

Information (12:00), October 29, 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 July

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 July at Fukushima Daiichi Nuclear Power Station (NPS).

1. Summary of decommissioning and contaminated water management

In July 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/mp202407.pdf>

2. Sub-drain and Groundwater Drain Systems

In July 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 July 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 July, 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 July 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.

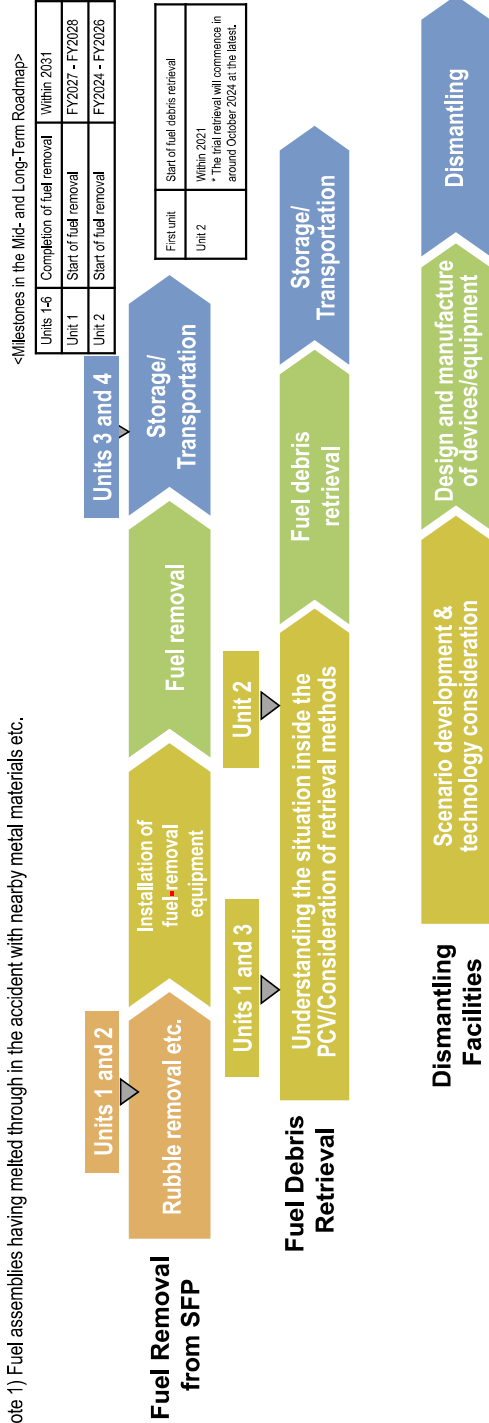
The sampling process for analyses conducted this month is the same as the one conducted in the information disseminated last month. Results of the analyses are shown in the attached appendices:

(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.

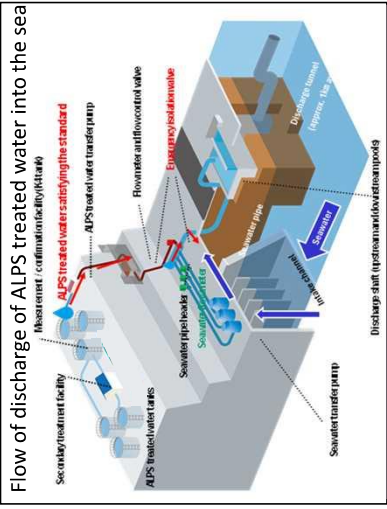
(Note 1) Fuel assemblies having melted through in the accident with nearby metal materials etc.



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, 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.



- (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

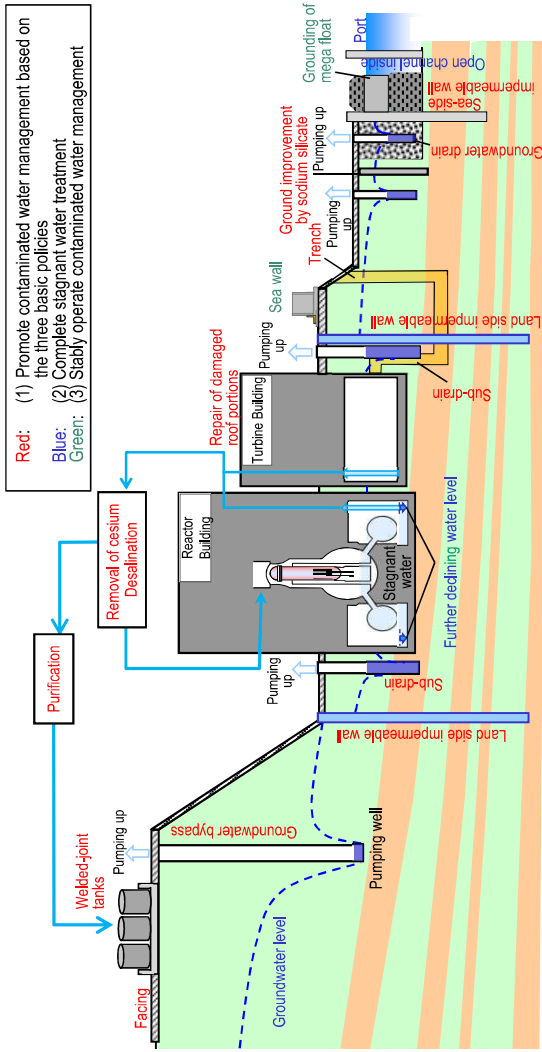
- Strontium-reduced water from other equipment is being re-treated in the Advanced Liquid Processing System (ALPS: multi-nuclide removal equipment) and stored in welded-joint tanks.
- Multi-layered contaminated water management measures, including land-side impermeable walls and sub-drains, have stabilized 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 (3rd discharge in FY2024)

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. The results were announced on June 26.

Following the confirmation, discharge of ALPS treated water of Tank Group B of the measurement/confirmation facility into the sea commenced from June 28 and was completed on July 16.

Regarding tritium in seawater, TEPCO will continue to confirm that it is being discharged safely as planned, while meeting the discharge requirement based on quick daily analyses conducted by TEPCO and others.

Operation commencement of the Solid Waste Storage 10 Facility

The Solid Waste Storage 10 Facility was installed to temporarily store contaminated soil generated in decommissioning and rubble after compaction in containers. Installation of A of three buildings (A-C) was completed.

Building A received a certificate of the pre-service inspection by the Nuclear Regulation Authority on July 24. Preparation for setting controlled areas is underway and operation will commence from August.

To eliminate the temporary storage of outdoor rubble, installation of the Solid Waste Storage 10 Facility continues.



Building B Building A

< Solid Waste Storage 10 Facility >

Investigation inside the front room of the Unit 3 X-6 penetration

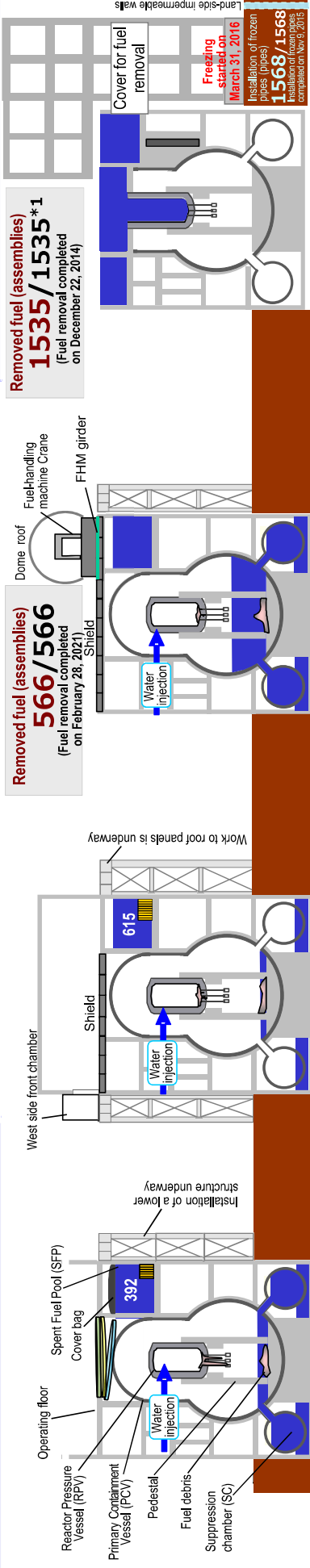
X-6 penetration

To utilize X-6 penetration as an access route for PCV internal investigation and fuel debris retrieval, an investigation of the front room for the penetration is planned.

Due to the assumed high dose in the front room, a drilling portion for investigation will be set up on the concrete shielding wall, which was installed in the front room to reduce exposure. Visual inspection by camera, dose measurement and other investigations will be conducted through the drilling part from around the end of September.

At present, practice training is underway for drilling on the shielding wall.

Work will continue steadily while prioritizing safety.



Unit 2 Status of preparation for fuel debris trial retrieval

Regarding the telescopic-type equipment to be used in the Unit 2 fuel debris trial retrieval, transportation to the Fukushima Daiichi Nuclear Power Station commenced on July 3 and reached the station on July 10.

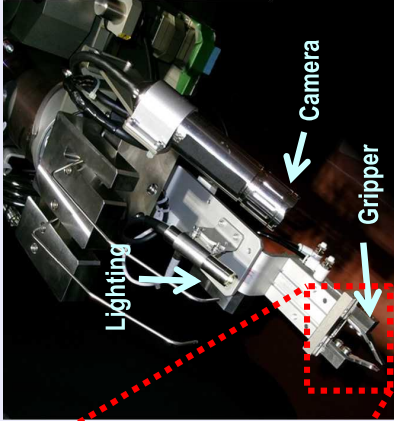
During the next phase, the equipment was transported into the Reactor Building on July 19 and work to fix it to the connection pipe, which was installed at X-6 penetration, is underway.

For the edge tool to collect fuel debris, based on verification and evaluation and including a mockup test, a gripper method was adopted to confirm the state of gripping fuel debris.

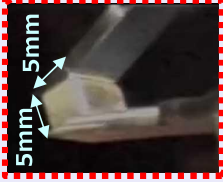
Work will continue steadily while prioritizing safety above all.



< Whole view of the telescopic-type equipment after arrival at the on-site tent house >



< Gripper-type edge tool >



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
July 27 th , 2024 *Discharged on August 1 st	Cs-134	ND (0.75)	ND (0.62)
	Cs-137	ND (0.71)	ND (0.80)
	Gross β	ND (1.9)	ND (0.33)
	H-3	680	680
July 26 th , 2024 *Discharged on July 31 st	Cs-134	ND (0.55)	ND (0.67)
	Cs-137	ND (0.60)	ND (0.60)
	Gross β	ND (0.60)	0.48
	H-3	580	610
July 25 th , 2024 *Discharged on July 30 th	Cs-134	ND (0.86)	ND (0.55)
	Cs-137	ND (0.62)	ND (0.54)
	Gross β	ND (1.7)	ND (0.36)
	H-3	530	560
July 24 th , 2024 *Discharged on July 29 th	Cs-134	ND (0.88)	ND (0.58)
	Cs-137	ND (0.62)	ND (0.58)
	Gross β	ND (2.0)	ND (0.37)
	H-3	500	530
July 23 rd , 2024 *Discharged on July 28 th	Cs-134	ND (0.73)	ND (0.60)
	Cs-137	ND (0.79)	ND (0.76)
	Gross β	ND (2.0)	0.39
	H-3	550	540
July 22 nd , 2024 *Discharged on July 27 th	Cs-134	ND (0.79)	ND (0.50)
	Cs-137	ND (0.71)	ND (0.63)
	Gross β	ND (1.8)	ND (0.36)
	H-3	590	600
July 21 st , 2024 *Discharged on July 26 th	Cs-134	ND (0.71)	ND (0.52)
	Cs-137	ND (0.74)	ND (0.73)
	Gross β	ND (1.9)	0.42
	H-3	600	620
July 20 th , 2024 *Discharged on July 25 th	Cs-134	ND (0.73)	ND (0.74)
	Cs-137	ND (0.86)	ND (0.56)
	Gross β	ND (2.0)	0.45

	H-3	560	580
July 19 th , 2024 *Discharged on July 24 th	Cs-134	ND (0.64)	ND (0.84)
	Cs-137	ND (0.79)	ND (0.75)
	Gross β	ND (0.63)	ND (0.33)
	H-3	580	590
July 18 th , 2024 *Discharged on July 23 rd	Cs-134	ND (0.64)	ND (0.60)
	Cs-137	ND (0.65)	ND (0.73)
	Gross β	ND (1.7)	ND (0.36)
	H-3	600	630
July 17 th , 2024 *Discharged on July 22 nd	Cs-134	ND (0.66)	ND (0.55)
	Cs-137	ND (0.55)	ND (0.70)
	Gross β	ND (2.0)	ND (0.36)
	H-3	640	670
July 16 th , 2024 *Discharged on July 21 st	Cs-134	ND (0.67)	ND (0.64)
	Cs-137	ND (0.79)	ND (0.61)
	Gross β	ND (1.7)	ND (0.32)
	H-3	680	680
July 15 th , 2024 *Discharged on July 20 th	Cs-134	ND (0.71)	ND (0.50)
	Cs-137	ND (0.65)	ND (0.63)
	Gross β	ND (1.9)	ND (0.33)
	H-3	700	720
July 14 th , 2024 *Discharged on July 19 th	Cs-134	ND (0.82)	ND (0.65)
	Cs-137	ND (0.79)	ND (0.51)
	Gross β	ND (1.9)	ND (0.34)
	H-3	720	760
July 13 th , 2024 *Discharged on July 18 th	Cs-134	ND (0.75)	ND (0.67)
	Cs-137	ND (0.64)	ND (0.73)
	Gross β	ND (1.9)	ND (0.34)
	H-3	740	760
July 12 th , 2024 *Discharged on July June 17 th	Cs-134	ND (0.75)	ND (0.75)
	Cs-137	ND (0.54)	ND (0.56)
	Gross β	ND (1.9)	ND (0.33)
	H-3	700	740
July 11 th , 2024 *Discharged on July 16 th	Cs-134	ND (0.97)	ND (0.60)
	Cs-137	ND (0.64)	ND (0.58)
	Gross β	ND (1.8)	ND (0.32)
	H-3	740	770
July 10 th , 2024 *Discharged on July 15 th	Cs-134	ND (0.75)	ND (0.70)
	Cs-137	ND (0.72)	ND (0.63)
	Gross β	ND (0.71)	ND (0.35)
	H-3	740	760
July 9 th , 2024	Cs-134	ND (0.75)	ND (0.72)

*Discharged on July 14 th	Cs-137	ND (0.62)	ND (0.61)
	Gross β	ND (1.9)	ND (0.37)
	H-3	760	780
July 8 th , 2024 *Discharged on July 13 th	Cs-134	ND (0.75)	ND (0.58)
	Cs-137	ND (0.72)	ND (0.54)
	Gross β	ND (1.7)	ND (0.34)
	H-3	750	770
July 7 th , 2024 *Discharged on July 12 th	Cs-134	ND (0.84)	ND (0.65)
	Cs-137	ND (0.54)	ND (0.63)
	Gross β	ND (2. 0)	ND (0.33)
	H-3	800	810
July 6 th , 2024 *Discharged on July 11 th	Cs-134	ND (0.75)	ND (0.59)
	Cs-137	ND (0.64)	ND (0.61)
	Gross β	ND (1.8)	ND (0.33)
	H-3	750	800
July 5 th , 2024 *Discharged on July 10 th	Cs-134	ND (0.75)	ND (0.57)
	Cs-137	ND (0.74)	ND (0.63)
	Gross β	ND (1.8)	0.45
	H-3	770	790
July 4 th , 2024 *Discharged on July 9 th	Cs-134	ND (0.83)	ND (0.82)
	Cs-137	ND (0.60)	ND (0.66)
	Gross β	ND (1.8)	ND (0.38)
	H-3	740	780
July 3 rd , 2024 *Discharged on July 8 th	Cs-134	ND (0.88)	ND (0.39)
	Cs-137	ND (0.88)	ND (0.66)
	Gross β	ND (1.9)	ND (0.35)
	H-3	750	810
July 2 nd , 2024 *Discharged on July 7 th	Cs-134	ND (0.77)	ND (0.58)
	Cs-137	ND (0.74)	ND (0.69)
	Gross β	ND (1.9)	ND(0.35)
	H-3	760	790
July 1 st , 2024 *Discharged on July 6 th	Cs-134	ND (0.71)	ND (0.65)
	Cs-137	ND (0.78)	ND (0.69)
	Gross β	ND (0.70)	ND (0.35)
	H-3	700	720
June 30 th , 2024 *Discharged on July 5 th	Cs-134	ND (0.71)	ND (0.65)
	Cs-137	ND (0.74)	ND (0.60)
	Gross β	ND (1.9)	ND (0.34)
	H-3	790	800
June 29 th , 2024 *Discharged on July 4 th	Cs-134	ND (0.92)	ND (0.67)
	Cs-137	ND (0.65)	ND (0.70)
	Gross β	ND (2.0)	ND (0.40)
	H-3	810	830
June 28 th , 2024	Cs-134	ND (0.75)	ND (0.79)

*Discharged on July 3 rd	Cs-137	ND (0,90)	ND (0.70)
	Gross β	ND (0.61)	ND (0.34)
	H-3	770	800
June 27 th , 2024 *Discharged on July 2 nd	Cs-134	ND (0.71)	ND (0.81)
	Cs-137	ND (0,72)	ND (0.66)
	Gross β	ND (1.7)	ND (0.37)
	H-3	750	780

- * * 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
June 1 st , 2024	Cs-134	ND (0.0033)	ND (0.0044)	ND (0.0063)
	Cs-137	ND (0.0021)	ND (0.0039)	ND (0.0053)
	Gross α	ND (0.46)	ND (2.3)	ND (1.5)
	Gross β	ND (0.38)	ND (0.65)	ND (0.56)
	H-3	720 \pm 1.5	710	750
	Sr-90	0.0023 \pm 0.00046	ND (0.0014)	ND (0.0063)

* 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)
June 19 th , 2024 *Sampled before discharge of purified groundwater.	Cs-134	ND (0.82)
	Cs-137	ND (0.69)
	Gross β	12
	H-3	ND (0.26)

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
July 26 th , 2024 *Discharged on July 31 th	Cs-134	ND (0.78)	ND (0.62)
	Cs-137	ND (0.64)	ND (0.39)
	Gross β	ND (0.61)	ND (0.34)
	H-3	51	48
July 19 th , 2024 *Discharged on July 24 th	Cs-134	ND (0.75)	ND (0.83)
	Cs-137	ND (0.72)	ND (0.60)
	Gross β	ND (0.63)	ND (0.32)
	H-3	46	50
July 12 th , 2024 *Discharged on July 18 th	Cs-134	ND (0.84)	ND (0.81)
	Cs-137	ND (0.79)	ND (0.66)
	Gross β	ND (0.61)	ND (0.29)
	H-3	47	46
July 5 th , 2024 *Discharged on July 10 th	Cs-134	ND (0.71)	ND (0.65)
	Cs-137	ND (0.64)	ND (0.61)
	Gross β	ND (0.59)	ND (0.30)
	H-3	47	48
June 28 th , 2024 *Discharged on July 3 rd	Cs-134	ND (0.68)	ND (0.69)
	Cs-137	ND (0.74)	ND (0.63)
	Gross β	ND (0.70)	ND (0.30)
	H-3	44	47

- * * 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
June 7 th , 2024	Cs-134	ND (0.0030)	ND (0.0055)	ND (0.0070)
	Cs-137	ND (0.0021)	ND (0.0038)	ND (0.0051)
	Gross α	ND (0.49)	ND (2.4)	ND (1.5)
	Gross β	ND (0.38)	ND (0.69)	ND (0.68)
	H-3	45 ±0.42	46	47
	Sr-90	0.0019 ±0.00047	ND (0.0012)	ND (0.0054)

* 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)
June 19 th , 2024	Cs-134	ND (0.71)
	Cs-137	ND (0.65)
	Gross β	9.7
	H-3	ND (0.26)