

Information (12:00) , June 16, 2025

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 January

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 January at Fukushima Daiichi Nuclear Power Station (NPS).

1. Summary of decommissioning and contaminated water management

In January 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/mp202501.pdf>

2. Sub-drain and Groundwater Drain Systems

In January purified groundwater pumped from the sub-drain and groundwater drain systems was discharged of 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 January 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 were 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 January, the pumped bypassing groundwater was discharged on the dates shown in Appendix 5. Prior to every discharge, an analysis of 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 January 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 of 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 has been 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. The 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>)

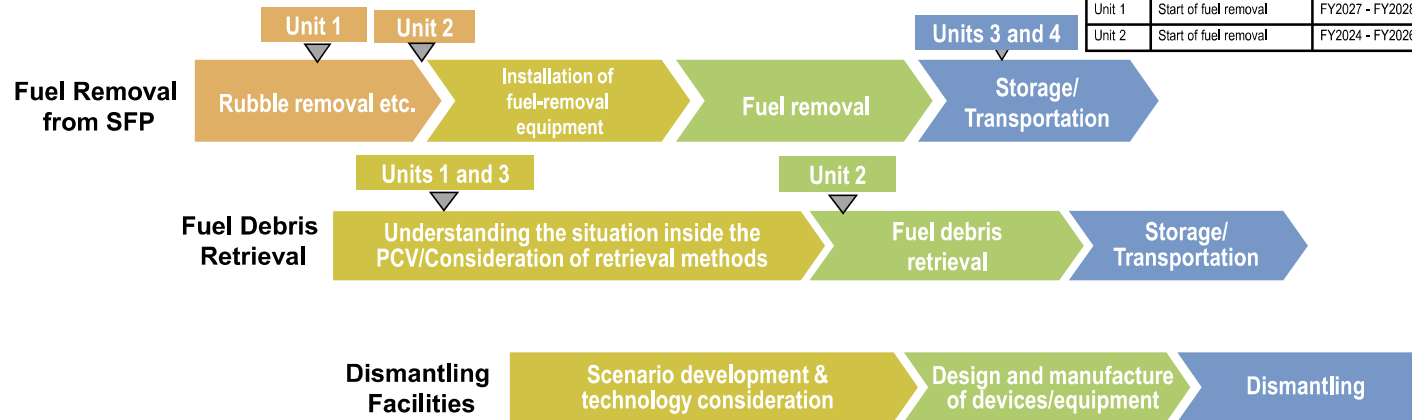
Contact: International Nuclear Energy Cooperation Division,
Ministry of Foreign Affairs, Tel 03-5501-8227

Main decommissioning work and steps

Fuel removal from the spent fuel pool was completed on December 22 2014 at Unit 4 and February 28 2021 at Unit 3.
Trial fuel debris retrieval at Unit 2 commenced from September 10 2024 and a milestone of the Mid-and-Long-Term Roadmap "Commencing fuel debris retrieval at the first Unit" was achieved.
Work continues sequentially toward the start of fuel removal from Units 1 and 2 and fuel debris (Note 1) retrieval from Units 1-3.
(Note 1) Fuel assemblies having melted through in the accident with nearby metal materials etc.

<Milestones in the Mid-and-Long-Term Roadmap>

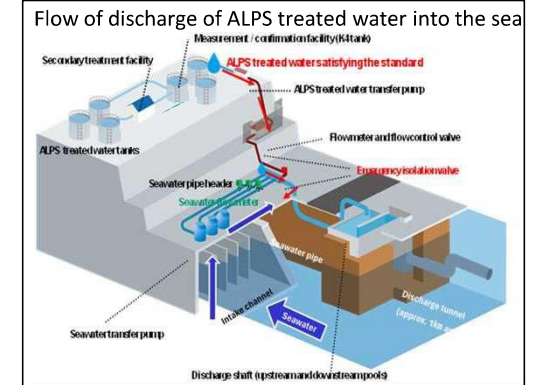
Units	Completion of fuel removal	Within 2031
Unit 1	Start of fuel removal	FY2027 - FY2028
Unit 2	Start of fuel removal	FY2024 - FY2026



Measures for treated water APPENDIX 1

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, efforts including 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.



Contaminated water management - triple-pronged efforts -

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

- "Removing" the contamination source
- "Redirecting" groundwater from the contamination source
- "Preventing leakage" of contaminated water

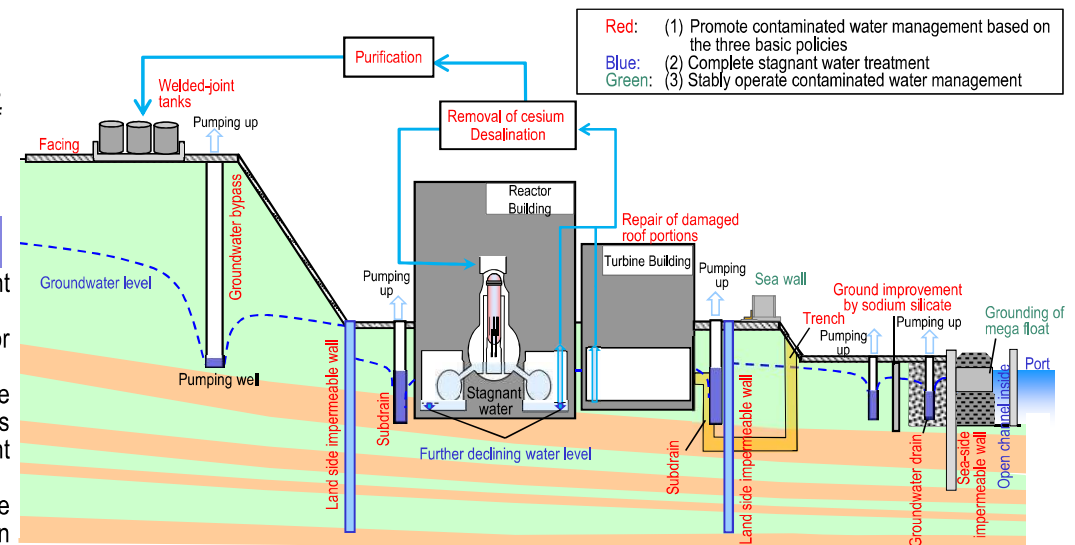
- Strontium-reduced water from other equipment is being re-treated in the Advanced Liquid Processing System (ALPS: multi-nuclide removal system) and stored in welded-joint tanks.
- Multi-layered contaminated water management measures, including land-side impermeable walls and subdrains, have stabilized the groundwater at a low level and the increased contaminated water generated during rainfall is being suppressed by repairing damaged portions of the 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 Units 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

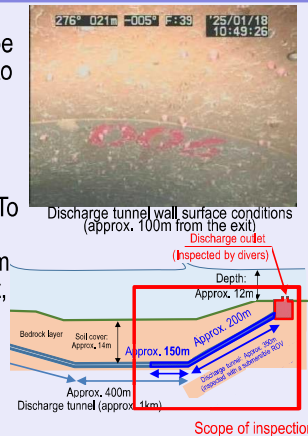
- ◆ The temperatures of the Reactor and the Primary Containment Vessel of Units 1-3 have been maintained stable. There was no significant change in the concentration of radioactive materials newly released from Reactor Buildings into the air. It was concluded that the comprehensive cold shutdown state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

FY2025 ALPS treated water discharge plan (draft)

The draft FY2025 ALPS treated water discharge plan (annual discharges: 7 times; annual amount of water to be discharged: approx. 54,600m³; annual amount of tritium to be discharged: approx. 15 trillion Bq) will be compiled by the end of this fiscal year after reflecting opinions from various stakeholders, including Fukushima Prefecture.

Moreover, ALPS treated water dilution and discharge facility and discharge/intake facility are being inspected. To date, no abnormalities affecting the discharge process have been detected. Inside the tunnel up to approx. 350m from the discharge tunnel exit and at the discharge outlet, no abnormalities were detected by the submersible ROV and divers.

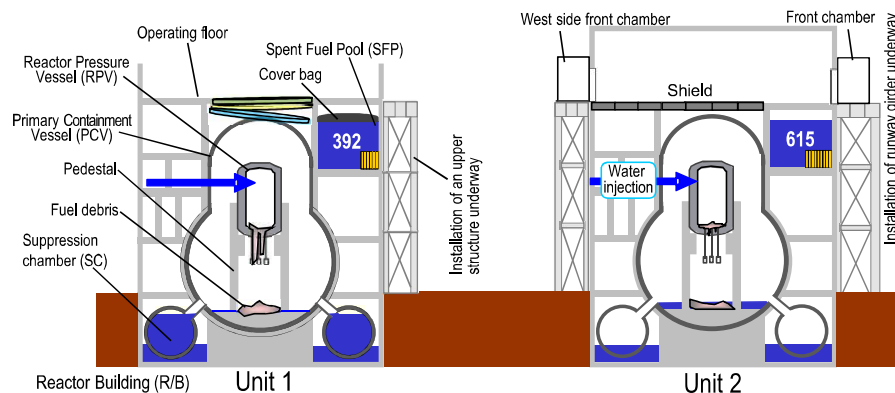
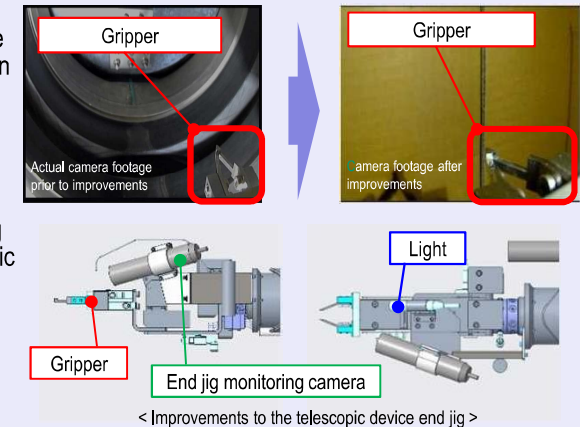
Currently, toward the 7th discharge of FY2024, the measurement/confirmation facility C is being analyzed.



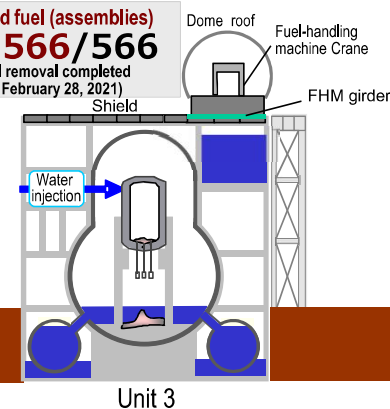
Unit 2 Progress of trial fuel debris retrieval

Toward additional fuel debris sampling by the telescopic device, replacement of the camera mounted at the end of the device and improvement to stabilize the end jig hanging down are being examined. By improving the installation position of the gripper, monitoring camera and light, the gripper visibility was compared and confirmed as having no problem. Going forward, the improved end jig will be manufactured and subjected to factory verification tests.

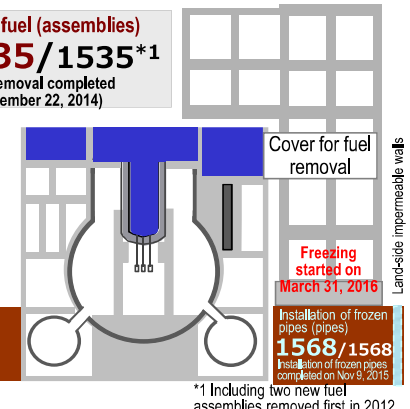
Regarding the robotic arm, at the mockup facility simulating the on-site environment, combined once-through tests (robotic arm + double arm manipulator) are underway. Moreover, access route construction tests by removing the deposit left over in X-6 penetration commenced. Improvements to the control program to reduce the risk of contact of the arm and other tests will simultaneously continue.



Removed fuel (assemblies)
566/566
(Fuel removal completed on February 28, 2021)



Removed fuel (assemblies)
1535/1535*1
(Fuel removal completed on December 22, 2014)



15th survey to improve the work environment

From September to October 2024, the 15th survey to improve the work environment was conducted, to which approx. 5,500 workers responded.

In this survey, new questions were added about awareness during on-site work, asking whether "an environment allowing workers to say what they are aware of at any time" still existed and more than 80% responded in the affirmative. TEPCO will continue to prioritize an environment in which people "stop if something happens" and "can discuss what they are aware of."

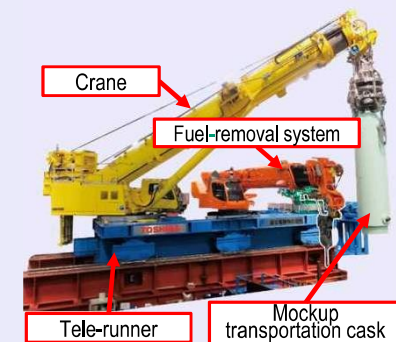
Regarding the concern about radiation, responses expressing concern increased compared with in the previous survey. Several factors can be considered for this result, but in related questions, responses expressing concern about "body contamination" increased. Accordingly, troubles related to body contamination in 2023 may be a factor.

To ensure worker safety, thoroughly preventing such issues is crucial. TEPCO HD will further improve the safety level together with each cooperating company, while continuing efforts, including a review of educational texts related to radiation protection to further deepen understanding about the work environment in the Fukushima Daiichi Nuclear Power Station.

Unit 2 Progress of work before fuel removal

In Unit 2, work to install a runway girder, part of the foundation of rails to be used when the fuel removal system moves between the Reactor Building and the front room, is underway. The runway girder consists of eight steel blocks. After being assembled off site, the blocks are carried in on-site and installed in the front room of the Reactor Building. Installation commenced from October 2024 and six of eight blocks were carried into the front room.

At the off-site factory, trial operations related to each equipment component of the fuel removal system continue. As a specific example, using a mockup transportation cask, the operational state of the crane is verified. After the trial operation and covering the system, it will be transported by sea.



< Trial operation of the fuel-removal system >
(Crane operation is being verified >

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
January 27 th , 2025 *Discharged on February 1 st , 2025	Cs-134	ND (0.93)	ND (0.73)
	Cs-137	ND (0.76)	ND (0.56)
	Gross β	ND (1.8)	ND (0.39)
	H-3	830	900
January 24 th , 2025 *Discharged on January 29 th	Cs-134	ND (0.68)	ND (0.73)
	Cs-137	ND (0.86)	ND (0.70)
	Gross β	ND (0.68)	ND (0.39)
	H-3	900	930
January 21 st , 2025 *Discharged on January 26 th	Cs-134	ND (0.93)	ND (0.63)
	Cs-137	ND (0.78)	ND (0.61)
	Gross β	ND (2.1)	ND (0.34)
	H-3	830	870
January 19 th , 2025 *Discharged on January 24 th	Cs-134	ND (0.68)	ND (0.77)
	Cs-137	ND (0.78)	ND (0.66)
	Gross β	ND (1.8)	ND (0.35)
	H-3	840	910
January 16 th , 2025 *Discharged on January 21 st	Cs-134	ND (0.72)	ND (0.77)
	Cs-137	ND (0.55)	ND (0.66)
	Gross β	ND (0.70)	ND (0.36)
	H-3	840	860
January 13 th , 2025 *Discharged on January 18 th	Cs-134	ND (0.82)	ND (0.70)
	Cs-137	ND (0.63)	ND (0.61)
	Gross β	ND (1.8)	ND (0.35)
	H-3	910	940
January 11 th , 2025 *Discharged on January 16 th	Cs-134	ND (0.91)	ND (0.51)
	Cs-137	ND (0.69)	ND (0.63)
	Gross β	ND (1.9)	ND (0.35)
	H-3	800	860
January 9 th , 2025 *Discharged on January 14 th	Cs-134	ND (0.65)	ND (0.65)
	Cs-137	ND (0.61)	ND (0.66)
	Gross β	ND (0.57)	ND (0.34)

	H-3	780	820
January 7 th , 2025 *Discharged on January 12 th	Cs-134	ND (0.91)	ND (0.62)
	Cs-137	ND (0.57)	ND (0.61)
	Gross β	ND (1.8)	ND (0.33)
	H-3	750	770
January 5 th , 2025 *Discharged on January 10 th	Cs-134	ND (1.0)	ND (0.64)
	Cs-137	ND (0.80)	ND (0.73)
	Gross β	ND (2.0)	ND (0.32)
	H-3	790	860
January 3 rd , 2025 *Discharged on January 8 th	Cs-134	ND (0.75)	ND (0.64)
	Cs-137	ND (0.86)	ND (0.66)
	Gross β	ND (1.9)	ND (0.34)
	H-3	900	930
January 1 st , 2025 *Discharged on January 6 th	Cs-134	ND (0.62)	ND (0.79)
	Cs-137	ND (0.65)	ND (0.63)
	Gross β	ND (0.57)	ND (0.35)
	H-3	880	940
December 30 th , 2024 *Discharged on January 4 th	Cs-134	ND (0.69)	ND (0.92)
	Cs-137	ND (0.63)	ND (0.60)
	Gross β	ND (2.0)	ND (0.35)
	H-3	820	900
December 28 th , 2024 *Discharged on January 2 nd	Cs-134	ND (0.74)	ND (0.71)
	Cs-137	ND (0.67)	ND (0.75)
	Gross β	ND (1.9)	ND (0.32)
	H-3	820	900

- * * 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
December 1 st , 2024	Cs-134	ND (0.0032)	ND (0.0045)	ND (0.0060)
	Cs-137	0.0017 ± 0.00052	ND (0.0041)	ND (0.0049)
	Gross α	ND (0.58)	ND (2.2)	ND (2.0)
	Gross β	ND (0.38)	ND (0.59)	ND (0.58)
	H-3	690 ± 1.5	670	690
	Sr-90	0.0025 ± 0.00040	ND (0.0012)	ND (0.0059)

* 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)
December 5 th , 2024 *Sampled before discharge of purified groundwater.	Cs-134	ND (0.86)
	Cs-137	ND (0.62)
	Gross β	12
	H-3	ND (0.32)

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
January 24 th , 2025 *Discharged on January 31 st	Cs-134	ND (0.68)	ND (0.58)
	Cs-137	ND (0.69)	ND (0.80)
	Gross β	ND (0.61)	ND (0.36)
	H-3	52	56
January 17 th , 2025 *Discharged on January 23 rd	Cs-134	ND (0.65)	ND (0.54)
	Cs-137	ND (0.66)	ND (0.63)
	Gross β	ND (0.67)	ND (0.36)
	H-3	51	58
January 10 th , 2025 *Discharged on January 16 th	Cs-134	ND (0.61)	ND (0.57)
	Cs-137	ND (0.59)	ND (0.47)
	Gross β	ND (0.66)	ND (0.35)
	H-3	57	58
January 3 rd , 2025 *Discharged on January 9 th	Cs-134	ND (0.91)	ND (0.62)
	Cs-137	ND (0.74)	ND (0.69)
	Gross β	ND (0.60)	ND (0.34)
	H-3	51	55
December 27 th , 2024 *Discharged on January 3 rd	Cs-134	ND (0.68)	ND (0.61)
	Cs-137	ND (0.79)	ND (0.63)
	Gross β	ND (0.65)	ND (0.32)
	H-3	48	54

- * * 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
December 6 th , 2024	Cs-134	ND (0.0032)	ND (0.0047)	ND (0.0059)
	Cs-137	ND (0.0019)	ND (0.0035)	ND (0.0052)
	Gross α	ND (0.47)	ND (2.2)	ND (2.0)
	Gross β	ND (0.38)	ND (0.69)	ND (0.58)
	H-3	34 ±0.38	33	33
	Sr-90	ND (0.0012)	ND (0.0013)	ND (0.0061)

* 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)
December 5 th , 2024	Cs-134	ND (0.91)
	Cs-137	ND (0.69)
	Gross β	12
	H-3	ND (0.33)