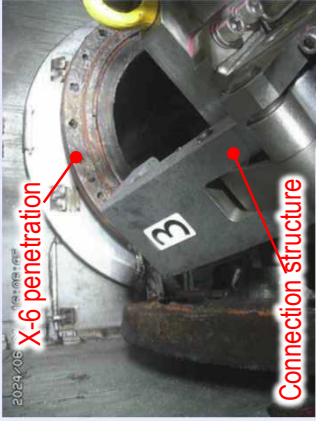
Along with these efforts, risk assessment processes will be enhanced and TEPCO HD employees and cooperating company workers will be educated to handle these activities. Efforts will continue to proceed with decommissioning safely and steadily.

Power outage of the Unit 6 high voltage power panel 6c and fire alarm activation

On June 18, the Unit 6 high voltage power panel 6c suffered a power outage. At the same time, the Fuel Pool Cooling and Filtering System (FPC) pump B automatically cut out and the fire alarm on the 1st basement floor of the Unit 6 Turbine Building basement was activated.

It was confirmed that since the spent fuel in the pool had sufficiently cooled, the water temperature would not rise to the limit of the implementation plan. After confirming on-site safety, operation of the FPC pump resumed the same day. Furthermore, no significant variation was confirmed in the water level or in the temperature of the spent fuel pool and monitoring posts.

In addition, an on-site inspection by the public fire department revealed that a fire had occurred. Since damage was detected in the bus conductor in a duct near the cell, a short circuit was considered to have occurred. Investigation of the cause will continue.



< Connecting the connection structure to X-6 penetration >

Results of analyses on the quality of the purified groundwater pumped from the sub-drain and groundwater drain systems at Fukushima Daiichi NPS (made available by TEPCO prior to discharge)

(Unit: Bq/L)

Date of sampling *Date of discharge	Detected nuclides	Analytical body	
		TEPCO	Third-party organization
June 26 th , 2024 *Discharged on July 1 st	Cs-134	ND (0.71)	ND (0.67)
	Cs-137	ND (0.60)	ND (0.69)
	Gross β	ND (1.8)	ND (0.33)
	H-3	790	800
June 25 th , 2024 *Discharged on June 30 th	Cs-134	ND (0.65)	ND (0.62)
	Cs-137	ND (0.72)	ND (0.61)
	Gross β	ND (1.9)	ND (0.36)
	H-3	860	870
June 24 th , 2024 *Discharged on June 29 th	Cs-134	ND (0.75)	ND (0.62)
	Cs-137	ND (0.86)	ND (0.61)
	Gross β	ND (1.8)	ND (0.33)
	H-3	800	830
June 23 rd , 2024 *Discharged on June 28 th	Cs-134	ND (0.64)	ND (0.69)
	Cs-137	ND (0.88)	ND (0.69)
	Gross β	ND (2.0)	0.45
	H-3	820	840
June 22 nd , 2024 *Discharged on June 27 th	Cs-134	ND (0.71)	ND (0.54)
	Cs-137	ND (0.78)	ND (0.70)
	Gross β	ND (2.0)	0.41
	H-3	810	820
June 21 st , 2024 *Discharged on June 26 th	Cs-134	ND (0.55)	ND (0.54)
	Cs-137	ND (0.81)	ND (0.63)
	Gross β	ND (1.7)	ND (0.36)
	H-3	820	860
June 20 th , 2024 *Discharged on June 25 th	Cs-134	ND (0.71)	ND (0.73)
	Cs-137	ND (0.65)	ND (0.63)
	Gross β	ND (1.8)	ND (0.39)
	H-3	810	830
June 19 th , 2024 *Discharged on June 24 th	Cs-134	ND (0.77)	ND (0.60)
	Cs-137	ND (0.81)	ND (0.78)
	Gross β	ND (0.65)	ND (0.32)

	H-3	740	790
June 18 th , 2024 *Discharged on June 23 rd	Cs-134	ND (0.88)	ND (0.60)
	Cs-137	ND (0.81)	ND (0.66)
	Gross β	ND (1.6)	ND (0.38)
	H-3	780	800
June 17 th , 2024 *Discharged on June 22 nd	Cs-134	ND (0.75)	ND (0.58)
	Cs-137	ND (0.93)	ND (0.58)
	Gross β	ND (2.1)	ND (0.34)
	H-3	880	900
June 16 th , 2024 *Discharged on June 21 st	Cs-134	ND (0.75)	ND (0.54)
	Cs-137	ND (0.74)	ND (0.58)
	Gross β	ND (1.9)	ND (0.37)
	H-3	760	810
June 15 th , 2024 *Discharged on June 20 th	Cs-134	ND (0.88)	ND (0.62)
	Cs-137	ND (0.65)	ND (0.67)
	Gross β	ND (1.8)	ND (0.34)
	H-3	760	790
June 14 th , 2024 *Discharged on June 19 th	Cs-134	ND (0.82)	ND (0.65)
	Cs-137	ND (0.69)	ND (0.70)
	Gross β	ND (1.8)	ND (0.34)
	H-3	690	710
June 13 th , 2024 *Discharged on June 18 th	Cs-134	ND (0.83)	ND (0.66)
	Cs-137	ND (0.94)	ND (0.90)
	Gross β	ND (1.7)	ND (0.31)
	H-3	710	730
June 12 th , 2024 *Discharged on June 17 th	Cs-134	ND (0.83)	ND (0.58)
	Cs-137	ND (0.65)	ND (0.51)
	Gross β	ND (1.9)	ND (0.35)
	H-3	700	730
June 11 th , 2024 *Discharged on June 16 th	Cs-134	ND (0.88)	ND (0.62)
	Cs-137	ND (0.78)	ND (0.47)
	Gross β	ND (1.7)	ND (0.31)
	H-3	620	650
June 10 th , 2024 *Discharged on June 15 th	Cs-134	ND (0.71)	ND (0.77)
	Cs-137	ND (0.65)	ND (0.63)
	Gross β	ND (0.58)	ND (0.32)
	H-3	590	620
June 9 th , 2024 *Discharged on June 14 th	Cs-134	ND (0.68)	ND (0.67)
	Cs-137	ND (0.82)	ND (0.70)
	Gross β	ND (1.6)	ND (0.31)
	H-3	630	640
June 8 th , 2024	Cs-134	ND (0.79)	ND (0.61)

*Discharged on June 13 th	Cs-137	ND (0.75)	ND (0.75)
	Gross β	ND (1.9)	ND (0.36)
	H-3	680	680
June 7 th , 2024 *Discharged on June 12 th	Cs-134	ND (0.93)	ND (0.73)
	Cs-137	ND (0.78)	ND (0.70)
	Gross β	ND (1.8)	ND (0.36)
	H-3	590	600
June 6 th , 2024 *Discharged on June 11 th	Cs-134	ND (0.85)	ND (0.63)
	Cs-137	ND (0.65)	ND (0.63)
	Gross β	ND (1.8)	0.39
	H-3	590	590
June 5 th , 2024 *Discharged on June 10 th	Cs-134	ND (0.68)	ND (0.79)
	Cs-137	ND (0.82)	ND (0.56)
	Gross β	ND (1.7)	ND (0.38)
	H-3	570	600
June 4 th , 2024 *Discharged on June 9 th	Cs-134	ND (0.68)	ND (0.53)
	Cs-137	ND (0.82)	ND (0.71)
	Gross β	ND (1.9)	ND (0.37)
	H-3	600	640
June 3 rd , 2024 *Discharged on June 8 th	Cs-134	ND (0.82)	ND (0.61)
	Cs-137	ND (0.86)	ND (0.60)
	Gross β	ND (1.9)	ND (0.34)
	H-3	660	680
June 2 nd , 2024 *Discharged on June 7 th	Cs-134	ND (0.75)	ND (0.47)
	Cs-137	ND (0.69)	ND (0.66)
	Gross β	ND (1.9)	ND (0.34)
	H-3	710	730
June 1 st , 2024 *Discharged on June 6 th	Cs-134	ND (0.86)	ND (0.57)
	Cs-137	ND (0.66)	ND (0.66)
	Gross β	ND (0.65)	ND(0.34)
	H-3	710	750
May 31 st , 2024 *Discharged on June 5 th	Cs-134	ND (0.58)	ND (0.58)
	Cs-137	ND (0.63)	ND (0.61)
	Gross β	ND (1.8)	ND (0.34)
	H-3	730	790
May 30 th , 2024 *Discharged on June 4 th	Cs-134	ND (0.68)	ND (0.64)
	Cs-137	ND (0.86)	ND (0.58)
	Gross β	ND (2.0)	ND (0.38)
	H-3	740	770
May 29 th , 2024 *Discharged on June 3 rd	Cs-134	ND (0.62)	ND (0.59)
	Cs-137	ND (0.60)	ND (0.69)
	Gross β	ND (1.9)	ND (0.36)
	H-3	720	740
May 28 th , 2024	Cs-134	ND (0.64)	ND (0.67)

*Discharged on June 2 nd	Cs-137	ND (0,64)	ND (0.78)
	Gross β	ND (1.7)	ND (0.32)
	H-3	700	720

- * * ND: represents a value below the detection limit; values in () represent the detection limit.
- * In order to ensure the results, third-party organizations have also conducted an analysis and verified the radiation level of the sampled water.
- * Third-party organization : Tohoku Ryokka Kankyohozen Co., Ltd

Result of detailed analyses conducted by TEPCO, JAEA, and Japan Chemical Analysis Center (In order to confirm the validity of analysis, the Government of Japan also requests JAEA; and TEPCO requests Japan Chemical Analysis Center to conduct independent analyses)

(Unit: Bq/L)

Date of sampling	Detected nuclides	Analytical body		
		JAEA	TEPCO	Japan Chemical Analysis Center
May 1 st ,2024	Cs-134	ND (0.0024)	ND (0.0057)	ND (0.0054)
	Cs-137	0.0031	0.0052	ND (0.0043)
	Gross α	ND (0.65)	ND (2.0)	ND (2.1)
	Gross β	ND (0.48)	ND (0.58)	ND (0.64)
	H-3	710	730	730
	Sr-90	ND (0.0015)	ND (0.0012)	ND (0.0053)

* ND: represents a value below the detection limit; values in () represent the detection limit.

(Reference)

(Unit: Bq/L)

Radionuclides	Operational Targets	Density Limit specified by the Reactor Regulation	World Health Organization (WHO) Guidelines for Drinking Water Quality
Cs-134	1	60	10
Cs-137	1	90	10
Gross α	—	—	—
Gross β	3 (1) ※	—	—
H-3	1,500	60,000	10,000
Sr-90	—	30	10

※ The operational target of Gross β is 1 Bq/L in the survey which is conducted once every ten days.

※ The reference table shows the values of operational targets before discharge. Since the values after discharge contain natural radioactive materials in seawater, there will be differences between the values and the operational targets values.

Results of analysis on the seawater sampled near the discharge point (North side of Units 5 and 6 discharge channel)

(Unit: Bq/L)

Date of sampling	Detected nuclides	Sampling point (South discharge channel)
March 25 th , 2024 *Sampled before discharge of purified groundwater.	Cs-134	ND (0.75)
	Cs-137	ND (0.86)
	Gross β	9.5
	H-3	ND (0.31)

Results of analyses on the water quality of the groundwater pumped up for bypassing at Fukushima Daiichi NPS (made available by TEPCO prior to discharge)

(Unit: Bq/L)

Date of sampling *Date of discharge	Detected nuclides	Analytical body	
		TEPCO	Third-party organization
June 21 st , 2024 *Discharged on June 26 th	Cs-134	ND (0.82)	ND (0.69)
	Cs-137	ND (0.49)	ND (0.73)
	Gross β	ND (0.59)	ND (0.33)
	H-3	48	48
June 14 th , 2024 *Discharged on June 19 th	Cs-134	ND (0.68)	ND (0.81)
	Cs-137	ND (0.69)	ND (0.75)
	Gross β	ND (0.62)	ND (0.32)
	H-3	54	50
June 7 th , 2024 *Discharged on June 12 th	Cs-134	ND (0.93)	ND (0.66)
	Cs-137	ND (0.78)	ND (0.66)
	Gross β	ND (0.69)	ND (0.29)
	H-3	44	48
May 31 st , 2024 *Discharged on June 5 th	Cs-134	ND (0.82)	ND (0.65)
	Cs-137	ND (0.74)	ND (0.66)
	Gross β	ND (0.63)	ND (0.34)
	H-3	42	49

- * * ND: represents a value below the detection limit; values in () represent the detection limit
- * In order to ensure the results, third-party organizations have also conducted an analysis and verified the radiation level of the sampled water.
- * Third-party organization: Tohoku Ryokka Kankyohozen Co., Ltd

Result of detailed analyses conducted by TEPCO, JAEA, and Japan Chemical Analysis Center (In order to confirm the validity of analysis, the Government of Japan also requests JAEA; and TEPCO requests Japan Chemical Analysis Center to conduct independent analyses)

(Unit: Bq/L)

Date of sampling	Detected nuclides	Analytical body		
		JAEA	TEPCO	Japan Chemical Analysis Center
May 3 rd , 2024	Cs-134	ND (0.0029)	ND (0.0050)	ND (0.0057)
	Cs-137	ND (0.0020)	ND (0.0036)	ND (0.0041)
	Gross α	ND (0.55)	ND (2.0)	ND (2.1)
	Gross β	ND (0.48)	ND (0.69)	ND (0.49)
	H-3	45	46	46
	Sr-90	ND (0.0017)	ND (0.0013)	ND (0.0052)

* ND: represents a value below the detection limit; values in () represent the detection limit.

(Reference)

(Unit: Bq/L)

Radionuclides	Operational Targets	Density Limit specified by the Reactor Regulation	World Health Organization (WHO) Guidelines for Drinking Water Quality
Cs-134	1	60	10
Cs-137	1	90	10
Gross α	—	—	—
Gross β	5 (1) ※	—	—
H-3	1,500	60,000	10,000
Sr-90	—	30	10

※ The operational target of Gross β is 1 Bq/L in the survey which is conducted once every ten days.

※ The reference table shows the values of operational targets before discharge. Since the values after discharge contain natural radioactive materials in seawater, there will be differences between the values and the operational targets values.

Results of analyses on the seawater sampled near the discharge point (Around South Discharge Channel)

(Unit: Bq/L)

Date of sampling ※conducted four times a year	Detected nuclides	Sampling point (South discharge channel)
March 22 nd , 2024	Cs-134	ND (0.86)
	Cs-137	ND (0.47)
	Gross β	13
	H-3	0.54