

# Information (16:00), December 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 November**

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 November at Fukushima Daiichi Nuclear Power Station (NPS).

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

In November 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/mp202211.pdf>

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

In November 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 November 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 Kankyohozon 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 November, 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 November 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

Appendix 1

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.

Set in 'The Inter-Ministerial Council for Contaminated Water, Treated Water and Decommissioning Issues' held on April 13.

Subcommittee on Handling of ALPS Treated Water

Government

TEPCO

Nuclear Regulation Authority

TEPCO

Decision on basic policy

Hearing opinions from wide-ranging stakeholders, including locals (report)

Recommendations to the government

Application for approval to change the implementation plan

Approval by the Nuclear Regulation Authority

Implementation of preparatory work

Strengthening sea area monitoring (from about one year before discharge start)

Discharge start<sup>2</sup>

Continuing sea area monitoring

About two years

July 22, 2022

August 4, 2022

December 21, 2021

1 Including radiation impact assessment on human beings and the environment

2 Discharges into the sea will be conducted gradually during the trial phase

Units 1 and 2

Units 3 and 4

Units 1-6

Completion of fuel removal

Unit 1

Start of fuel removal

Unit 2

Start of fuel removal

Within 2021

Start of fuel debris retrieval

Unit 2

Start of fuel debris retrieval

Within 2021

Due to the spread of COVID-19, we have revised the plan to start from the second half of fiscal 2023 to improve safety and reliability.

Storage /Transportation

Fuel removal

Installation of fuel removal equipment

Rubble removal etc.

Fuel Debris Retrieval

Understanding the situation inside the PCV /Consideration of retrieval methods, etc.

Unit 2

Fuel debris retrieval

Storage /Transportation

Design and manufacturing of devices /equipment

Dismantling

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 m³/day (in May 2014) to approx. 130 m³/day (in FY2021).

Measures continue to further suppress the generation of contaminated water to 100 m³/day or less within 2025.

(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.

(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.

Diagram illustrating water management efforts:

Red: (1) Promote contaminated water management based on the three basic policies

Blue: (2) Complete stagnant water treatment

Green: (3) Stably operate contaminated water management

Welded-joint tanks

Pumping up

Facing

Groundwater level

Groundwater bypass

Sub-drain

Land side impermeable wall

Pumping well

Reactor Building

Slagant water

Pumping up

Removal of cesium Desalination

Purification

Repair of damaged roof portions

Turbine Building

Sea wall

Pumping up

Trench

Ground improvement by sodium silicate

Pumping up

Sub-drain

Land side impermeable wall

Groundwater drain

Sea-side impermeable wall

Open channel inside

Port

Grounding of mega float

Further declining water level



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.

**Submission of the Application Documents for Approval to Amend the Implementation Plan regarding the Handling of ALPS treated Water**

Additional description and revision were made for the organizational structure within TEPCO such as operation and maintenance management of the ALPS treated water dilution/ discharge facility, nuclides to be measured and assessed to verify that the discharge criteria is satisfied before discharge into the sea and the radiation environmental impact assessment results based on the reviewed nuclides to be measured and assessed. Subsequently, on November 14, TEPCO submitted the Application Documents for Approval to Amend the Implementation Plan to the Nuclear Regulation Agency (NRA). TEPCO will respond sincerely to the reviews conducted by the NRA.

**IAEA review of the safety aspects of ALPS treated water (second review)**

From November 14~18, a delegation of the International Atomic Energy Agency (IAEA) visited Japan and reviewed the safety aspects of ALPS treated water.

In the review, based on the IAEA international safety standards, the reflection status of items pointed out by IAEA in the previous review (mainly in the radiation environmental assessment) was examined and discussions were conducted about the details of the "Application Documents for Approval to Amend the Implementation Plan" (review of nuclides to be measured and assessed, revised radiation environmental impact assessment report and others) submitted by TEPCO to the NRA on November 14.

The results of this review will be published as a report from IAEA around the beginning of the following year.

**Operation start of continuous monitoring of Drainage Channel D**

For Drainage Channel D, as part of efforts to eliminate the flooding risk around the Units 1-4 buildings due to heavy rain, a propulsion tunnel was installed and operation started from August 30 mainly in areas with a low dose on the west side of the site

To further mitigate the flooding risk around the Unit 1-4 buildings during heavy rain, a portion of rain in the area of high ground on the mountain side of the Unit 1-4 buildings will be conveyed to Drainage Channel D.

Before the connection, continuous monitoring facilities for the drainage concentration have been prepared.

From November 29, remotely operated continuous monitoring will start. Moreover, a portion of the high ground area on the mountain side of the Unit 1-4 buildings will be sequentially connected with Drainage Channel D and monitoring of the drainage will continue.

Location of continuous monitoring facility

Shallow Draft Quay Drainage channel

Unit 1 Unit 2 Unit 3 Unit 4

Drainage Channel A (after replacement)

Drainage Channel B

Drainage Channel C

Drainage Channel D (propulsion tunnel)

Drainage Channel E

Drainage Channel F

Drainage Channel G

Drainage Channel H

Drainage Channel I

Drainage Channel J

Drainage Channel K

Drainage Channel L

Drainage Channel M

Drainage Channel N

Drainage Channel O

Drainage Channel P

Drainage Channel Q

Drainage Channel R

Drainage Channel S

Drainage Channel T

Drainage Channel U

Drainage Channel V

Drainage Channel W

Drainage Channel X

Drainage Channel Y

Drainage Channel Z

Drainage Channel AA

Drainage Channel AB

Drainage Channel AC

Drainage Channel AD

Drainage Channel AE

Drainage Channel AF

Drainage Channel AG

Drainage Channel AH

Drainage Channel AI

Drainage Channel AJ

Drainage Channel AK

Drainage Channel AL

Drainage Channel AM

Drainage Channel AN

Drainage Channel AO

Drainage Channel AP

Drainage Channel AQ

Drainage Channel AR

Drainage Channel AS

Drainage Channel AT

Drainage Channel AU

Drainage Channel AV

Drainage Channel AW

Drainage Channel AX

Drainage Channel AY

Drainage Channel AZ

Drainage Channel BA

Drainage Channel BB

Drainage Channel BC

Drainage Channel BD

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Drainage Channel BV

Drainage Channel BW

Drainage Channel BX

Drainage Channel BY

Drainage Channel BZ

Drainage Channel CA

Drainage Channel CB

Drainage Channel CC

Drainage Channel CD

Drainage Channel CE

Drainage Channel CF

Drainage Channel CG

Drainage Channel CH

Drainage Channel CI

Drainage Channel CJ

Drainage Channel CK

Drainage Channel CL

Drainage Channel CM

Drainage Channel CN

Drainage Channel CO

Drainage Channel CP

Drainage Channel CQ

Drainage Channel CR

Drainage Channel CS

Drainage Channel CT

Drainage Channel CU

Drainage Channel CV

Drainage Channel CW

Drainage Channel CX

Drainage Channel CY

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Drainage Channel II

Drainage Channel IJ

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Drainage Channel IP

Drainage Channel IQ

Drainage Channel IR

Drainage Channel IS

Drainage Channel IT

Drainage Channel IU

Drainage Channel IV

Drainage Channel IW

Drainage Channel IX

Drainage Channel IY

Drainage Channel IZ

Drainage Channel JA

Drainage Channel JB

Drainage Channel JC

Drainage Channel JD

Drainage Channel JE

Drainage Channel JF

Drainage Channel JG

Drainage Channel JH

Drainage Channel JI

Drainage Channel JJ

Drainage Channel JK

Drainage Channel JL

Drainage Channel JM

Drainage Channel JN

Drainage Channel JO

Drainage Channel JP

Drainage Channel JQ

Drainage Channel JR

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Drainage Channel LV

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Drainage Channel MN

Drainage Channel MO

Drainage Channel MP

Drainage Channel MQ

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Drainage Channel MS

Drainage Channel MT

Drainage Channel MU

Drainage Channel MV

Drainage Channel MW

Drainage Channel MX

Drainage Channel MY

Drainage Channel MZ

Drainage Channel NA

Drainage Channel NB

Drainage Channel NC

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Drainage Channel NI

Drainage Channel NJ

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Drainage Channel NM

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Drainage Channel NQ

Drainage Channel NR

Drainage Channel NS

Drainage Channel NT

Drainage Channel NU

Drainage Channel NV

Drainage Channel NW

Drainage Channel NX

Drainage Channel NY

Drainage Channel NZ

Drainage Channel OA

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Drainage Channel OG

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Drainage Channel RY

Drainage Channel RZ

Drainage Channel SA

Drainage Channel SB

Drainage Channel SC

Drainage Channel SD

Drainage Channel SE

Drainage Channel SF

Drainage Channel SG

Drainage Channel SH

Drainage Channel SI

Drainage Channel SJ

Drainage Channel SK

Drainage Channel SL

Drainage Channel SM

Drainage Channel SN

Drainage Channel SO

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Drainage Channel XJ

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Drainage Channel XM

Drainage Channel XN

Drainage Channel XO

Drainage Channel XP

Drainage Channel XQ

Drainage Channel XR

Drainage Channel XS

Drainage Channel XT

Drainage Channel XU

Drainage Channel XV

Drainage Channel XW

Drainage Channel XX

Drainage Channel XY

Drainage Channel XZ

Drainage Channel YA

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Drainage Channel ZJ

Drainage Channel ZK

Drainage Channel ZL

Drainage Channel ZM

Drainage Channel ZN

Drainage Channel ZO

Drainage Channel ZP

Drainage Channel ZQ

Drainage Channel ZR

Drainage Channel ZS

Drainage Channel ZT

Drainage Channel ZU

Drainage Channel ZV

Drainage Channel ZW

Drainage Channel ZX

Drainage Channel ZY

Drainage Channel ZZ

Shallow Draft Quay Drainage channel

Unit 1 Unit 2 Unit 3 Unit 4

Drainage Channel A (after replacement)

Drainage Channel B

Drainage Channel C

Drainage Channel D (propulsion tunnel)

Drainage Channel E

Drainage Channel F

Drainage Channel G

Drainage Channel H

Drainage Channel I

Drainage Channel J

Drainage Channel K

Drainage Channel L

Drainage Channel M

Drainage Channel N

Drainage Channel O

Drainage Channel P

Drainage Channel Q

Drainage Channel R

Drainage Channel S

Drainage Channel T

Drainage Channel U

Drainage Channel V

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Drainage Channel AA

Drainage Channel AB

Drainage Channel AC

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Drainage Channel AP

Drainage Channel AQ

Drainage Channel AR

Drainage Channel AS

Drainage Channel AT

Drainage Channel AU

Drainage Channel AV

Drainage Channel AW

Drainage Channel AX

Drainage Channel AY

Drainage Channel AZ

Drainage Channel BA

Drainage Channel BB

Drainage Channel BC

Drainage Channel BD

Drainage Channel BE

Drainage Channel BF

Drainage Channel BG

Drainage Channel BH

Drainage Channel BI

Drainage Channel BJ

Drainage Channel BK

Drainage Channel BL

Drainage Channel BM

Drainage Channel BN

Drainage Channel BO

Drainage Channel BP

Drainage Channel BQ

Drainage Channel BR

Drainage Channel BS

Drainage Channel BT

Drainage Channel BU

Drainage Channel BV

Drainage Channel BW

Drainage Channel BX

Drainage Channel BY

Drainage Channel BZ

Drainage Channel CA

Drainage Channel CB

Drainage Channel CC

Drainage Channel CD

Drainage Channel CE

Drainage Channel CF

Drainage Channel CG

Drainage Channel CH

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
November 26 <sup>th</sup> , 2022  *Discharged on December 1 <sup>st</sup>	Cs-134	ND (0.74)	ND (0.57)
	Cs-137	ND (0.47)	ND (0.54)
	Gross $\beta$	ND (1.8)	ND (0.35)
	H-3	830	890
November 25 <sup>th</sup> , 2022  *Discharged on November 30 <sup>th</sup>	Cs-134	ND (0.64)	ND (0.66)
	Cs-137	ND (0.54)	ND (0.50)
	Gross $\beta$	ND (0.71)	ND (0.34)
	H-3	840	890
November 24 <sup>th</sup> , 2022  *Discharged on November 29 <sup>th</sup>	Cs-134	ND (0.75)	ND (0.69)
	Cs-137	ND (0.65)	ND (0.67)
	Gross $\beta$	ND (2.0)	ND (0.33)
	H-3	890	960
November 23 <sup>rd</sup> , 2022  *Discharged on November 28 <sup>th</sup>	Cs-134	ND (0.63)	ND (0.59)
	Cs-137	ND (0.69)	ND (0.57)
	Gross $\beta$	ND (1.9)	ND (0.30)
	H-3	870	930
November 22 <sup>nd</sup> , 2022  *Discharged on November 27 <sup>th</sup>	Cs-134	ND (0.75)	ND (0.60)
	Cs-137	ND (0.69)	ND (0.63)
	Gross $\beta$	ND (1.9)	ND (0.35)
	H-3	930	980
November 21 <sup>st</sup> , 2022  *Discharged on November 26 <sup>th</sup>	Cs-134	ND (0.72)	ND (0.62)
	Cs-137	ND (0.65)	ND (0.61)
	Gross $\beta$	ND (1.9)	ND (0.35)
	H-3	960	1000
November 20 <sup>th</sup> , 2022  *Discharged on November 25 <sup>th</sup>	Cs-134	ND (0.58)	ND (0.65)
	Cs-137	ND (0.65)	ND (0.67)
	Gross $\beta$	ND (1.9)	0.39
	H-3	880	930
November 19 <sup>th</sup> , 2022	Cs-134	ND (0.64)	ND (0.59)

*Discharged on November 24 <sup>th</sup>	Cs-137	ND (0.69)	ND (0.64)
	Gross $\beta$	ND (2.0)	ND (0.34)
	H-3	900	970
November 18 <sup>th</sup> , 2022  *Discharged on November 23 <sup>rd</sup>	Cs-134	ND (0.59)	ND (0.49)
	Cs-137	ND (0.60)	ND (0.52)
	Gross $\beta$	ND (2.0)	ND (0.34)
	H-3	890	960
November 17 <sup>th</sup> , 2022  *Discharged on November 22 <sup>nd</sup>	Cs-134	ND (0.52)	ND (0.50)
	Cs-137	ND (0.54)	ND (0.61)
	Gross $\beta$	ND (0.65)	ND (0.36)
	H-3	840	910
November 16 <sup>th</sup> , 2022  *Discharged on November 21 <sup>st</sup>	Cs-134	ND (0.57)	ND (0.62)
	Cs-137	ND (0.65)	ND (0.69)
	Gross $\beta$	ND (1.9)	ND (0.39)
	H-3	890	950
November 15 <sup>th</sup> , 2022  *Discharged on November 20 <sup>th</sup>	Cs-134	ND (0.59)	ND (0.69)
	Cs-137	ND (0.73)	ND (0.50)
	Gross $\beta$	ND (1.8)	ND (0.34)
	H-3	930	1000
November 14 <sup>th</sup> , 2022  *Discharged on November 19 <sup>th</sup>	Cs-134	ND (0.72)	ND (0.62)
	Cs-137	ND (0.47)	ND (0.67)
	Gross $\beta$	ND (2.1)	ND (0.35)
	H-3	910	990
November 13 <sup>th</sup> , 2022  *Discharged on November 18 <sup>th</sup>	Cs-134	ND (0.74)	ND (0.69)
	Cs-137	ND (0.62)	ND (0.61)
	Gross $\beta$	ND (1.8)	ND (0.33)
	H-3	910	970
November 11 <sup>th</sup> , 2022  *Discharged on November 18 <sup>th</sup>	Cs-134	ND (0.58)	ND (0.71)
	Cs-137	ND (0.69)	ND (0.61)
	Gross $\beta$	ND (1.9)	ND (0.30)
	H-3	890	940
November 12 <sup>th</sup> , 2022  *Discharged on November 17 <sup>th</sup>	Cs-134	ND (0.61)	ND (0.54)
	Cs-137	ND (0.73)	ND (0.61)
	Gross $\beta$	ND (1.8)	ND (0.33)
	H-3	870	920
November 10 <sup>th</sup> , 2022  *Discharged on November 15 <sup>th</sup>	Cs-134	ND (0.56)	ND (0.41)
	Cs-137	ND (0.65)	ND (0.54)
	Gross $\beta$	ND (1.6)	0.48
	H-3	840	890
November 9 <sup>th</sup> , 2022  *Discharged on	Cs-134	ND (0.75)	ND (0.53)
	Cs-137	ND (0.65)	ND (0.77)

November 14 <sup>th</sup>	Gross $\beta$	ND (0.59)	ND (0.37)
	H-3	820	880
November 8 <sup>th</sup> , 2022  *Discharged on November 13 <sup>th</sup>	Cs-134	ND (0.75)	ND (0.58)
	Cs-137	ND (0.60)	ND (0.67)
	Gross $\beta$	ND (1.9)	ND (0.36)
	H-3	810	900
November 7 <sup>th</sup> , 2022  *Discharged on November 12 <sup>th</sup>	Cs-134	ND (0.52)	ND (0.47)
	Cs-137	ND (0.69)	ND (0.73)
	Gross $\beta$	ND (2.1)	ND (0.38)
	H-3	810	850
November 6 <sup>th</sup> , 2022  *Discharged on November 11 <sup>th</sup>	Cs-134	ND (0.55)	ND (0.52)
	Cs-137	ND (0.69)	ND (0.70)
	Gross $\beta$	ND (1.8)	0.36
	H-3	740	770
November 5 <sup>th</sup> , 2022  *Discharged on November 10 <sup>th</sup>	Cs-134	ND (0.56)	ND (0.61)
	Cs-137	ND (0.73)	ND (0.58)
	Gross $\beta$	ND (1.9)	ND (0.35)
	H-3	770	840
November 4 <sup>th</sup> , 2022  *Discharged on November 9 <sup>th</sup>	Cs-134	ND (0.57)	ND (0.64)
	Cs-137	ND (0.54)	ND (0.61)
	Gross $\beta$	ND (2.0)	ND (0.36)
	H-3	800	840
November 3 <sup>rd</sup> , 2022  *Discharged on November 8 <sup>th</sup>	Cs-134	ND (0.70)	ND (0.73)
	Cs-137	ND (0.77)	ND (0.76)
	Gross $\beta$	ND (1.7)	ND (0.38)
	H-3	760	810
November 2 <sup>nd</sup> , 2022  *Discharged on November 7 <sup>th</sup>	Cs-134	ND (0.61)	ND (0.79)
	Cs-137	ND (0.67)	ND (0.66)
	Gross $\beta$	ND (1.5)	ND (0.38)
	H-3	750	820
November 1 <sup>st</sup> , 2022  *Discharged on November 6 <sup>th</sup>	Cs-134	ND (0.53)	ND (0.58)
	Cs-137	ND (0.67)	ND (0.58)
	Gross $\beta$	ND (0.69)	ND (0.36)
	H-3	760	830
October 31 <sup>st</sup> , 2022  *Discharged on November 5 <sup>th</sup>	Cs-134	ND (0.61)	ND (0.59)
	Cs-137	ND (0.76)	ND (0.61)
	Gross $\beta$	ND (1.6)	ND (0.39)
	H-3	720	780
October 30 <sup>th</sup> , 2022  *Discharged on November 4 <sup>th</sup>	Cs-134	ND (0.54)	ND (0.64)
	Cs-137	ND (0.65)	ND (0.66)
	Gross $\beta$	ND (1.8)	ND (0.34)



	H-3	690	770
October 29 <sup>th</sup> , 2022  *Discharged on November 3 <sup>rd</sup>	Cs-134	ND (0.79)	ND (0.58)
	Cs-137	ND (0.69)	ND (0.70)
	Gross $\beta$	ND (1.7)	ND (0.33)
	H-3	710	760
October 28 <sup>th</sup> , 2022  *Discharged on November 2 <sup>nd</sup>	Cs-134	ND (0.69)	ND (0.71)
	Cs-137	ND (0.65)	ND (0.58)
	Gross $\beta$	ND (0.63)	ND (0.32)
	H-3	720	760

- \* \* 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
October 1 <sup>st</sup> , 2022	Cs-134	ND (0.0029)	ND (0.0047)	ND (0.0062)
	Cs-137	0.0030	ND (0.0039)	ND (0.0050)
	Gross $\alpha$	ND (0.43)	ND (2.5)	ND (1.8)
	Gross $\beta$	ND (0.47)	ND (0.59)	ND (0.57)
	H-3	590	580	590
	Sr-90	ND (0.0050)	ND (0.0032)	ND (0.0061)

\* 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 $\beta$	3 (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 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 5 <sup>th</sup> , 2022  *Sampled before discharge of purified groundwater.	Cs-134	ND (0.72)
	Cs-137	ND (0.51)
	Gross $\beta$	9.1
	H-3	ND (0.31)

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
November 25 <sup>th</sup> , 2022  *Discharged on December 1 <sup>st</sup>	Cs-134	ND (0.58)	ND (0.53)
	Cs-137	ND (0.69)	ND (0.64)
	Gross $\beta$	ND (0.62)	ND (0.27)
	H-3	51	57
November 18 <sup>th</sup> , 2022  *Discharged on November 23 <sup>rd</sup>	Cs-134	ND (0.68)	ND (0.67)
	Cs-137	ND (0.60)	ND (0.52)
	Gross $\beta$	ND (0.64)	ND (0.32)
	H-3	63	63
November 10 <sup>th</sup> , 2022  *Discharged on November 17 <sup>th</sup>	Cs-134	ND (0.56)	ND (0.57)
	Cs-137	ND (0.69)	ND (0.55)
	Gross $\beta$	ND (0.56)	ND (0.30)
	H-3	62	66
November 2 <sup>nd</sup> , 2022  *Discharged on November 7 <sup>th</sup>	Cs-134	ND (0.71)	ND (0.58)
	Cs-137	ND (0.72)	ND (0.63)
	Gross $\beta$	ND (0.60)	ND (0.32)
	H-3	52	56

- \* \* 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
October 5 <sup>th</sup> , 2022	Cs-134	ND (0.0024)	ND (0.0049)	ND (0.0063)
	Cs-137	ND (0.0020)	ND (0.0041)	ND (0.0048)
	Gross $\alpha$	ND (0.50)	ND (3.8)	ND (1.8)
	Gross $\beta$	ND (0.46)	ND (0.71)	ND (0.53)
	H-3	54	52	53
	Sr-90	ND (0.0011)	ND (0.0012)	ND (0.0058)

\* 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 5 <sup>th</sup> , 2022	Cs-134	ND (0.68)
	Cs-137	ND (0.54)
	Gross $\beta$	9.6
	H-3	ND (0.32)