Information(15:00), June 28, 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 May

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 May at Fukushima Daiichi Nuclear Power Station (NPS).

1. Summary of decommissioning and contaminated water management

In May, 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/mp202205.pdf

2. Sub-drain and Groundwater Drain Systems

In May 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 May 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 May, 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 May 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 or Tohoku Ryokka Kankyohozen Co., Ltd.

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

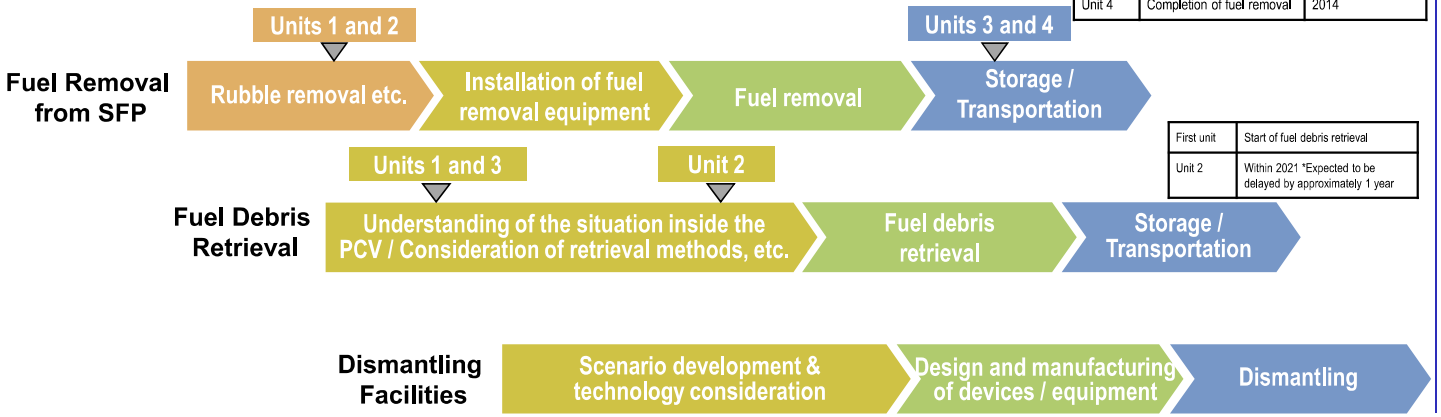
May 26, 2022
Secretariat of the Team for Countermeasures for Decommissioning, Contaminated Water and Treated Water

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

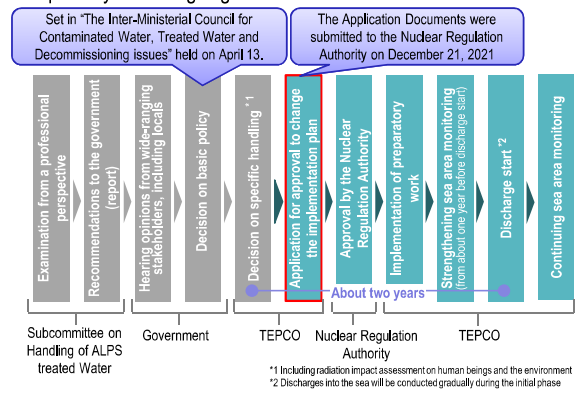


First unit	Start of fuel debris retrieval
Unit 2	Within 2021 *Expected to be delayed by approximately 1 year

Measures of treated water 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

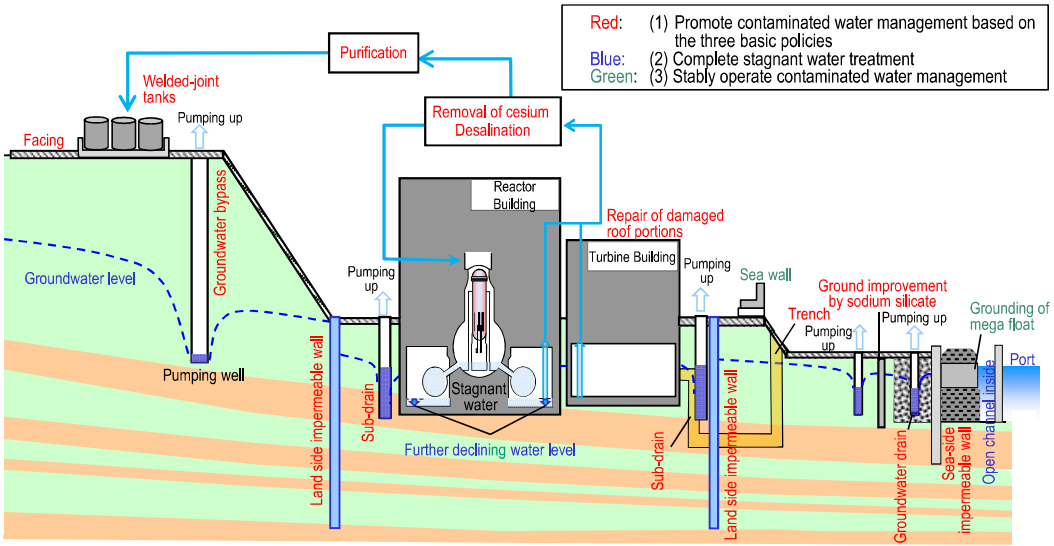
- Strontium-reduced water from other equipment is being re-treated in the Advanced Liquid Processing System (ALPS: multi-nuclide removal equipment) and stored in welded-joint tanks.
- Multi-layered contaminated water management measures, including land-side impermeable walls and sub-drains, have stabilized 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, etc. Through these measures, the generation of contaminated water was reduced from approx. 540 m^3/day (in May 2014) to approx. 130 m^3/day (in FY2021).
- 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 are being implemented as planned.



Progress status

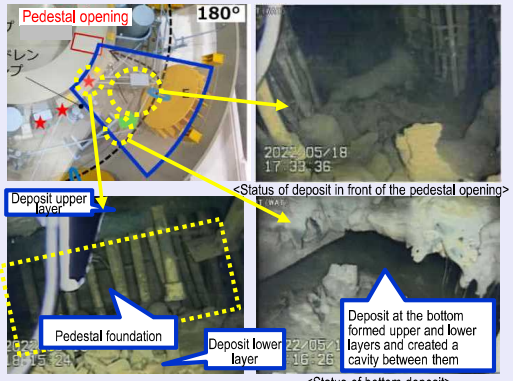
◆ The temperatures of the Reactor and the Primary Containment Vessel of Units 1-3 have been maintained stable.
There was no significant change in the concentration of radioactive materials newly released from Reactor Buildings into the air. It was concluded that the comprehensive cold shutdown condition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

Resumption of the Unit 1 PCV internal investigation

The internal investigation of the Unit 1 Primary Containment Vessel (PCV) has been suspended since the Fukushima Offshore Earthquake on March 16. After securing the necessary PCV water level and implementing countermeasures to resolve the loss of image transmission, the detailed visual investigation of the pedestal periphery resumed from May 17.

This investigation confirmed the status of deposit spreading, including detecting lump- and layer-type deposits and exposure of steel reinforcement inside the pedestal and others. To narrow down the investigative scope for the "deposit debris detection," which is scheduled in the future investigation, the neutron flux measurement was conducted.

The status confirmed in this investigation will be evaluated and preparation will continue toward the next investigation into the deposit thickness.



Provided by International Research Institute for Nuclear Decommissioning (IRID)

Release of the report from the IAEA Review of Safety Related Aspects of Handling ALPS treated water

On April 29, the IAEA publicly released its report on its review of safety related aspects of the handling of ALPS treated water that was conducted in February.

The report states that in regards to the safety, the IAEA has found that, TEPCO successfully incorporated prevention measures in the design of the facility as well as in the associated operating procedures.

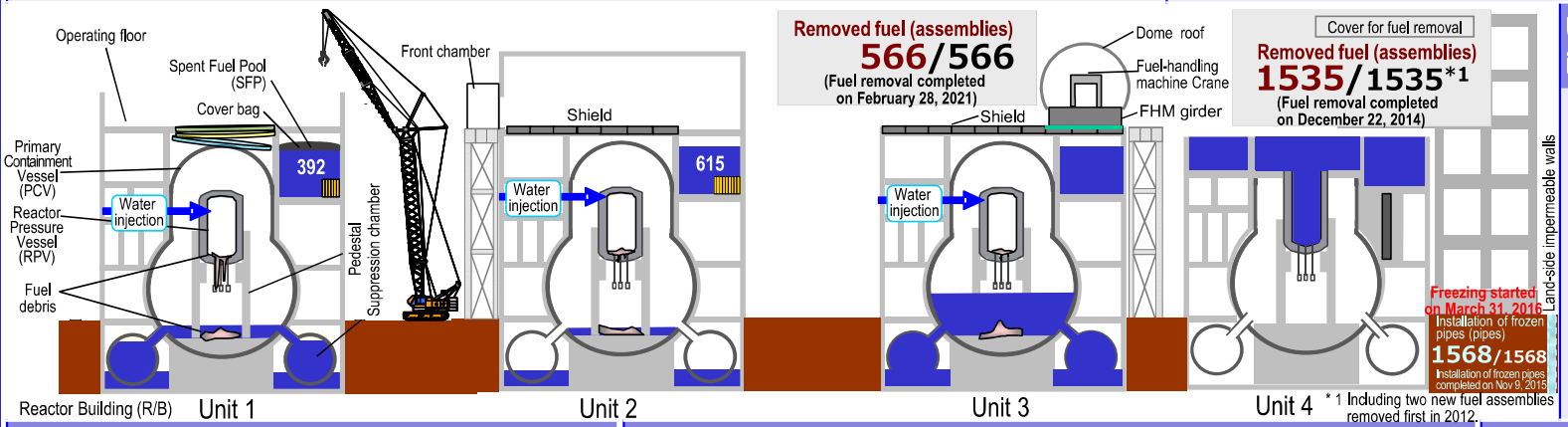
Also, in regards to the Radiological Environmental Impact Assessment, it acknowledged the comprehensive and detailed assessment, and the doses to the assumed representative person are expected to be very low and significantly below the dose constraint set by the Japanese regulatory body.

Meeting between Minister Hagiuda and the IAEA Director General Grossi

On May 18, Minister Hagiuda of METI had a meeting with the IAEA Director General Grossi.

In the meeting, they confirmed that they would continue to closely collaborate, including to review the safety-related aspects of handling ALPS treated water. They also exchanged opinions concerning how to further enhance cooperation between the Japanese Government and the IAEA.

Director General Grossi said that the IAEA review could help convince people worldwide that ALPS treated water would not adversely affect public health and the environment.



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

Unit 2 Preparation status for the PCV internal investigation and trial retrieval of fuel debris

Regarding the damage to the rubber housing the handle of the X-6 penetration inside the isolation room and the malfunction of the isolation room shielding door, the causes are being investigated and countermeasures are being examined.

In addition, regarding the points expected to be improved, which were detected in the performance verification test for the robot arm and others at the Naraha Center for Remote Control Technology Development of the Japan Atomic Energy Agency (JAEA), adjustment will continue.

Status of the sea area monitoring related to the handling of ALPS treated water

In March 2022, as the responsible organization for the discharge of ALPS treated water, to enhance the monitoring of sea areas, TEPCO formulated a plan to add measurement points and subjects and increase the frequency.

Based on this sea area monitoring plan, sampling started from April 20 to determine the status of tritium and marine organisms at the normal time.

Near the nuclear power station and on the coastline, levels of both Tritium and Cesium-137 showed no change from the analytical values in the previous year. At the new measurement points, concentrations remain low and within the normal scope of fluctuation of seawater around Japan.

The monitoring results will be communicated clearly and carefully.

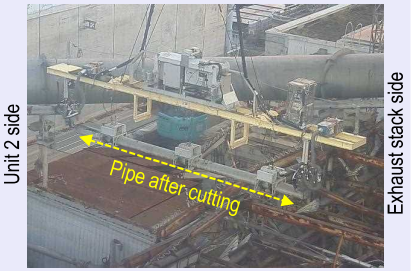
Resumption of work to cut the pipes of the Units 1/2 standby gas treatment system (SGTS)

In March, as the wire saw blade of the cutter bit into the pipe, the cutting work was suspended. After implementing countermeasures and confirming that cutting could be done without biting, the work was resumed.

By May 23, cutting of one of 16 sections was completed.

The cutting work proceeds carefully after implementing measures to prevent dust scattering and it was confirmed that the values indicated on the dust monitors were less than the control standard values.

Work continues carefully while monitoring the dust concentration and prioritizing safety above all.



<Pipe cutting work>

Toward Unit 2 fuel removal from the spent fuel pool, work proceeds as scheduled both inside and outside the building

Inside the building, installation of shielding over the reactor well, where the highest was observed and the northeast side of the Reactor Building was completed on May 12. The dose measurement confirmed that the dose above the reactor well where shielding was installed declined from 88 mSv/h before installation to 9 mSv/h after installation and also validated the reduction effects as planned at other measurement points.

Moreover, there are plans to move the existing fuel-handling machine to the north side of the building. The feasibility of moving the machine is being verified by a mockup facility of the actual machine.

Outside the site, before installing the gantry foundation, work to evacuate the range for installing the foundation in the south-side yard of the building started from May 9 and will be scheduled for completion in early June.

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
May 26th, 2022 *Discharged on May 31st	Cs-134	ND (0.53)	ND (0.61)
	Cs-137	ND (0.73)	ND (0.55)
	Gross β	ND (1.9)	ND (0.38)
	H-3	830	880
May 25th, 2022 *Discharged on May 30th	Cs-134	ND (0.63)	ND (0.75)
	Cs-137	ND (0.60)	ND (0.57)
	Gross β	ND (0.67)	ND (0.33)
	H-3	810	850
May 24th, 2022 *Discharged on May 29th	Cs-134	ND (0.79)	ND (0.66)
	Cs-137	ND (0.65)	ND (0.69)
	Gross β	ND (1.9)	ND (0.39)
	H-3	780	830
May 23th, 2022 *Discharged on May 28th	Cs-134	ND (0.72)	ND (0.58)
	Cs-137	ND (0.65)	ND (0.64)
	Gross β	ND (1.7)	ND (0.36)
	H-3	740	800
May 22th, 2022 *Discharged on May 27th	Cs-134	ND (0.66)	ND (0.60)
	Cs-137	ND (0.65)	ND (0.61)
	Gross β	ND (1.7)	ND (0.35)
	H-3	800	870
May 21th, 2022 *Discharged on May 26th	Cs-134	ND (0.53)	ND (0.67)
	Cs-137	ND (0.60)	ND (0.55)
	Gross β	ND (1.9)	ND (0.40)
	H-3	850	920
May 20th, 2022 *Discharged on May 25th	Cs-134	ND (0.65)	ND (0.45)
	Cs-137	ND (0.69)	ND (0.61)
	Gross β	ND (1.8)	ND (0.39)
	H-3	910	980
May 19th, 2022 *Discharged on	Cs-134	ND (0.55)	ND (0.69)
	Cs-137	ND (0.65)	ND (0.57)

May 24th	Gross β	ND (1.9)	ND (0.36)
	H-3	940	1000
May 18th, 2022 *Discharged on May 23th	Cs-134	ND (0.79)	ND (0.64)
	Cs-137	ND (0.47)	ND (0.67)
	Gross β	ND (1.8)	ND (0.37)
	H-3	950	1000
May 17th, 2022 *Discharged on May 22th	Cs-134	ND (0.79)	ND (0.59)
	Cs-137	ND (0.77)	ND (0.66)
	Gross β	ND (0.63)	ND (0.38)
	H-3	940	990
May 16th, 2022 *Discharged on May 21th	Cs-134	ND (0.74)	ND (0.54)
	Cs-137	ND (0.69)	ND (0.70)
	Gross β	ND (1.9)	ND (0.36)
	H-3	960	1000
May 15th, 2022 *Discharged on May 20th	Cs-134	ND (0.56)	ND (0.69)
	Cs-137	ND (0.73)	ND (0.61)
	Gross β	ND (1.9)	ND (0.42)
	H-3	930	990
May 14th, 2022 *Discharged on May 19th	Cs-134	ND (0.69)	ND (0.57)
	Cs-137	ND (0.54)	ND (0.69)
	Gross β	ND (1.9)	ND (0.32)
	H-3	940	1000
May 13th, 2022 *Discharged on May 18th	Cs-134	ND (0.70)	ND (0.73)
	Cs-137	ND (0.69)	ND (0.61)
	Gross β	ND (2.0)	ND (0.32)
	H-3	930	990
May 12th, 2022 *Discharged on May 17th	Cs-134	ND (0.55)	ND (0.62)
	Cs-137	ND (0.60)	ND (0.66)
	Gross β	ND (2.1)	ND (0.34)
	H-3	970	1000
May 11th, 2022 *Discharged on May 16th	Cs-134	ND (0.64)	ND (0.52)
	Cs-137	ND (0.73)	ND (0.52)
	Gross β	ND (1.7)	ND (0.33)
	H-3	980	1000
May 10th, 2022 *Discharged on May 15th	Cs-134	ND (0.65)	ND (0.63)
	Cs-137	ND (0.65)	ND (0.61)
	Gross β	ND (1.9)	ND (0.33)
	H-3	920	960
May 9th, 2022 *Discharged on May 14th	Cs-134	ND (0.63)	ND (0.48)
	Cs-137	ND (0.60)	ND (0.58)
	Gross β	ND (0.70)	ND (0.35)

	H-3	880	930
May 8th, 2022 *Discharged on May 13th	Cs-134	ND (0.96)	ND (0.60)
	Cs-137	ND (0.54)	ND (0.45)
	Gross β	ND (1.8)	ND (0.34)
	H-3	880	900
May 7th, 2022 *Discharged on May 12th	Cs-134	ND (0.63)	ND (0.64)
	Cs-137	ND (0.60)	ND (0.68)
	Gross β	ND(1.9)	ND(0.33)
	H-3	820	870
May 6th, 2022 *Discharged on May 11th	Cs-134	ND (0.73)	ND (0.62)
	Cs-137	ND (0.73)	ND (0.63)
	Gross β	ND (1.9)	ND (0.37)
	H-3	820	860
May 5th, 2022 *Discharged on May 10th	Cs-134	ND (0.45)	ND (0.60)
	Cs-137	ND (0.47)	ND (0.68)
	Gross β	ND (1.9)	ND (0.33)
	H-3	790	840
May 4th, 2022 *Discharged on May 9th	Cs-134	ND (0.64)	ND (0.63)
	Cs-137	ND (0.60)	ND (0.52)
	Gross β	ND (1.8)	ND (0.32)
	H-3	800	850
May 3rd, 2022 *Discharged on May 8th	Cs-134	ND (0.77)	ND (0.62)
	Cs-137	ND (0.60)	ND (0.61)
	Gross β	ND (1.8)	ND(0.34)
	H-3	780	840
May 2nd, 2022 *Discharged on May 7th	Cs-134	ND (0.76)	ND (0.59)
	Cs-137	ND (0.54)	ND (0.63)
	Gross β	ND (1.9)	ND(0.32)
	H-3	820	850
May 1st, 2022 *Discharged on May 6th	Cs-134	ND (0.69)	ND (0.60)
	Cs-137	ND (0.47)	ND (0.45)
	Gross β	ND (0.62)	ND(0.34)
	H-3	820	870
April 30th, 2022 *Discharged on May 5th	Cs-134	ND (0.69)	ND (0.64)
	Cs-137	ND (0.65)	ND (0.52)
	Gross β	ND (1.5)	ND (0.28)
	H-3	800	820
April 29th, 2022 *Discharged on May 4th	Cs-134	ND (0.74)	ND (0.60)
	Cs-137	ND (0.69)	ND (0.68)
	Gross β	ND (2.0)	ND (0.30)
	H-3	740	780

April 28th, 2022 *Discharged on May 3rd	Cs-134	ND (0.59)	ND (0.69)
	Cs-137	ND (0.65)	ND (0.68)
	Gross β	ND (1.8)	ND (0.35)
	H-3	740	780
April 27th, 2022 *Discharged on May 2nd	Cs-134	ND (0.61)	ND (0.50)
	Cs-137	ND (0.77)	ND (0.55)
	Gross β	ND (1.9)	ND (0.34)
	H-3	770	800
April 26th, 2022 *Discharged on May 1st	Cs-134	ND (0.53)	ND (0.53)
	Cs-137	ND (0.65)	ND (0.74)
	Gross β	ND (2.0)	ND(0.33)
	H-3	740	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
April 1st,2022	Cs-134	ND (0.0028)	ND (0.0048)	ND (0.0059)
	Cs-137	0.0048	0.0059	ND (0.0047)
	Gross α	ND (0.59)	ND (3.0)	ND (2.2)
	Gross β	ND (0.38)	ND (0.64)	ND (0.55)
	H-3	770	770	790
	Sr-90	0.0019	ND (0.0029)	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.

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	Third-party organization
May 23th, 2022 *Discharged on May 29th	Cs-134	ND (0.68)	ND (0.46)
	Cs-137	ND (0.80)	ND (0.40)
	Gross β	ND (0.67)	ND (0.53)
	H-3	83	81
May 16th, 2022 *Discharged on May 21th	Cs-134	ND (0.57)	ND (0.53)
	Cs-137	ND (0.73)	ND (0.47)
	Gross β	ND (0.75)	ND (0.63)
	H-3	76	75
May 9th, 2022 *Discharged on May 18th	Cs-134	ND (0.66)	ND (0.48)
	Cs-137	ND (0.84)	ND (0.45)
	Gross β	ND (0.70)	ND (0.68)
	H-3	78	79
May 3rd, 2022 *Discharged on May 8th	Cs-134	ND (0.56)	ND (0.64)
	Cs-137	ND (0.65)	ND (0.66)
	Gross β	ND (0.61)	ND (0.35)
	H-3	85	89
April 27th, 2022 *Discharged on May 5th	Cs-134	ND (0.63)	ND (0.69)
	Cs-137	ND (0.73)	ND (0.69)
	Gross β	ND (0.74)	ND (0.30)
	H-3	80	86

∗ * 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
Japan Chemical Analysis Center

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
April 5th, 2022	Cs-134	ND (0.0028)	ND (0.0045)	ND (0.0059)
	Cs-137	ND (0.0020)	ND (0.0039)	ND (0.0046)
	Gross α	ND (0.56)	ND (3.1)	ND (2.2)
	Gross β	ND (0.38)	ND (0.72)	ND (0.55)
	H-3	80	82	82
	Sr-90	ND (0.0012)	ND (0.0015)	ND (0.0057)

* 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)