Information(12:00), March 22, 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 February

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 February at Fukushima Daiichi Nuclear Power Station (NPS).

1. Summary of decommissioning and contaminated water management

In February 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/mp202402.pdf

2. Sub-drain and Groundwater Drain Systems

In February 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 February 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 February, 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 February 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

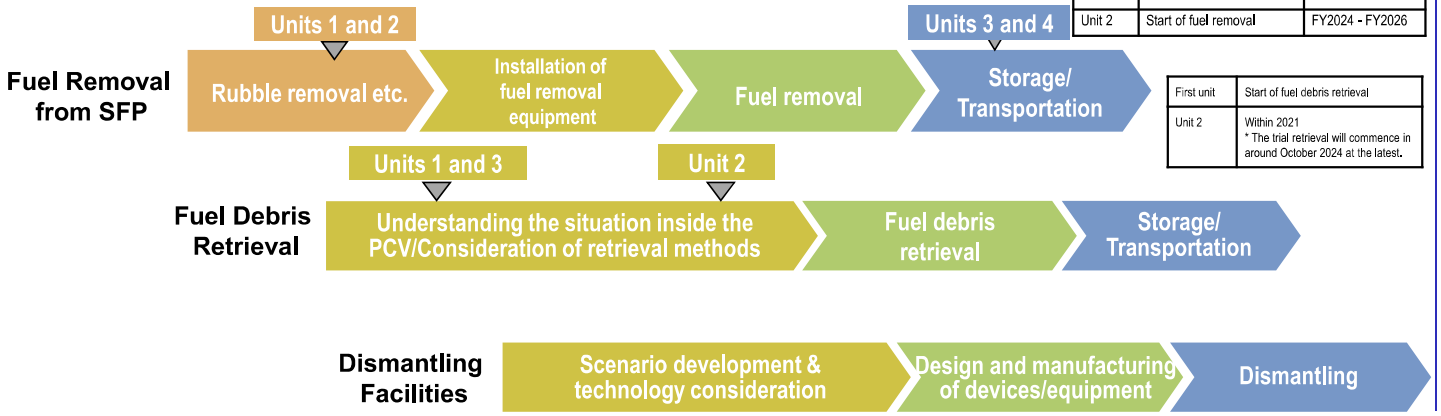
Outline of Decommissioning, Contaminated Water and Treated Water Management

February 29, 2024
Secretariat of the Team for Countermeasures for Decommissioning, Contaminated Water and Treated Water

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.



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

Units 1-6	Completion of fuel removal	Within 2031
Unit 1	Start of fuel removal	FY2027 - FY2028
Unit 2	Start of fuel removal	FY2024 - FY2026

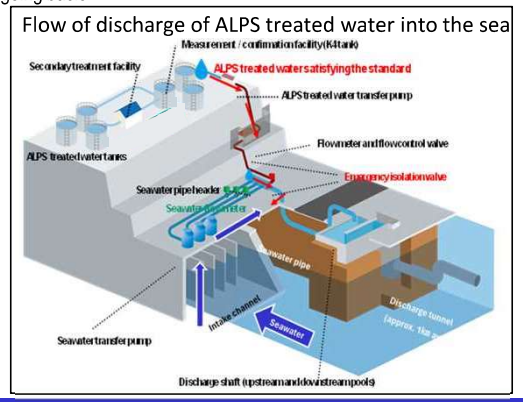
First unit	Start of fuel debris retrieval
Unit 2	Within 2021 * The trial retrieval will commence in around October 2024 at the latest.

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, monitoring will be further enhanced and objectivity and transparency ensured by engaging with third-party experts and having safety checked by the IAEA. Moreover, accurate information will be disseminated with full transparency on an ongoing basis.

Flow of discharge of ALPS treated water into the sea



Contaminated water management - triple-pronged efforts -

(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

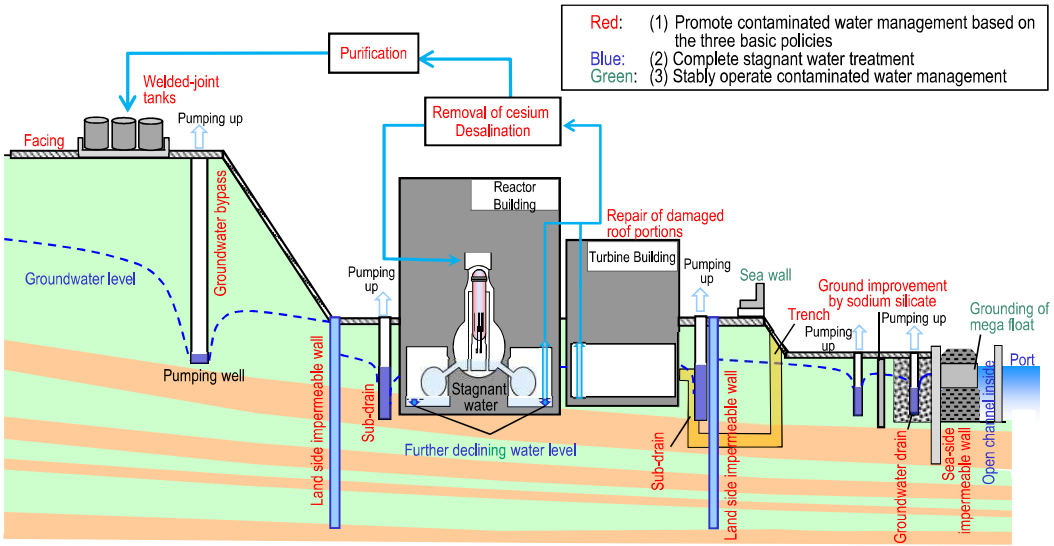
- Strontium-reduced water from other equipment is being re-treated in the Advanced Liquid Processing System (ALPS: multi-nuclide removal equipment) and stored in welded-joint tanks.
- Multi-layered contaminated water management measures, including land-side impermeable walls and sub-drains, have stabilized 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 was reduced from approx. 540 m^3/day (in May 2014) to approx. 90 m^3/day (in FY2022).
- Measures continue to further suppress the generation of contaminated water to 100 m^3/day or less within 2025.

(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

- Various measures were carried out to prepare for tsunamis. As countermeasures for heavy rain, sandbags are being installed to suppress direct inflow into buildings while work to close openings in buildings and install sea walls to enhance drainage channels and other measures are 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.

Status of discharge of ALPS treated water into the sea

Prior to the 4th discharge of ALPS treated water, the measurement/confirmation facility tank group B was analyzed. As a result, TEPCO and external institutions confirmed that the discharge requirements were satisfied.

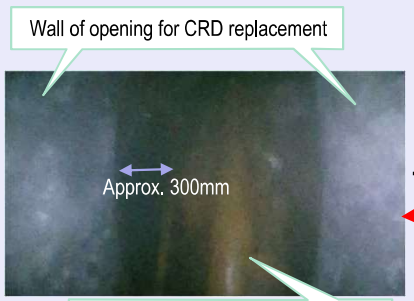
Based on the result, discharge of ALPS treated water of the measurement/confirmation facility tank group B commenced from February 28.

Monitoring of tritium concentration in seawater will continue based on the results of a daily quick analysis conducted by TEPCO confirm that the discharge satisfies the requirements and is being conducted safely as planned.

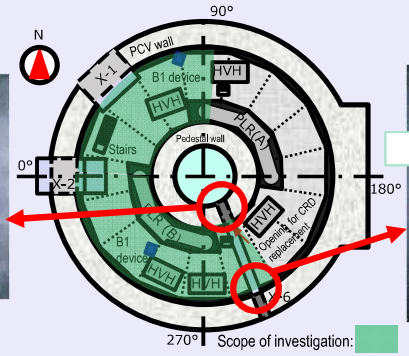
Unit 1 PCV internal investigation (aerial survey)

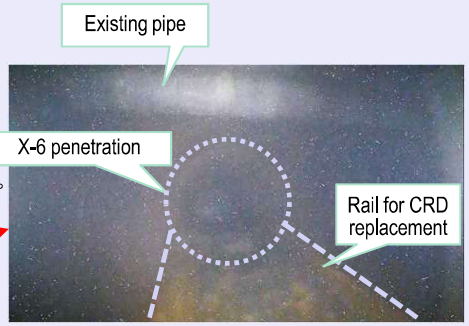
From February 28, an aerial survey inside the Unit 1 PCV by drone commenced and images outside the pedestal were acquired.

The investigation continues with a safety-first approach. Information acquired from the survey results will be utilized in the examination for fuel debris retrieval.



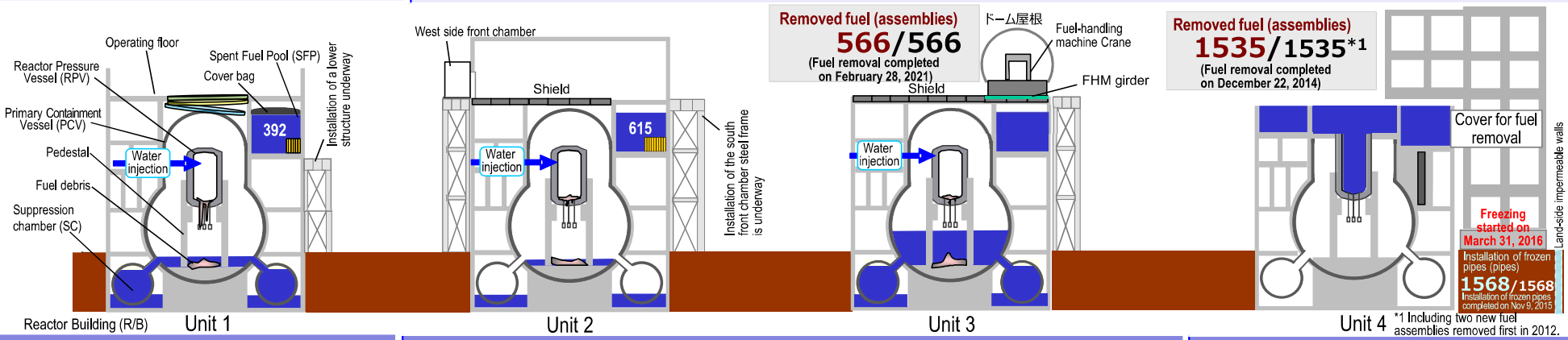
< Condition of opening for CRD* replacement (after compensating for the flickering) >





< Condition of X-6 penetration >

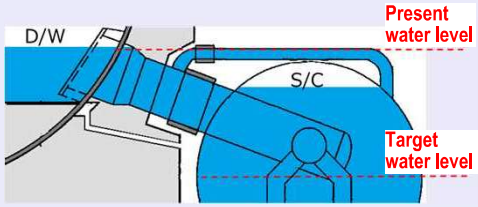
*CRD: Control-Rod-Drive



*1 Including two new fuel assemblies removed first in 2012.

Unit 1 Decrease in the PCV water level

At Unit 1, as measures to increase the seismic resistance of the Primary Containment Vessel (PCV), the water level will be decreased gradually. Work will commence from late March and will be implemented carefully, while confirming the impact of the decrease in the PCV water level.

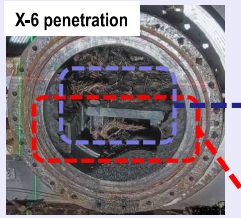


< Image of decrease in PCV water level >

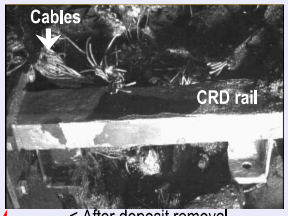
Unit 2 Status of preparation for trial retrieval

At the Naraha Center for Remote Control Technology Development of the Japan Atomic Energy Agency (JAEA), an access test to the pedestal bottom by remote operation of the robot arm is underway. In the next phase, a test combining the robot arm and a dual arm manipulator will be conducted.

At the PCV penetration (X-6 penetration), removal of deposit by high-pressure water of the deposit removal equipment has been underway since February 21. Deposit removal will continue with a safety-first approach.



< Before deposit removal by high-pressure water >



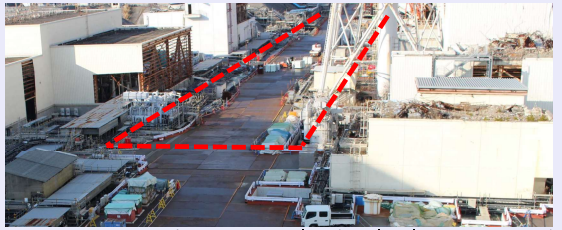
< After deposit removal by high-pressure water >

< After deposit removal by high-pressure water >

Status of site-paving around Units 1-4

To suppress the generation of contaminated water, paving is underway around Units 1-4 Building. This fiscal year, areas on the west side of Unit 3 Reactor Building and approx. 50% around the building were paved.

Multi-layered contaminated water management continues to suppress the generation of contaminated water.


< Paving on the west side of Unit 3 Reactor Building (iron plates laid on the pavement) >

Appendix 2

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
February 25th, 2024 *Discharged on March 1st	Cs-134	ND (0.64)	ND (0.74)
	Cs-137	ND (0.74)	ND (0.57)
	Gross β	ND (1.9)	ND (0.34)
	H-3	730	770
February 23th, 2024 *Discharged on February 28th	Cs-134	ND (0.66)	ND (0.63)
	Cs-137	ND (0.61)	ND (0.61)
	Gross β	ND (0.61)	ND (0.31)
	H-3	760	780
February 21st, 2024 *Discharged on February 26th	Cs-134	ND (0.71)	ND (0.51)
	Cs-137	ND (0.66)	ND (0.40)
	Gross β	ND (2.0)	ND (0.30)
	H-3	730	760
February 19th, 2024 *Discharged on February 24th	Cs-134	ND (0.80)	ND (0.53)
	Cs-137	ND (0.75)	ND (0.70)
	Gross β	ND (1.8)	ND (0.32)
	H-3	820	850
February 17th, 2024 *Discharged on February 22th	Cs-134	ND (0.74)	ND (0.60)
	Cs-137	ND (0.61)	ND (0.50)
	Gross β	ND (2.0)	ND (0.37)
	H-3	700	750
February 15th, 2024 *Discharged on February 20th	Cs-134	ND (0.65)	ND (0.59)
	Cs-137	ND (0.64)	ND (0.72)
	Gross β	ND (0.65)	ND (0.35)
	H-3	650	670
February 13th, 2024 *Discharged on February 18th	Cs-134	ND (0.62)	ND (0.55)
	Cs-137	ND (0.45)	ND (0.64)
	Gross β	ND (1.9)	ND (0.35)
	H-3	640	660
February 11th, 2024 *Discharged on	Cs-134	ND (0.69)	ND (0.70)
	Cs-137	ND (0.76)	ND (0.64)

February 16h	Gross β	ND (2.0)	ND (0.36)
	H-3	640	680
February 9th, 2024 *Discharged on February14th	Cs-134	ND (0.55)	ND (0.52)
	Cs-137	ND (0.67)	ND (0.70)
	Gross β	ND (0.66)	ND (0.34)
	H-3	760	800
February 7th, 2024 *Discharged on February 12th	Cs-134	ND (0.62)	ND (0.68)
	Cs-137	ND (0.65)	ND (0.61)
	Gross β	ND (1.8)	ND (0.33)
	H-3	700	760
February 5th, 2024 *Discharged on February 10th	Cs-134	ND (0.75)	ND (0.65)
	Cs-137	ND (0.70)	ND (0.72)
	Gross β	ND (1.8)	ND (0.37)
	H-3	640	660
February 4th, 2024 *Discharged on February 9th	Cs-134	ND(0.53)	ND(0.60)
	Cs-137	ND(0.51)	ND(0.59)
	Gross β	ND(1.6)	ND(0.36)
	H-3	560	610
February 3rd, 2024 *Discharged on February 8th	Cs-134	ND (0.91)	ND (0.73)
	Cs-137	ND (0.63)	ND (0.67)
	Gross β	ND (1.8)	ND (0.33)
	H-3	610	640
February 1st, 2024 *Discharged on February 6th	Cs-134	ND (0.69)	ND (0.56)
	Cs-137	ND (0.67)	ND (0.54)
	Gross β	ND (0.61)	0.45
	H-3	630	650
January 30th, 2024 *Discharged on February 4th	Cs-134	ND (0.75)	ND (0.64)
	Cs-137	ND (0.88)	ND (0.57)
	Gross β	ND (1.9)	ND(0.37)
	H-3	550	570
January 29th, 2024 *Discharged on February 3rd	Cs-134	ND (0.53)	ND (0.65)
	Cs-137	ND (0.56)	ND (0.54)
	Gross β	ND (1.7)	ND(0.35)
	H-3	600	620
January28th, 2024 *Discharged on February 2nd	Cs-134	ND (0.76)	ND (0.54)
	Cs-137	ND (0.91)	ND (0.50)
	Gross β	ND (2.0)	0.41
	H-3	510	540

* * 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

Appendix 3

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
January 2nd,2024	Cs-134	ND (0.0029)	ND (0.0044)	ND (0.0057)
	Cs-137	ND(0.0020)	ND(0.0038)	ND (0.0056)
	Gross α	ND (0.52)	ND (2.0)	ND (2.1)
	Gross β	ND (0.48)	ND (0.65)	ND (0.56)
	H-3	860	870	850
	Sr-90	0.011	0.01	0.0078

* 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.

Appendix 4

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 21st, 2023 *Sampled before discharge of purified groundwater.	Cs-134	ND (0.75)
	Cs-137	ND (0.70)
	Gross β	12.0
	H-3	ND (0.37)

Appendix 5

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
February 11th, 2024 *Discharged on February 16th	Cs-134	ND (0.65)	ND (0.61)
	Cs-137	ND (0.73)	ND (0.61)
	Gross β	ND (0.63)	ND (0.33)
	H-3	65	71

- * 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

Appendix 6

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
January 8th, 2024	Cs-134	ND (0.0027)	ND (0.0056)	ND (0.0062)
	Cs-137	ND (0.0021)	ND (0.0044)	ND (0.0048)
	Gross α	ND (0.54)	ND (2.0)	ND (2.1)
	Gross β	ND (0.48)	ND (0.6)	ND (0.58)
	H-3	45	45	45
	Sr-90	ND(0.0015)	ND (0.0015)	ND (0.006)

* 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.

Appendix 7

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 12th, 2023	Cs-134	ND (0.80)
	Cs-137	ND (0.72)
	Gross β	10
	H-3	ND (0.32)