Information(12:00), March 5, 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 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/mp202401.pdf

2. Sub-drain and Groundwater Drain Systems

In January 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 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 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 January, 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 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 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

January 25, 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

Fuel Removal from SFP: Units 1 and 2 — Rubble removal etc. → Installation of fuel removal equipment → Fuel removal → Units 3 and 4 — Storage/ Transportation

First unit	Start of fuel debris retrieval
Unit 2	Within 2021 * Due to the spread of COVID-19, we have revised the plan to start from the second half of fiscal 2023 to improve safety and reliability.

Fuel Debris Retrieval: Units 1 and 3 / Unit 2 — Understanding the situation inside the PCV/Consideration of retrieval methods → Fuel debris retrieval → Storage/ Transportation

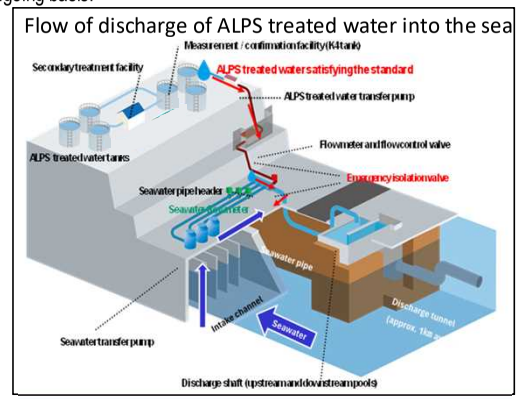
Dismantling Facilities: Scenario development & technology consideration → Design and manufacturing of devices/equipment → Dismantling

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.



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

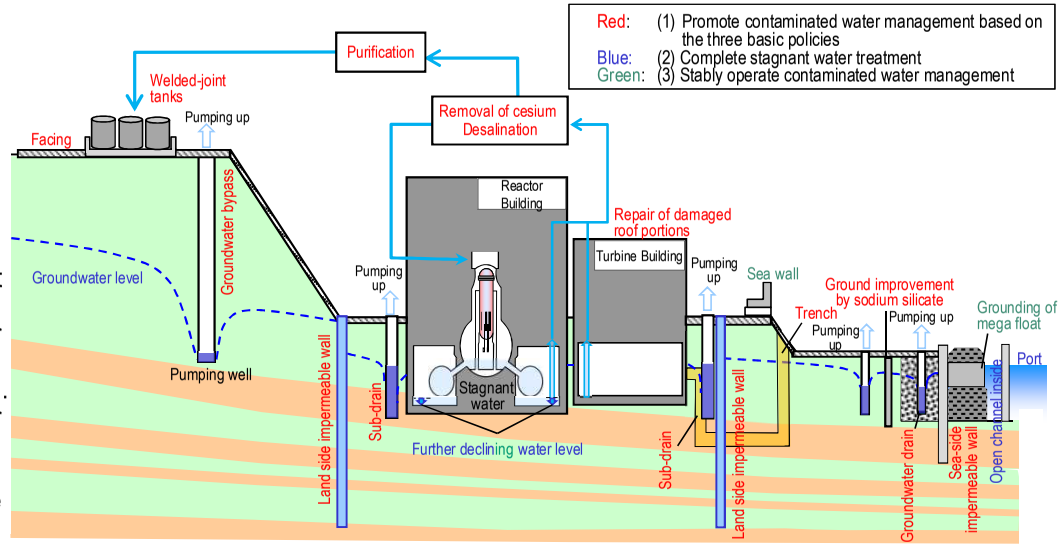
- Strontium-reduced water from other equipment is being re-treated in the Advanced Liquid Processing System (ALPS: multi-nuclide removal equipment) and stored in welded-joint tanks.
- Multi-layered contaminated water management measures, including land-side impermeable walls and sub-drains, have stabilized 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 and Future Challenges of the Mid-and-Long-Term Roadmap toward Decommissioning of TEPCO Holdings Fukushima Daiichi Nuclear Power Station (Outline)

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.

FY2024: ALPS Treated Water Discharge Plan (Draft)

Regarding the ALPS Treated Water Discharge Plan, as a general rule, TEPCO will start by discharging water with a low concentration of tritium, and estimates of the tritium concentration in contaminated water generated in future, the amount of contaminated water generated in the future, and site usage will be taken into consideration when deliberating the discharge plan.

The draft FY2024 discharge plan include: number of annual discharge, 7 times; annual amount of water to be discharged, approx. 54,600m^3; and total amount of tritium to be discharged, approx. 14 trillion Bq.

In preparation for the 4th discharge to be conducted in FY2023, samples collected from the measurement/confirmation facility are currently being analyzed. After confirming that the discharge requirement is satisfied, the discharge is scheduled to commence in late February.

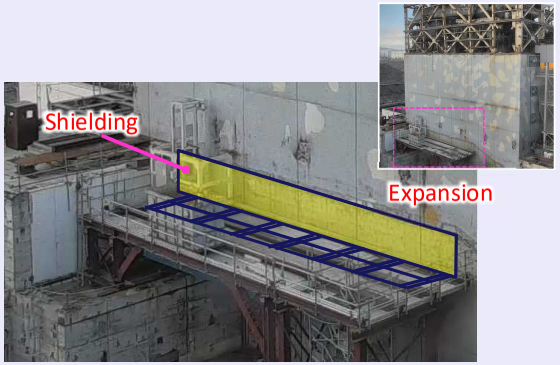
In preparation for the 5th discharge, transfer of ALPS treated water commenced on January 9, and for the 6th discharge, transfer of ALPS treated water is scheduled to start around March 2024.

Unit 1 Status of preparation for fuel removal

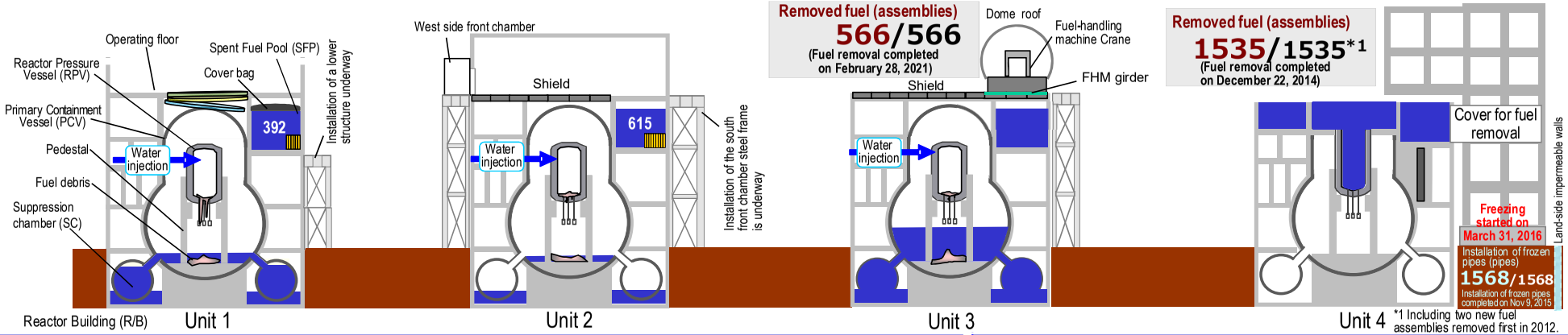
Before installing a large cover over the Unit 1 Reactor Building (R/B), high-dose parts were detected on the south-side wall. As a countermeasure to reduce exposure, shielding will be installed in the high-dose parts.

Installation of a large cover is likely to be completed around summer in FY2025 based on the impact assessment results of the coordination with work around the Unit 1 R/B (removal of SGTS pipes and others) and due to necessity of safety measures for high-dose parts.

For Unit 1 fuel removal, by reviewing the processes after installing the large cover, this is likely to have no impact on the milestone “the start of Unit 1 fuel removal (FY2027-2028)” of the Mid-and-Long-Term Roadmap.



<Image of shielding installation (south side) January 10, 2024>



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

Unit 2 Status of preparation for trial retrieval

At the PCV penetration (X-6 penetration), deposit removal by breaking down started from January 10 and by low-pressure water, from January 17. Removal of remaining deposit and cables will follow using high-pressure water.

In addition to uncertainty of future deposit removal, the robot arm will take time from the mockup test to construction of the access route, and tests need to continue to verify the reliability. Based on these factors, early and credible sampling of fuel debris need to be conducted to determine the attributes at first.

For this reason, telescopic-type equipment, which was used in past internal investigations and can be inserted before deposit is completely removed, will be utilized to sample fuel debris and ongoing internal investigation and fuel debris sampling by a robot arm will resume thereafter.

Trial retrieval will start around October 2024 at the latest. Deposit removal and trial retrieval will continue steadily with safety being prioritized.

< Deposit removal by low-pressure water >

Unit 1 PCV internal investigation (aerial survey)

Before the aerial survey inside the Unit 1 PCV, training outside the site simulating the survey was completed. From late January, preparation will start in the Unit 1 Reactor Building and the remote-control room of the Administration Office Building.

The aerial survey by drone will be conducted in late February. The outskirts of the pedestal will be surveyed at first, then the inside survey will follow.

Preparation will continue with safety being prioritized.


<Mockup (training simulating the survey>

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
January 25th, 2024 *Discharged on January 30th	Cs-134	ND (0.69)	ND (0.55)
	Cs-137	ND (0.51)	ND (0.64)
	Gross β	ND (0.6)	ND (0.34)
	H-3	810	830
January24th, 2024 *Discharged on January 29th	Cs-134	ND (0.65)	ND (0.70)
	Cs-137	ND (0.54)	ND (0.70)
	Gross β	ND (0.59)	ND (0.48)
	H-3	820	830
January 22th, 2024 *Discharged on January 27th	Cs-134	ND (0.93)	ND (0.68)
	Cs-137	ND (0.71)	ND (0.67)
	Gross β	ND (1.7)	ND (0.38)
	H-3	760	800
January20th, 2024 *Discharged on January25th	Cs-134	ND (0.80)	ND (0.63)
	Cs-137	ND (0.67)	ND (0.67)
	Gross β	ND (1.8)	ND (0.35)
	H-3	710	760
January18th, 2024 *Discharged on January 23th	Cs-134	ND (0.65)	ND (0.68)
	Cs-137	ND (0.64)	ND (0.54)
	Gross β	ND (0.6)	ND (0.35)
	H-3	770	830
January16th, 2024 *Discharged on January 21st	Cs-134	ND (0.61)	ND (0.65)
	Cs-137	ND (0.45)	ND (0.61)
	Gross β	ND (0.17)	0.38
	H-3	810	830
January 14th, 2024 *Discharged on January 18th	Cs-134	ND (0.93)	ND (0.62)
	Cs-137	ND (0.71)	ND (0.59)
	Gross β	ND (1.8)	ND (0.39)
	H-3	760	790
January12th, 2024 *Discharged on	Cs-134	ND (0.69)	ND (0.73)
	Cs-137	ND (0.85)	ND (0.67)

January 17th	Gross β	ND (1.9)	ND (0.37)
	H-3	690	720
January10th, 2024 *Discharged on January15th	Cs-134	ND (0.61)	ND (0.58)
	Cs-137	ND (0.72)	ND (0.59)
	Gross β	ND (0.55)	ND (0.41)
	H-3	710	720
January8th, 2024 *Discharged on January13th	Cs-134	ND (0.78)	ND (0.63)
	Cs-137	ND (0.59)	ND (0.58)
	Gross β	ND (0.16)	ND (0.30)
	H-3	740	770
January6th, 2024 *Discharged on January11th	Cs-134	ND (0.91)	ND (0.36)
	Cs-137	ND (0.80)	ND (0.57)
	Gross β	ND (1.8)	ND (0.35)
	H-3	820	840
January 4th, 2024 *Discharged on January9th	Cs-134	ND(0.62)	ND(0.68)
	Cs-137	ND(0.45)	ND(0.57)
	Gross β	ND(1.6)	ND(0.38)
	H-3	790	830
January2nd, 2024 *Discharged on January7th	Cs-134	ND (0.75)	ND (0.68)
	Cs-137	ND (0.45)	ND (0.58)
	Gross β	ND (0.65)	ND (0.36)
	H-3	870	890
December31st, 2023 *Discharged on January5th	Cs-134	ND (0.62)	ND (0.57)
	Cs-137	ND (0.79)	ND (0.64)
	Gross β	ND (2.1)	ND(0.39)
	H-3	840	900
December 29th, 2023 *Discharged on January3rd	Cs-134	ND (0.88)	ND (0.65)
	Cs-137	ND (0.83)	ND (0.75)
	Gross β	ND (1.9)	0.45
	H-3	810	830

- * 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
December1st,2023	Cs-134	ND (0.0032)	ND (0.0059)	ND (0.0069)
	Cs-137	ND(0.0061)	ND(0.0059)	ND (0.0066)
	Gross α	ND (0.44)	ND (2.4)	ND (2.1)
	Gross β	ND (0.53)	ND (0.64)	ND (0.49)
	H-3	700	730	720
	Sr-90	0.0097	ND (0.0068)	ND(0.0084)

* 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
January 16th, 2024 *Discharged on January 22th	Cs-134	ND (0.87)	ND (0.65)
	Cs-137	ND (0.79)	ND (0.77)
	Gross β	ND (0.56)	ND (0.32)
	H-3	43	43
January 8th, 2024 *Discharged on January 13th	Cs-134	ND (0.61)	ND (0.60)
	Cs-137	ND (0.56)	ND (0.54)
	Gross β	ND (0.60)	ND (0.29)
	H-3	44	48
December 31st, 2023 *Discharged on January6th	Cs-134	ND (0.70)	ND (0.75)
	Cs-137	ND (0.59)	ND (0.67)
	Gross β	ND (0.62)	ND (0.36)
	H-3	46	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
December 7th, 2023	Cs-134	ND (0.0028)	ND (0.0045)	ND (0.0064)
	Cs-137	ND (0.0020)	ND (0.0037)	ND (0.0038)
	Gross α	ND (0.56)	ND (2.2)	ND (2.1)
	Gross β	ND (0.47)	ND (0.63)	ND (0.58)
	H-3	46	44	46
	Sr-90	ND(0.0012)	ND (0.0013)	ND (0.0062)

* 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)