

# Information(16:00), November 21, 2023

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 October

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 October at Fukushima Daiichi Nuclear Power Station (NPS).

### 1. Summary of decommissioning and contaminated water management

In October 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/mp202310.pdf>

### 2. Sub-drain and Groundwater Drain Systems

In October 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 October 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 October, 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 October 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:

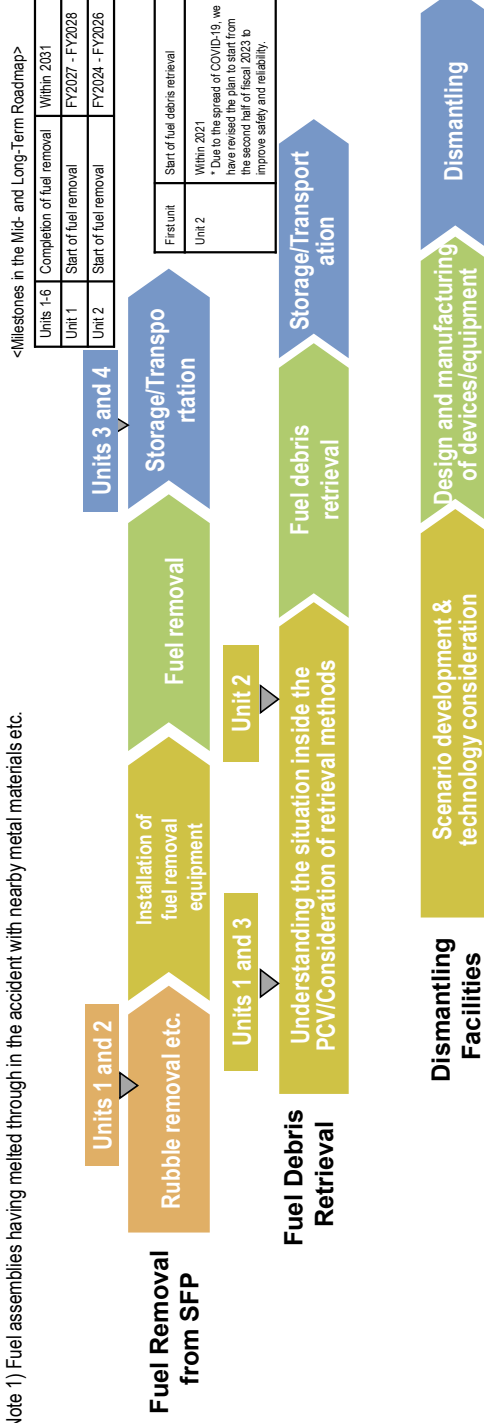
(For further information, please contact TEPCO at (Tel: 03-6373-1111) or refer to the TEPCO's website:<http://www.tepco.co.jp/en/nu/fukushima-np/handouts/index-e.html>)  
Contact: International Nuclear Energy Cooperation Division,

Ministry of Foreign Affairs, Tel 03-5501-8227

## 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.



## Contaminated water management - triple-pronged efforts -

- Efforts to promote contaminated water management based on the three basic policies
  - "Remove" the source of water contamination
  - "Redirect" fresh water from contaminated areas
  - "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<sup>3</sup>/day (in May 2014) to approx. 90 m<sup>3</sup>/day (in FY2022).
- Measures continue to further suppress the generation of contaminated water to 100 m<sup>3</sup>/day or less within 2025.

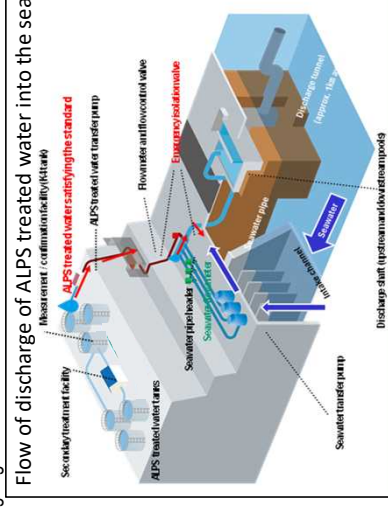
## (2) Efforts to complete stagnant water treatment

- 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 conducting the dust impact assessment, 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.

## Measures for treated water

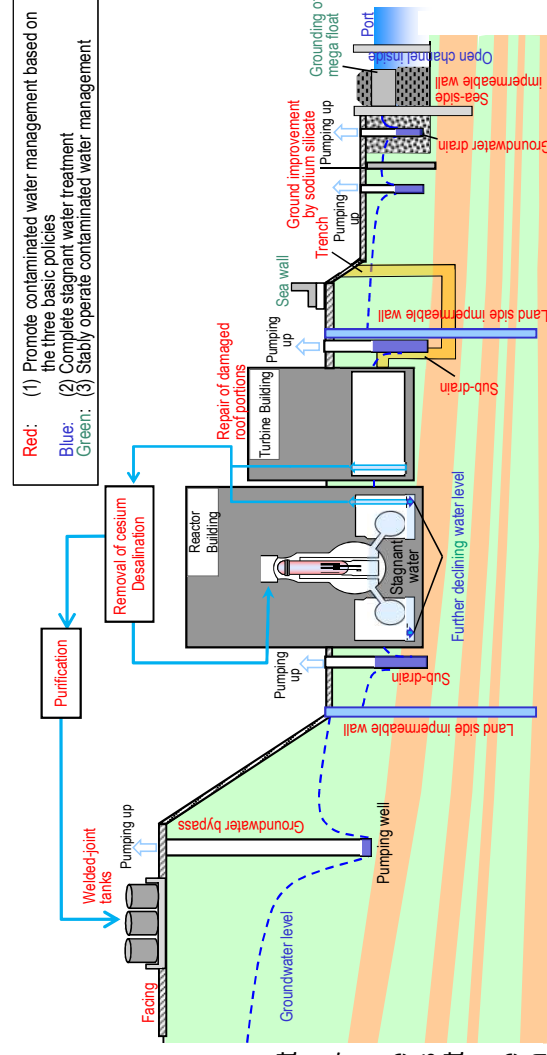
### Handling of ALPS treated water

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.



## (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.

### Status of discharge of ALPS treated water into the sea

From October 5, 2023, discharge of ALPS treated water from Tank Group C of the measurement / confirmation facility into the sea (2nd discharge) commenced.

The 2nd discharge was conducted safely as planned while confirming that the discharge satisfied the national government's requirement and was completed on October 23. During the discharge period, no abnormality was detected by the sea area monitoring conducted by the national government, Fukushima Prefecture and TEPCO. (Discharge amount 7,810 m<sup>3</sup>)

In addition, based on the analytical results of Tank Group A of the measurement / confirmation facility, for which the 3rd discharge was scheduled, it was confirmed that the discharge requirement had been satisfied.

In readiness for the 3rd discharge, inspection of the facility is underway.

### Unit 2 Status of preparation for PCV internal investigation and trial retrieval

Toward the internal investigation of the Primary Containment Vessel (PCV) and trial retrieval at Unit 2, arm-type equipment will be inserted from X-6 penetration into the PCV to remove interferences inside the PCV and investigate there.

Cutting and removal of all bolts and nuts, which secured the X-6 penetration hatch, was completed on October 12. Subsequently, the hatch was opened on October 16 and deposits covering around the inlet were detected.

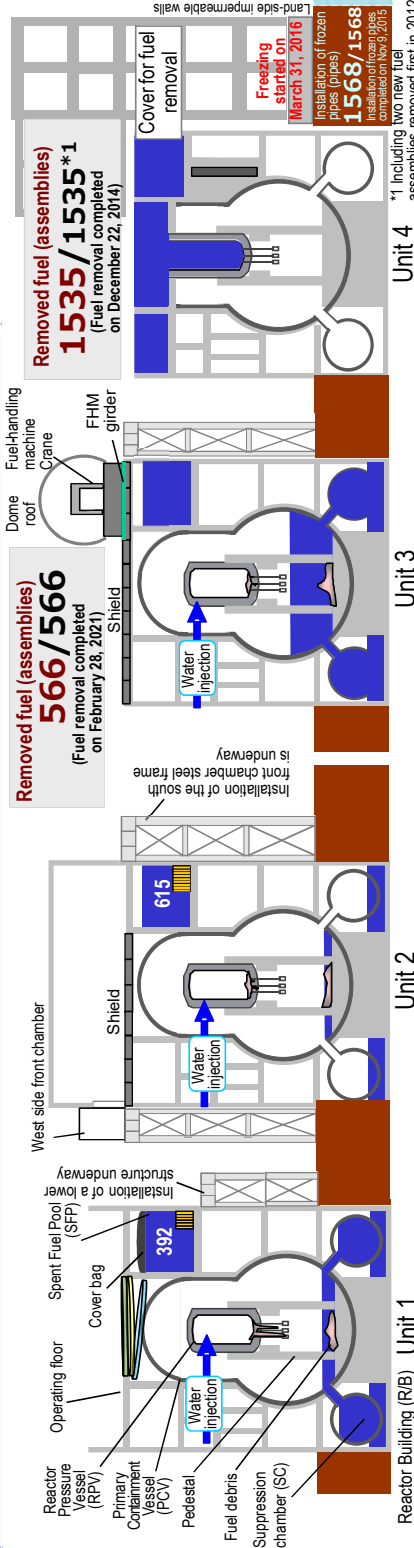
At present, preparation for removing deposits inside X-6 penetration is underway.



< Status after opening the X-6 penetration hatch >

Measurement status	Requirement satisfaction
Attributes of the treated water from Tank Group C (Concentration of the 29 types of radionuclides within the measurement / evaluation scope and regulatory requirements) [TEPCO] (Sampled on June 26)	<input type="checkbox"/>
Downstream of discharge shaft and seawater pipe header [TEPCO] (As of October 23)	<input type="checkbox"/>
Results of sea area monitoring at 10 points within 3km of the Power Station [TEPCO] (Sampled on October 22)	<input type="checkbox"/>
Ministry of the Environment (11 points off the coast of Fukushima Prefecture, sampled on October 12 and 13)	<input type="checkbox"/>
Fisheries Agency (Founder and others, sampled on October 19)	<input type="checkbox"/>
Fukushima Prefecture (9 points off the coast of Fukushima Prefecture, sampled on October 8)	<input type="checkbox"/>
IAEA (Seawater analysis result, published on September 8)	<input type="checkbox"/>

< Measurement status for the 2nd discharge of ALPS treated water >  
(\* Detailed information described on the right on Page 5 >



### Technical Strategic Plan 2023 was published

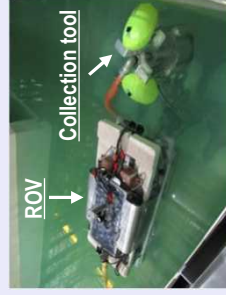
The Nuclear Damage Compensation and Decommissioning Facilitation Corporation (NDF) published the "Technical Strategic Plan 2023 for Decommissioning of the Fukushima Daiichi Nuclear Power Station of Tokyo Electric Power Company Holdings, Inc." on October 18.

The Strategic Plan describes: Unit 1, investigation and evaluation of the soundness of the pedestal; Unit 2, preparation related to trial retrieval (internal investigation and fuel debris sampling); Unit 3, examination on selection of a method to further expand the scale of fuel debris retrieval; disposal of ALPS treated water into the sea and enhancement of the analysis system.

### Status of actual-scale mockup test to treat zeolite sandbags

In the Process Main Building and High-Temperature Incinerator Building, after installing zeolite and activated-carbon sandbags, contaminated water in buildings had been received. To reduce risks, collection of high-dose sandbags is planned.

At the Naraha Center for Remote Control Technology Development of the Japan Atomic Energy Agency (JAEA), a mockup test of "enclosing into container" simulating the on-site environment has been conducted. The test has confirmed possibility in a series of basic work operations carried out by the remotely operated vehicle (ROV). After reflecting feedbacks to help make the on-site work safer and more reliable, including issues identified in the test, the results will be reflected in the design of the actual machine.



< Mockup test >

### Unit 1 Progress status of work toward fuel removal

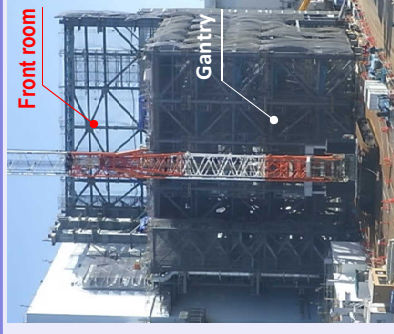
Toward installing the large cover, installation of a lower structure has been underway on the west side since June and also on the north side following the installation of base plates completed in September.

Following the removal of rubble and SGTS pipes in the area of the Units 1/2 Radioactive Waste Treatment Building, which interfered with the work to install the large cover, preparation for installing the temporary gantry on the south side (installation of shielding and other work) commenced.

### Unit 2 Progress status of work toward fuel removal

Inside the building, decontamination to reduce the radiation dose on the operating floor was completed on October 4. At present, preliminary work for installing the shielding is underway.

Outside the building, on the south side of the Reactor Building, installation of the concrete gantry floor was completed and work to install the front room has been underway. As of October 24, installation of 39 (among 45) units of the gantry for Unit 2 fuel removal was completed.



< Work on the south side of Unit 2 Reactor Building >  
(October 6, 2023)

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
October 27 <sup>th</sup> , 2023  *Discharged on November 1 <sup>st</sup>	Cs-134	ND (0.72)	ND (0.75)
	Cs-137	ND (0.54)	ND (0.61)
	Gross $\beta$	ND (2.0)	ND (0.33)
	H-3	730	760
October 26 <sup>th</sup> , 2023  *Discharged on October 31 <sup>st</sup>	Cs-134	ND (0.72)	ND (0.61)
	Cs-137	ND (0.75)	ND (0.58)
	Gross $\beta$	ND (1.7)	ND (0.41)
	H-3	700	750
October 25 <sup>th</sup> , 2023  *Discharged on October 30 <sup>th</sup>	Cs-134	ND (0.55)	ND (0.63)
	Cs-137	ND (0.75)	ND (0.72)
	Gross $\beta$	ND (0.64)	ND (0.32)
	H-3	710	740
October 24 <sup>th</sup> , 2023  *Discharged on October 29 <sup>th</sup>	Cs-134	ND (0.66)	ND (0.65)
	Cs-137	ND (0.70)	ND (0.67)
	Gross $\beta$	ND (1.7)	ND (0.34)
	H-3	680	720
October 23 <sup>th</sup> , 2023  *Discharged on October 28 <sup>th</sup>	Cs-134	ND (0.63)	ND (0.68)
	Cs-137	ND (0.61)	ND (0.72)
	Gross $\beta$	ND (1.9)	ND (0.39)
	H-3	660	700
October 22 <sup>nd</sup> , 2023  *Discharged on October 27 <sup>th</sup>	Cs-134	ND (0.75)	ND (0.60)
	Cs-137	ND (0.68)	ND (0.48)
	Gross $\beta$	ND (1.8)	ND (0.33)
	H-3	640	680
October 21 <sup>th</sup> , 2023  *Discharged on October 26 <sup>th</sup>	Cs-134	ND (0.65)	ND (0.60)
	Cs-137	ND (0.69)	ND (0.54)
	Gross $\beta$	ND (1.9)	ND (0.37)
	H-3	610	650
October 20 <sup>th</sup> , 2023  *Discharged on	Cs-134	ND (0.74)	ND (0.60)
	Cs-137	ND (0.76)	ND (0.64)

October 25 <sup>th</sup>	Gross $\beta$	ND (1.8)	ND (0.37)
	H-3	620	650
October 19 <sup>th</sup> , 2023  *Discharged on October 24 <sup>th</sup>	Cs-134	ND (0.64)	ND (0.60)
	Cs-137	ND (0.46)	ND (0.48)
	Gross $\beta$	ND (2.0)	ND (0.42)
	H-3	660	700
October 18 <sup>th</sup> , 2023  *Discharged on October 23 <sup>th</sup>	Cs-134	ND (0.89)	ND (0.70)
	Cs-137	ND (0.58)	ND (0.54)
	Gross $\beta$	ND (1.8)	ND (0.39)
	H-3	690	730
October 17 <sup>th</sup> , 2023  *Discharged on October 22 <sup>nd</sup>	Cs-134	ND (0.80)	ND (0.68)
	Cs-137	ND (0.72)	ND (0.62)
	Gross $\beta$	ND (0.76)	ND (0.33)
	H-3	690	720
October 16 <sup>th</sup> , 2023  *Discharged on October 21 <sup>th</sup>	Cs-134	ND (0.72)	ND (0.62)
	Cs-137	ND (0.54)	ND (0.57)
	Gross $\beta$	ND (1.9)	ND (0.33)
	H-3	690	740
October 15 <sup>th</sup> , 2023  *Discharged on October 20 <sup>th</sup>	Cs-134	ND (0.53)	ND (0.55)
	Cs-137	ND (0.65)	ND (0.57)
	Gross $\beta$	ND (1.8)	ND (0.35)
	H-3	710	730
October 14 <sup>th</sup> , 2023  *Discharged on October 19 <sup>th</sup>	Cs-134	ND (0.74)	ND (0.63)
	Cs-137	ND (0.70)	ND (0.50)
	Gross $\beta$	ND (2.0)	ND (0.33)
	H-3	680	720
October 13 <sup>th</sup> , 2023  *Discharged on October 18 <sup>th</sup>	Cs-134	ND (0.66)	ND (0.57)
	Cs-137	ND (0.74)	ND (0.58)
	Gross $\beta$	ND (2.0)	ND (0.34)
	H-3	660	690
October 12 <sup>th</sup> , 2023  *Discharged on October 17 <sup>th</sup>	Cs-134	ND (0.79)	ND (0.59)
	Cs-137	ND (0.59)	ND (0.48)
	Gross $\beta$	ND (1.7)	ND (0.46)
	H-3	570	600
October 11 <sup>th</sup> , 2023  *Discharged on October 16 <sup>h</sup>	Cs-134	ND (0.65)	ND (0.72)
	Cs-137	ND (0.60)	ND (0.57)
	Gross $\beta$	ND (1.9)	ND (0.36)
	H-3	670	710
October 10 <sup>th</sup> , 2023  *Discharged on October 15 <sup>h</sup>	Cs-134	ND (0.57)	ND (0.50)
	Cs-137	ND (0.67)	ND (0.51)
	Gross $\beta$	ND (1.9)	ND (0.34)

	H-3	700	740
October 9 <sup>th</sup> , 2023  *Discharged on October 14 <sup>th</sup>	Cs-134	ND (0.79)	ND (0.60)
	Cs-137	ND (0.74)	ND (0.40)
	Gross β	ND (0.61)	ND (0.33)
	H-3	700	720
October 8 <sup>th</sup> , 2023  *Discharged on October 13 <sup>th</sup>	Cs-134	ND (0.71)	ND (0.52)
	Cs-137	ND (0.66)	ND (0.54)
	Gross β	ND (1.9)	ND (0.35)
	H-3	680	700
October 6 <sup>th</sup> , 2023  *Discharged on October 11 <sup>th</sup>	Cs-134	ND (0.62)	ND (0.64)
	Cs-137	ND (0.70)	ND (0.57)
	Gross β	ND (1.7)	ND (0.33)
	H-3	610	630
October 6 <sup>th</sup> , 2023  *Discharged on October 11 <sup>th</sup>	Cs-134	ND (0.66)	ND (0.53)
	Cs-137	ND (0.65)	ND (0.62)
	Gross β	ND (1.8)	ND (0.36)
	H-3	590	620
October 4 <sup>th</sup> , 2023  *Discharged on October 9 <sup>th</sup>	Cs-134	ND (0.55)	ND (0.65)
	Cs-137	ND (0.65)	ND (0.62)
	Gross β	ND (1.8)	ND (0.36)
	H-3	620	640
October 3 <sup>rd</sup> , 2023  *Discharged on October 8 <sup>th</sup>	Cs-134	ND (0.89)	ND (0.66)
	Cs-137	ND (0.59)	ND (0.64)
	Gross β	ND (2.0)	ND (0.35)
	H-3	610	630
October 2 <sup>nd</sup> , 2023  *Discharged on October 7 <sup>th</sup>	Cs-134	ND(0.55)	ND(0.50)
	Cs-137	ND(0.77)	ND(0.44)
	Gross β	ND(1.7)	ND(0.33)
	H-3	600	650
October 1 <sup>st</sup> , 2023  *Discharged on October 6 <sup>th</sup>	Cs-134	ND (0.53)	ND (0.62)
	Cs-137	ND (0.75)	ND (0.59)
	Gross β	ND (0.64)	ND (0.32)
	H-3	670	710
September 30 <sup>th</sup> , 2023  *Discharged on October 5 <sup>th</sup>	Cs-134	ND (0.75)	ND (0.50)
	Cs-137	ND (0.79)	ND (0.70)
	Gross β	ND (1.9)	ND(0.31)
	H-3	620	650
September 29 <sup>th</sup> , 2023  *Discharged on October 4 <sup>th</sup>	Cs-134	ND (0.91)	ND (0.68)
	Cs-137	ND (0.65)	ND (0.58)
	Gross β	ND (1.6)	ND (0.35)
	H-3	640	680



September 28 <sup>th</sup> , 2023  *Discharged on October 3 <sup>rd</sup>	Cs-134	ND (0.66)	ND (0.57)
	Cs-137	ND (0.73)	ND (0.79)
	Gross $\beta$	ND (1.8)	ND (0.33)
	H-3	730	780
September 27 <sup>th</sup> , 2023  *Discharged on October 2 <sup>sd</sup>	Cs-134	ND (0.55)	ND (0.62)
	Cs-137	ND (0.70)	ND (0.62)
	Gross $\beta$	ND (1.7)	ND (0.29)
	H-3	870	940

- \* \* 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
August 2 <sup>nd</sup> ,2023	Cs-134	ND (0.0027)	ND (0.0053)	ND (0.0065)
	Cs-137	0.0020	ND(0.0039)	ND (0.0056)
	Gross α	ND (0.38)	ND (2.0)	ND (2.3)
	Gross β	ND (0.46)	ND (0.65)	ND (0.56)
	H-3	850	890	870
	Sr-90	0.0033	ND (0.0023)	ND(0.0054)

\* 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.

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)
September 12 <sup>th</sup> , 2023  *Sampled before discharge of purified groundwater.	Cs-134	ND (0.71)
	Cs-137	ND (0.72)
	Gross $\beta$	9.4
	H-3	ND (0.33)

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
October 26 <sup>th</sup> , 2023  *Discharged on November 1 <sup>st</sup>	Cs-134	ND (0.69)	ND (0.60)
	Cs-137	ND (0.76)	ND (0.61)
	Gross $\beta$	ND (0.66)	ND (0.33)
	H-3	49	52
October 19 <sup>th</sup> , 2023  *Discharged on October 24 <sup>th</sup>	Cs-134	ND (0.94)	ND (0.48)
	Cs-137	ND (0.66)	ND (0.59)
	Gross $\beta$	ND (0.66)	ND (0.38)
	H-3	49	51
October 12 <sup>th</sup> , 2023  *Discharged on October 17 <sup>th</sup>	Cs-134	ND (0.84)	ND (0.55)
	Cs-137	ND (0.54)	ND (0.59)
	Gross $\beta$	ND (0.62)	ND (0.36)
	H-3	45	49
October 5 <sup>th</sup> , 2023  *Discharged on October 10 <sup>th</sup>	Cs-134	ND (0.61)	ND (0.53)
	Cs-137	ND (0.70)	ND (0.51)
	Gross $\beta$	ND (0.66)	ND (0.32)
	H-3	52	52
September 28 <sup>th</sup> , 2023  *Discharged on October 4 <sup>th</sup>	Cs-134	ND (0.53)	ND (0.66)
	Cs-137	ND (0.79)	ND (0.51)
	Gross $\beta$	ND (0.68)	ND (0.32)
	H-3	49	54

- \* \* 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
August 3 <sup>rd</sup> , 2023	Cs-134	ND (0.0028)	ND (0.0045)	ND (0.0068)
	Cs-137	ND (0.0019)	ND (0.0038)	ND (0.0039)
	Gross $\alpha$	ND (0.38)	ND (20)	ND (2.3)
	Gross $\beta$	ND (0.38)	ND (0.63)	ND (0.58)
	H-3	52	55	54
	Sr-90	ND(0.0012)	ND (0.0011)	ND (0.0054)

\* 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 $\alpha$	—	—	—
Gross $\beta$	5 (1) ※	—	—
H-3	1,500	60,000	10,000
Sr-90	—	30	10

※ The operational target of Gross  $\beta$  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.

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)
September 12 <sup>th</sup> , 2023	Cs-134	ND (0.85)
	Cs-137	ND (0.68)
	Gross $\beta$	12
	H-3	ND (0.33)