Information (17:00), May 6, 2022

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 March

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 March at Fukushima Daiichi Nuclear Power Station (NPS).

1. Summary of decommissioning and contaminated water management

In March, 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/mp202203.pdf

2. Sub-drain and Groundwater Drain Systems

In March 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 March 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 March, 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 March 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

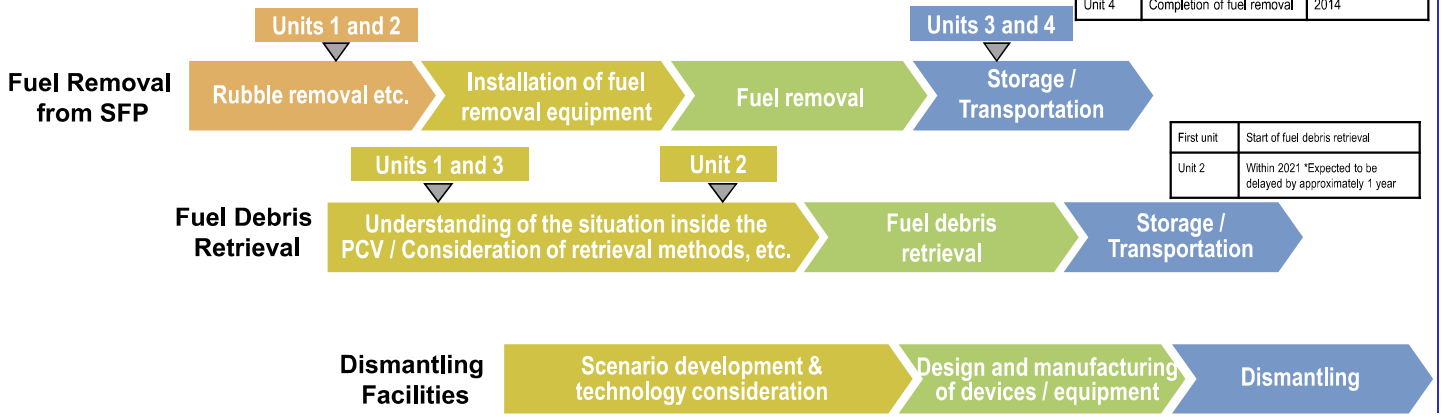
March 31, 2022
Secretariat of the Team for Countermeasures for Decommissioning, Contaminated Water and Treated Water

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.

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
Unit 3	Completion of fuel removal	Within FY2020
Unit 4	Completion of fuel removal	2014



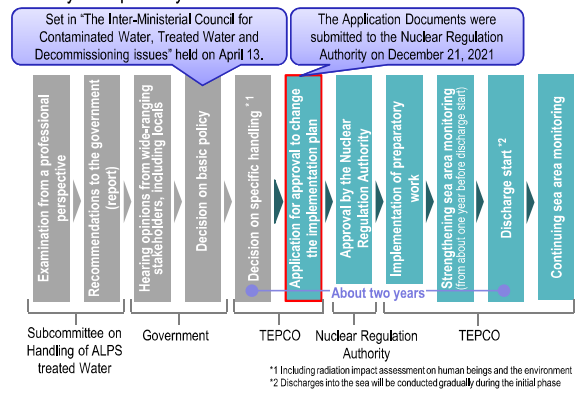
First unit	Start of fuel debris retrieval
Unit 2	Within 2021 *Expected to be delayed by approximately 1 year

Measures of treated water

Appendix1

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 continuously and fully transparently.



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

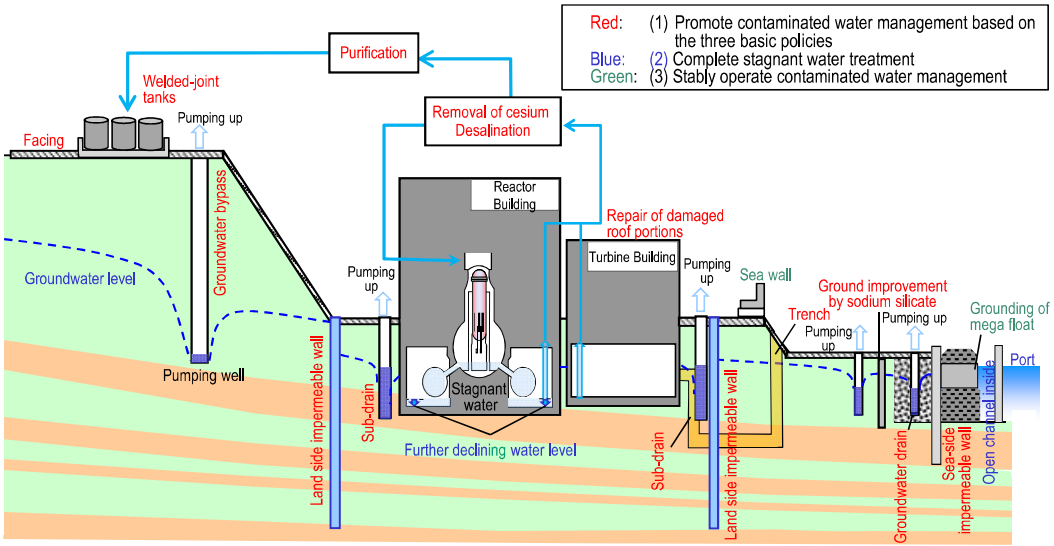
- Strontium-reduced water from other equipment is being re-treated in the Advanced Liquid Processing System (ALPS: multi-nuclide removal equipment) and stored in welded-joint tanks.
- Multi-layered contaminated water management measures, including land-side impermeable walls and sub-drains, have stabilized 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, etc. Through these measures, the generation of contaminated water was reduced from approx. 540 m^3/day (in May 2014) to approx. 180 m^3/day (in FY2019) and approx. 140 m^3/day (in 2020).
- 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. At present, the floor surface exposure condition can be maintained except for the Unit 1-3 Reactor Buildings, Process Main Building and the High Temperature Incinerator Building.
- 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. For Reactor Buildings, the amount of stagnant water there will be reduced to about half the amount at the end of 2020 during the period FY2022-2024.
- 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 are underway to prepare for tsunamis. 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 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.

State at the Fukushima Daiichi Nuclear Power Station(NPS) after the Earthquake of March 16

On March 16, an earthquake with a hypocenter off the coast of Fukushima Prefecture occurred. As a seismic intensity of 6-weak was observed at the location of the Fukushima Daiichi NPS, the NPS determined that it was an event necessitating alert status and enhanced monitoring status.

Subsequent patrols conducted determined that the equipment troubles having been found would not impact the power station operation. Accordingly, the station returned to normal monitoring status on March 17.

The earthquake had influence on facilities (water-level decline in the Unit 1 Primary Containment Vessel (PCV), cooling of the spent fuel pool stopped, topped-over containers, tanks moved out of position and others), but there was no leakage of radioactive materials into the environment, fatal accidents, or events possibly affecting future plant operation.

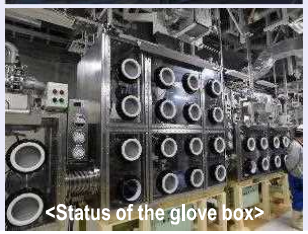
Although values at dust monitors around buildings temporarily rose after the earthquake, no significant fluctuation was observed in monitoring posts or dust monitors near the site boundary, and the values subsequently returned to normal.

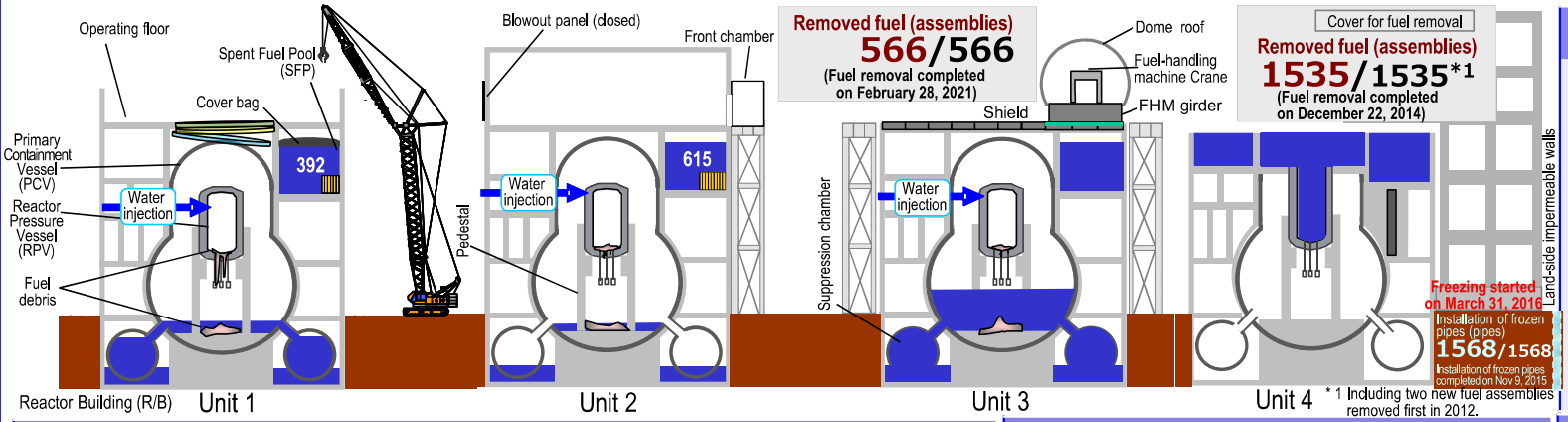
Construction status of the Radioactive Material Analysis and Research Facility Laboratory-1

At the Radioactive Material Analysis and Research Facility Laboratory-1, third-party analysis for ALPS treated water by the government is planned as well as analysis of waste samples such as rubble.

When the air-conditioning equipment was tested in January 2021, insufficient air volume was detected. However, the evaluation confirmed that the present air volume would be able to maintain the safety function such as maintaining negative pressure.

Toward construction completion and operation start at the end of June 2022, applications to change the implementation plan and final adjustment of the air volume for air-conditioning are underway.





Operation start of the Units 5/6 sub-drain

For the Units 5/6 sub-drain facilities, restoration work had been conducted since September 2020 to suppress the groundwater inflow rate to Units 5/6.

Restoration of the Units 5/6 sub-drain pumping-up facilities and installation of facilities to transfer pumped-up groundwater to the existing sub-drain water collection facility were completed in January 2022.

Once the soundness of the facilities was confirmed in the subsequent comprehensive test in February, operation (transfer) started from March 28.

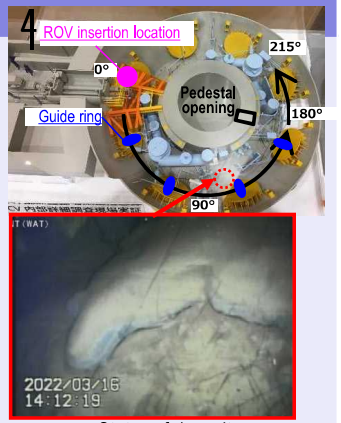
Unit 1 The second submersible vehicle was inserted into the Primary Containment Vessel (PCV)

From March14, the second submersible vehicle (ROV-A2) was inserted to commence a “detailed visual inspection of the outside perimeter of the pedestal.”

This investigation until March 16 newly detected deposits and others. However, as a decline in the PCV water level was confirmed after the earthquake on March 16, the investigation was temporarily suspended.

To obtain the water level necessary for the investigation, the water injection rate into the reactor increased. The increased water level was confirmed but on March 29, the image was inappropriate due to water infiltrating the camera of the submersible ROV-A2.

As part of efforts to resume the investigation, examination is underway, including investigating the cause at the infiltration point and replacing with an alternative device.



<Status of deposit>

Unit 2 The targeted water level decrease was achieved for stagnant water in the Reactor Building

For the Units 1-3 Reactor Building (R/B), the decrease in the R/B stagnant water level in the R/B to approx. half of the end of 2020 within FY2022-2024 is specified as a milestone of the Mid-and-Long-Term Roadmap.

In the Unit 2 R/B, water is being reduced carefully while monitoring parameters such as PCV pressure and dust concentration. In March 2022, the targeted water level decrease, approx. T.P.-2800, was achieved.

The water level in the Units 1 and 3 R/B will also be decreased on an ongoing basis to achieve the milestone of the Mid-and-Long-Term Roadmap.

Visit and Discussion Meeting in Fukushima Daiichi NPS

To deepen the understanding of residents in Fukushima Prefecture about the current status of decommissioning, contaminated water and treated water management, “Visits and Discussion Meetings of TEPCO's Fukushima Daiichi NPS” will be held more frequently in the next fiscal year.

* Monthly for residents in the following 13 municipalities (Tamura City, Minamisoma City, Kawamata Town, Hirono Town, Naraha Town, Tomioka Town, Kawauchi Village, Okuma Town, Futaba Town, Namie Town, Katsurao Village, Iitate Village, Iwaki City) and five times per year for residents elsewhere in Fukushima Prefecture.

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
March 26th, 2022 *Discharged on March 31st	Cs-134	ND (0.60)	ND (0.47)
	Cs-137	ND (0.54)	ND (0.66)
	Gross β	ND (1.9)	ND (0.41)
	H-3	770	850
March 25th, 2022 *Discharged on March 30th	Cs-134	ND (0.55)	ND (0.50)
	Cs-137	ND (0.54)	ND (0.63)
	Gross β	ND (1.9)	0.57
	H-3	820	870
March 24th, 2022 *Discharged on March 29th	Cs-134	ND (0.70)	ND (0.83)
	Cs-137	ND (0.54)	ND (0.60)
	Gross β	ND (0.74)	0.54
	H-3	820	840
March 16th, 2022 *Discharged on March 21st	Cs-134	ND (0.47)	ND (0.57)
	Cs-137	ND (0.54)	ND (0.61)
	Gross β	ND (1.6)	ND (0.42)
	H-3	1,000	1,100
March 14th, 2022 *Discharged on March 20th	Cs-134	ND (0.72)	ND (0.46)
	Cs-137	ND (0.60)	ND (0.69)
	Gross β	ND (1.6)	0.46
	H-3	1,000	1,100
March 12th, 2022 *Discharged on March 19th	Cs-134	ND (0.67)	ND (0.62)
	Cs-137	ND (0.69)	ND (0.61)
	Gross β	ND (1.9)	0.45
	H-3	1,100	1,200
March 11th, 2022 *Discharged on March 18th	Cs-134	ND (0.66)	ND (0.78)
	Cs-137	ND (0.54)	ND (0.57)
	Gross β	ND (0.62)	ND (0.39)
	H-3	1,000	1,100
March 10th, 2022 *Discharged on	Cs-134	ND (0.66)	ND (0.57)
	Cs-137	ND (0.60)	ND (0.71)

March 15th	Gross β	ND (2.0)	ND (0.38)
	H-3	1,000	1,100
March 7th, 2022 *Discharged on March 12th	Cs-134	ND (0.53)	ND (0.71)
	Cs-137	ND (0.65)	ND (0.66)
	Gross β	ND (1.9)	0.40
	H-3	1,000	1,100
March 5th, 2022 *Discharged on March 11th	Cs-134	ND (0.67)	ND (0.58)
	Cs-137	ND (0.73)	ND (0.51)
	Gross β	ND (1.8)	ND (0.35)
	H-3	960	1,000
March 4th, 2022 *Discharged on March 10th	Cs-134	ND (0.91)	ND (0.60)
	Cs-137	ND (0.60)	ND (0.63)
	Gross β	ND (2.0)	0.40
	H-3	980	1,000
March 3rd, 2022 *Discharged on March 8th	Cs-134	ND (0.49)	ND (0.49)
	Cs-137	ND (0.77)	ND (0.60)
	Gross β	ND (0.70)	ND (0.38)
	H-3	910	960
February 28th, 2022 *Discharged on March 5th	Cs-134	ND (0.57)	ND (0.63)
	Cs-137	ND (0.65)	ND (0.80)
	Gross β	ND (1.8)	ND (0.37)
	H-3	990	1,000
February 27th, 2022 *Discharged on March 4th	Cs-134	ND (0.74)	ND (0.55)
	Cs-137	ND (0.62)	ND (0.71)
	Gross β	ND (0.62)	ND (0.37)
	H-3	910	960
February 25th, 2022 *Discharged on March 2nd	Cs-134	ND (0.70)	ND (0.61)
	Cs-137	ND (0.72)	ND (0.60)
	Gross β	ND (2.1)	0.38
	H-3	870	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
February 3rd,2022	Cs-134	ND (0.0024)	ND (0.0048)	ND (0.0067)
	Cs-137	0.022	0.021	0.019
	Gross α	ND (0.45)	ND (3.4)	ND (2.3)
	Gross β	ND (0.39)	ND (0.63)	ND (0.54)
	H-3	860	870	890
	Sr-90	0.0040	ND (0.0025)	ND (0.0071)

* 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.

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)
March 15th, 2022 *Sampled before discharge of purified groundwater.	Cs-134	ND (0.70)
	Cs-137	ND (0.73)
	Gross β	12
	H-3	ND (1.7)

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	Japan Chemical Analysis Center
March 21st, 2022 *Discharged on March 29th	Cs-134	ND (0.70)	ND (0.51)
	Cs-137	ND (0.69)	ND (0.41)
	Gross β	ND (0.63)	ND (0.65)
	H-3	79	74
March 14th, 2022 *Discharged on March 24th	Cs-134	ND (0.53)	ND (0.58)
	Cs-137	ND (0.69)	ND (0.54)
	Gross β	ND (0.75)	ND (0.54)
	H-3	72	65
March 7th, 2022 *Discharged on March 15th	Cs-134	ND (0.83)	ND (0.45)
	Cs-137	ND (0.50)	ND (0.45)
	Gross β	ND (0.63)	ND (0.63)
	H-3	66	58
February 27th, 2022 *Discharged on March 9th	Cs-134	ND (0.69)	ND (0.53)
	Cs-137	ND (0.76)	ND (0.51)
	Gross β	ND (0.75)	ND (0.66)
	H-3	65	65

- * ND: represents a value below the detection limit; values in ( ) represent the detection limit
- In order to ensure the results, Japan Chemical Analysis Center, a third-party organization, has also conducted an analysis and verified the radiation level of the sampled water.

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
February 6th, 2022	Cs-134	ND (0.0028)	ND (0.0045)	ND (0.0069)
	Cs-137	ND (0.0019)	ND (0.0042)	ND (0.0053)
	Gross α	ND (0.31)	ND (3.8)	ND (2.3)
	Gross β	ND (0.38)	ND (0.59)	ND (0.58)
	H-3	69	69	71
	Sr-90	ND (0.0014)	ND (0.0013)	ND (0.0068)

* 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.

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)
March 15th, 2022	Cs-134	ND (0.62)
	Cs-137	ND (0.62)
	Gross β	12
	H-3	ND (1.7)