Information (18:00), March 1, 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 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/mp202201.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 Cooperation Division,
Ministry of Foreign Affairs, Tel 03-5501-8227

Outline of Decommissioning, Contaminated Water and Treated Water Management

January 27, 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

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 *Expected to be delayed by approximately 1 year

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

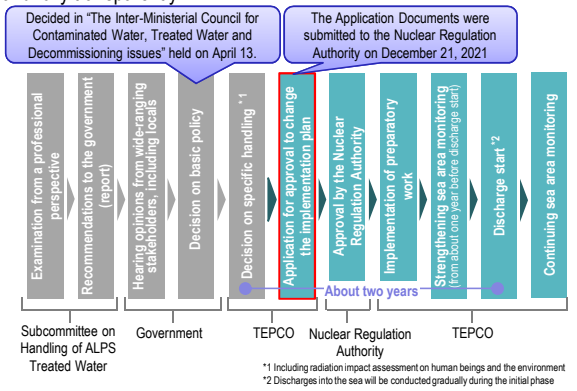
Dismantling Facilities: Scenario development & technology consideration → Design and manufacturing of devices / equipment → Dismantling

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 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

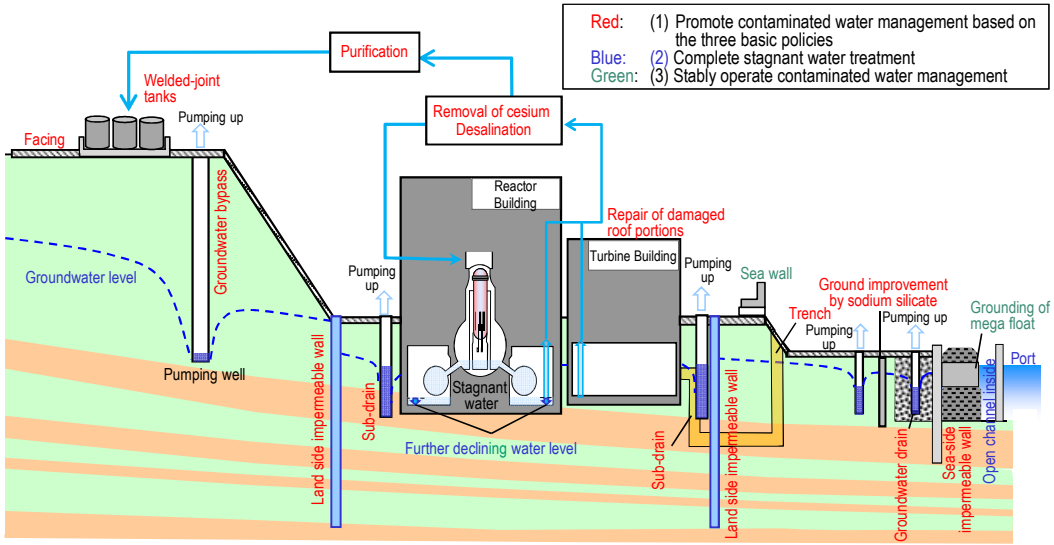
- Strontium-reduced water from other equipment is being re-treated in the Advanced Liquid Processing System (ALPS: multi-nuclide removal equipment) and stored in welded-joint tanks.
- Multi-layered contaminated water management measures, including land-side impermeable walls and sub-drains, have stabilized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

- To prepare for tsunamis, various measures are underway. For heavy rain, sandbags are being installed to suppress direct inflow into buildings while work sealing off openings in buildings and installing 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.

Action Plan for the Continuous Implementation of the Basic Policy on Handling of ALPS Treated Water was formulated

To embody "the Interim Measures for the Handling of ALPS Treated Water" formulated last August, manage the progress and consequently accelerate the implementation, "Action Plan for the Continuous Implementation of the Basic Policy on Handling of ALPS Treated Water" was formulated on December 28, 2021 (at the Inter-Ministerial Council Concerning the Continuous Implementation of the Basic Policy on Handling of ALPS Treated Water).

Based on the Action Plan, TEPCO will further pursue the measures, while continuously verifying the implementation status, and measures will be added or revised as necessary.

Work to construct the Japan Trench Tsunami Seawall continues, closure of building openings to prevent outflow and increase of contaminated water in buildings was completed

In association with the construction of the Japan Trench Tsunami Seawall, a T.P.+2.5m slope on the east side of Units 1-4 is being reinforced, the seawall is being installed and the road to use with it is being constructed.

Construction is progressing steadily and the seawall will be completed in the 2nd half of FY2023.

To minimize the outflow of contaminated water from buildings due to a backrush to the Unit 1-4 buildings and suppress the increase of contaminated water in buildings, openings were closed and other measures were implemented and they were completed on January 26.

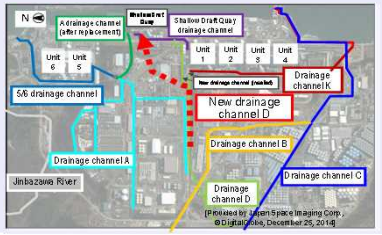
Efforts to maintain closed parts and reduce tsunami risks continue while prioritizing safety and according to the plan.

<Progress of slope reinforcement>

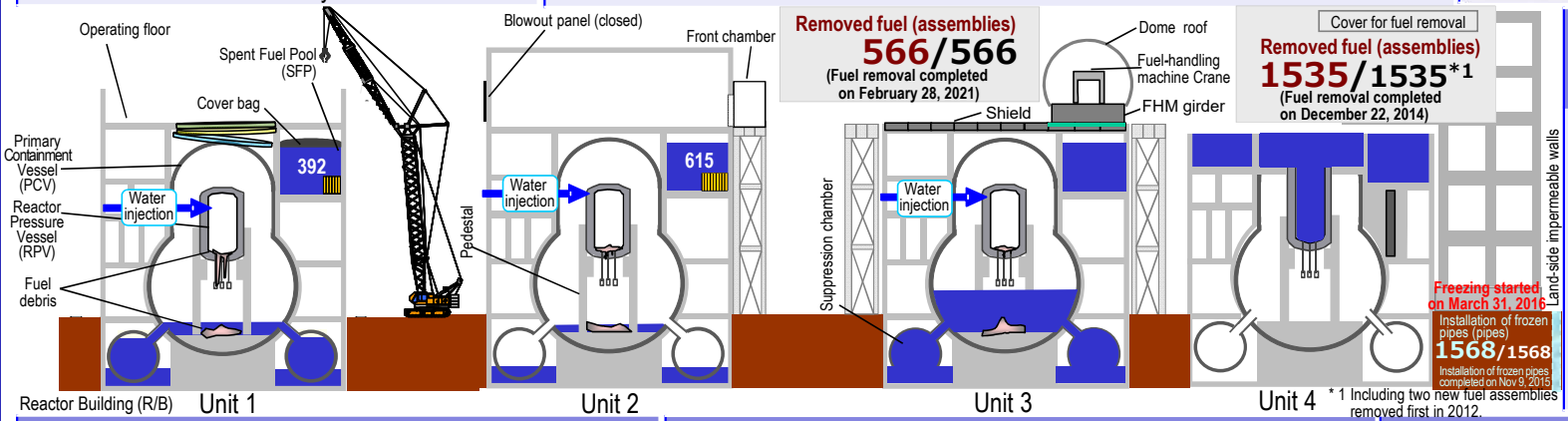
Drilling of new drainage channel D will soon reach the vertical shaft on the lower stream side

To eliminate the risk of heavy rain from an early stage, there are plans to install the new D drainage channel, a total of approx. 800m from the existing D drainage channel to the inside of the port.

From last September, drilling started using the propulsion tunnel method and will reach the vertical shaft on the lower stream side on January 28. Drilling of the second channel will start on the upper stream side and be completed in late April.




<The lower stream side of the new drainage channel D>



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

To resume the Unit 1 PCV internal investigation, measures in response to the malfunction are being implemented

On January 12, when the investigative equipment such as the underwater ROV started to be powered on sequentially as preliminary work before the PCV internal investigation, a malfunction was detected such as that data of the dosemeter incorporated in the underwater ROV was not displayed correctly.

Work was temporarily suspended and an investigation of the cause and countermeasures are being considered.

Immediately after implementing the countermeasures, the investigation will resume.

The cause of temperature increase in the temperature measuring tube 150-7S of the land-side impermeable walls continues to be investigated

Since December 18, 2021, steel sheet piles have been installed to increase the effects of water stoppage. Preparation is now underway to install them at even greater depth.

To investigate the water route to the drainage channel K, which is assumed to be a cause, a boring survey will be conducted around the temperature measuring tubes to survey the ground condition.

At the same time, damage was detected in a part of the rainwater facility of the nearby common pool. The rainwater outflow condition from the damaged part will be investigated.

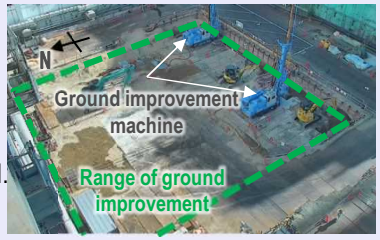
Since December 10, the temperature of the temperature measuring tubes has been below 0℃, a sufficient difference has been maintained between water levels inside and outside the land-side impermeable walls and the performance of impermeable wall is evaluated as being sustained.

Decontamination (Part 1) of the top floor of the Reactor Building was completed toward Unit 2 fuel removal

Decontamination to suppress dust scattering on the top floor of the Reactor Building was completed last December. Contamination reduction was confirmed based on the results of the smear sampling before and after decontamination. Installation of shielding will start in the range including the reactor well, which shows the highest dose, from February.

Regarding the ground improvement toward installing the gantry for fuel removal, approx. 34% was completed as of January 26 and will be completed in April.

Work continues while prioritizing safety.



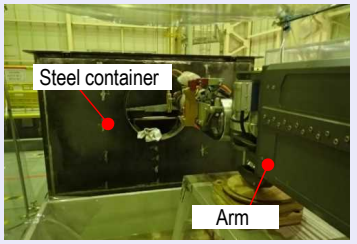
<Ground improvement (as of January 8)>

The performance verification test of the equipment for the Unit 2 PCV trial retrieval (robot arm) was completed

The ongoing performance verification test and operation training in a domestic factory (Kobe), which started last August, finished on January 21. The robot arm will be transported to the Naraha mockup facility and the performance verification test will be conducted as soon as it gets ready.

During work to install the isolation room in association with the opening of the X-6 penetration hatch, unevenness was detected on the area surface. After considering measures to suppress dust and others, work to remove it started from January 26.

Work continues while prioritizing safety.



<Exterior of the trial equipment>

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, 2022 *Discharged on January 30th	Cs-134	ND (0.55)	ND (0.80)
	Cs-137	ND (0.60)	ND (0.66)
	Gross β	ND (0.66)	ND (0.36)
	H-3	940	970
January 24th, 2022 *Discharged on January 29th	Cs-134	ND (0.85)	ND (0.60)
	Cs-137	ND (0.65)	ND (0.58)
	Gross β	ND (2.0)	ND (0.35)
	H-3	880	950
January 21st, 2022 *Discharged on January 26th	Cs-134	ND (0.64)	ND (0.57)
	Cs-137	ND (0.73)	ND (0.69)
	Gross β	ND (2.0)	ND (0.37)
	H-3	910	990
January 19th, 2022 *Discharged on January 24th	Cs-134	ND (0.68)	ND (0.64)
	Cs-137	ND (0.60)	ND (0.53)
	Gross β	ND (1.9)	ND (0.39)
	H-3	900	960
January 17th, 2022 *Discharged on January 22nd	Cs-134	ND (0.63)	ND (0.58)
	Cs-137	ND (0.47)	ND (0.66)
	Gross β	ND (0.65)	ND (0.38)
	H-3	920	940
January 16th, 2022 *Discharged on January 21st	Cs-134	ND (0.72)	ND (0.64)
	Cs-137	ND (0.65)	ND (0.66)
	Gross β	ND (2.0)	ND (0.35)
	H-3	890	930
January 13th, 2022 *Discharged on January 18th	Cs-134	ND (0.72)	ND (0.60)
	Cs-137	ND (0.69)	ND (0.69)
	Gross β	ND (1.9)	ND (0.32)
	H-3	860	910
January 11th, 2022 *Discharged on January 16th	Cs-134	ND (0.53)	ND (0.53)
	Cs-137	ND (0.60)	ND (0.60)
	Gross β	ND (1.7)	ND (0.36)
	H-3	850	900

January 9th, 2022 *Discharged on January 14th	Cs-134	ND (0.61)	ND (0.70)
	Cs-137	ND (0.69)	ND (0.54)
	Gross β	ND (0.59)	ND (0.36)
	H-3	910	970
January 8th, 2022 *Discharged on January 13th	Cs-134	ND (0.69)	ND (0.57)
	Cs-137	ND (0.65)	ND (0.61)
	Gross β	ND (1.9)	ND (0.34)
	H-3	870	930
January 7th, 2022 *Discharged on January 12th	Cs-134	ND (0.61)	ND (0.67)
	Cs-137	ND (0.69)	ND (0.63)
	Gross β	ND (2.1)	ND (0.34)
	H-3	860	920
January 6th, 2022 *Discharged on January 11th	Cs-134	ND (0.66)	ND (0.65)
	Cs-137	ND (0.54)	ND (0.69)
	Gross β	ND (1.8)	ND (0.34)
	H-3	880	940
January 5th, 2022 *Discharged on January 10th	Cs-134	ND (0.85)	ND (0.61)
	Cs-137	ND (0.73)	ND (0.60)
	Gross β	ND (2.0)	ND (0.35)
	H-3	880	950
January 4th, 2022 *Discharged on January 9th	Cs-134	ND (0.56)	ND (0.61)
	Cs-137	ND (0.69)	ND (0.63)
	Gross β	ND (2.0)	ND (0.32)
	H-3	930	960
January 3rd, 2022 *Discharged on January 8th	Cs-134	ND (0.63)	ND (0.67)
	Cs-137	ND (0.54)	ND (0.71)
	Gross β	ND (1.7)	ND (0.33)
	H-3	900	940
January 2nd, 2022 *Discharged on January 7th	Cs-134	ND (0.64)	ND (0.59)
	Cs-137	ND (0.54)	ND (0.60)
	Gross β	ND (1.8)	ND (0.32)
	H-3	910	950
January 1st, 2022 *Discharged on January 6th	Cs-134	ND (0.82)	ND (0.61)
	Cs-137	ND (0.65)	ND (0.49)
	Gross β	ND (0.72)	ND (0.32)
	H-3	940	960
December 31st, 2021 *Discharged on January 5th	Cs-134	ND (0.67)	ND (0.73)
	Cs-137	ND (0.65)	ND (0.69)
	Gross β	ND (1.9)	ND (0.31)
	H-3	900	970

December 30th, 2021 *Discharged on January 4th	Cs-134	ND (0.61)	ND (0.65)
	Cs-137	ND (0.65)	ND (0.61)
	Gross β	ND (0.62)	ND (0.37)
	H-3	860	890
December 29th, 2021 *Discharged on January 3rd	Cs-134	ND (0.82)	ND (0.62)
	Cs-137	ND (0.54)	ND (0.58)
	Gross β	ND (1.6)	ND (0.33)
	H-3	860	910
December 28th, 2021 *Discharged on January 2nd	Cs-134	ND (0.85)	ND (0.51)
	Cs-137	ND (0.65)	ND (0.69)
	Gross β	ND (2.1)	ND (0.32)
	H-3	900	960
December 27th, 2021 *Discharged on January 1st	Cs-134	ND (0.73)	ND (0.64)
	Cs-137	ND (0.69)	ND (0.61)
	Gross β	ND (2.0)	ND (0.31)
	H-3	960	990

- * 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
December 2nd,2021	Cs-134	ND (0.0030)	ND (0.0049)	ND (0.0060)
	Cs-137	0.0042	0.0076	ND (0.0048)
	Gross α	ND (0.46)	ND (3.2)	ND (1.9)
	Gross β	ND (0.47)	ND (0.63)	ND (0.59)
	H-3	850	830	860
	Sr-90	0.0063	0.0044	0.0094

* 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)
December 17th, 2021 *Sampled before discharge of purified groundwater.	Cs-134	ND (0.85)
	Cs-137	ND (0.59)
	Gross β	11
	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
January 19th, 2022 *Discharged on January 27th	Cs-134	ND (0.50)	ND (0.48)
	Cs-137	ND (0.65)	ND (0.49)
	Gross β	ND (0.67)	ND (0.76)
	H-3	72	70
January 11th, 2022 *Discharged on January 24th	Cs-134	ND (0.55)	ND (0.56)
	Cs-137	ND (0.72)	ND (0.31)
	Gross β	ND (0.54)	ND (0.60)
	H-3	74	79
January 5th, 2022 *Discharged on January 13th	Cs-134	ND (0.80)	ND (0.71)
	Cs-137	ND (0.58)	ND (0.49)
	Gross β	ND (0.68)	ND (0.34)
	H-3	75	74
December 29th, 2021 *Discharged on January 6th	Cs-134	ND (0.59)	ND (0.63)
	Cs-137	ND (0.73)	ND (0.66)
	Gross β	ND (0.72)	ND (0.36)
	H-3	72	78

- * 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
December 2rd, 2021	Cs-134	ND (0.0023)	ND (0.0045)	ND (0.0074)
	Cs-137	ND (0.0022)	ND (0.0038)	ND (0.0046)
	Gross α	ND (0.49)	ND (3.0)	ND (1.9)
	Gross β	ND (0.47)	ND (0.69)	ND (0.52)
	H-3	69	69	71
	Sr-90	ND (0.0012)	ND (0.0012)	ND (0.0060)

* 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)
December 17th, 2021	Cs-134	ND (0.53)
	Cs-137	ND (0.80)
	Gross β	11
	H-3	ND (1.7)