

# **Information, December, 2024**

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. 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 1. 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 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 2).

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 3). 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.

### **2. Groundwater Bypassing**

In November, the pumped bypassing groundwater was discharged on the dates shown in Appendix 4. 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 5).

Moreover, TEPCO publishes analysis results on seawater sampled during the discharge operation at the nearest seawater sampling post from the discharge point (see Appendix 6). 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

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> , 2024  *Discharged on December 1 <sup>st</sup>	Cs-134	ND (0.58)	ND (0.66)
	Cs-137	ND (0.86)	ND (0.54)
	Gross $\beta$	ND (1.9)	ND (0.32)
	H-3	650	700
November 25 <sup>th</sup> , 2024  *Discharged on November 30 <sup>th</sup>	Cs-134	ND (0.67)	ND (0.63)
	Cs-137	ND (0.71)	ND (0.63)
	Gross $\beta$	ND (1.8)	ND (0.36)
	H-3	720	750
November 23 <sup>rd</sup> , 2024  *Discharged on November 28 <sup>th</sup>	Cs-134	ND (0.88)	ND (0.62)
	Cs-137	ND (0.75)	ND (0.60)
	Gross $\beta$	ND (2.0)	ND (0.34)
	H-3	780	830
November 21 <sup>st</sup> , 2024  *Discharged on November 26 <sup>th</sup>	Cs-134	ND (0.82)	ND (0.51)
	Cs-137	ND (0.67)	ND (0.63)
	Gross $\beta$	ND (1.8)	ND (0.34)
	H-3	880	950
November 19 <sup>th</sup> , 2024  *Discharged on November 24 <sup>th</sup>	Cs-134	ND (0.58)	ND (0.44)
	Cs-137	ND (0.62)	ND (0.58)
	Gross $\beta$	ND (0.67)	ND (0.33)
	H-3	830	880
November 17 <sup>th</sup> , 2024  *Discharged on November 22 <sup>nd</sup>	Cs-134	ND (0.84)	ND (0.58)
	Cs-137	ND (0.74)	ND (0.58)
	Gross $\beta$	ND (2.1)	ND (0.30)
	H-3	710	780
November 16 <sup>th</sup> , 2024  *Discharged on November 21 <sup>st</sup>	Cs-134	ND (0.61)	ND (0.83)
	Cs-137	ND (0.59)	ND (0.63)
	Gross $\beta$	ND (1.9)	ND (0.31)
	H-3	720	780
November 14 <sup>th</sup> , 2024  *Discharged on November 19 <sup>th</sup>	Cs-134	ND (0.58)	ND (0.59)
	Cs-137	ND (0.63)	ND (0.66)
	Gross $\beta$	ND (1.8)	ND (0.33)

	H-3	620	640
November 13 <sup>th</sup> , 2024  *Discharged on November 18 <sup>th</sup>	Cs-134	ND (0.98)	ND (0.59)
	Cs-137	ND (0.78)	ND (0.54)
	Gross $\beta$	ND (1.9)	ND (0.29)
	H-3	560	580
November 12 <sup>th</sup> , 2024  *Discharged on November 17 <sup>th</sup>	Cs-134	ND (0.80)	ND (0.62)
	Cs-137	ND (0.72)	ND (0.58)
	Gross $\beta$	ND (1.7)	ND (0.36)
	H-3	560	560
November 11 <sup>th</sup> , 2024  *Discharged on November 16 <sup>th</sup>	Cs-134	ND (0.67)	ND (0.67)
	Cs-137	ND (0.67)	ND (0.66)
	Gross $\beta$	ND (1.9)	ND (0.34)
	H-3	560	570
November 10 <sup>th</sup> , 2024  *Discharged on November 15 <sup>th</sup>	Cs-134	ND (0.56)	ND (0.58)
	Cs-137	ND (0.59)	ND (0.51)
	Gross $\beta$	ND (0.65)	ND (0.35)
	H-3	530	580
November 9 <sup>th</sup> , 2024  *Discharged on November 14 <sup>th</sup>	Cs-134	ND (0.58)	ND (0.41)
	Cs-137	ND (0.49)	ND (0.66)
	Gross $\beta$	ND (1.9)	ND (0.36)
	H-3	530	570
November 8 <sup>th</sup> , 2024  *Discharged on November 13 <sup>th</sup>	Cs-134	ND (0.84)	ND (0.67)
	Cs-137	ND (0.75)	ND (0.54)
	Gross $\beta$	ND (1.7)	ND (0.36)
	H-3	530	540
November 7 <sup>th</sup> , 2024  *Discharged on November 12 <sup>th</sup>	Cs-134	ND (0.92)	ND (0.41)
	Cs-137	ND (0.66)	ND (0.51)
	Gross $\beta$	ND (1.8)	ND (0.32)
	H-3	470	490
November 6 <sup>th</sup> , 2024  *Discharged on November 11 <sup>th</sup>	Cs-134	ND (0.93)	ND (0.67)
	Cs-137	ND (0.63)	ND (0.69)
	Gross $\beta$	ND (1.8)	ND (0.38)
	H-3	550	560
November 5 <sup>th</sup> , 2024  *Discharged on November 10 <sup>th</sup>	Cs-134	ND (0.91)	ND (0.48)
	Cs-137	ND (0.80)	ND (0.78)
	Gross $\beta$	ND (1.7)	0.51
	H-3	610	630
November 4 <sup>th</sup> , 2024  *Discharged on November 9 <sup>th</sup>	Cs-134	ND (0.58)	ND (0.70)
	Cs-137	ND (0.69)	ND (0.63)
	Gross $\beta$	ND (1.9)	0.44
	H-3	660	680

November 3 <sup>rd</sup> , 2024  *Discharged on November 8 <sup>th</sup>	Cs-134	ND (0.53)	ND (0.55)
	Cs-137	ND (0.64)	ND (0.83)
	Gross $\beta$	ND (2.1)	0.50
	H-3	680	730
November 1 <sup>st</sup> , 2024  *Discharged on November 6 <sup>th</sup>	Cs-134	ND (0.66)	ND (0.58)
	Cs-137	ND (0.66)	ND (0.51)
	Gross $\beta$	ND (0.68)	0.38
	H-3	790	850
October 31 <sup>st</sup> , 2024  *Discharged on November 5 <sup>th</sup>	Cs-134	ND (0.67)	ND (0.67)
	Cs-137	ND (0.72)	ND (0.69)
	Gross $\beta$	ND (2.1)	ND (0.37)
	H-3	840	870
October 30 <sup>th</sup> , 2024  *Discharged on November 4 <sup>th</sup>	Cs-134	ND (0.69)	ND (0.42)
	Cs-137	ND (0.74)	ND (0.54)
	Gross $\beta$	ND (2.1)	0.42
	H-3	810	860
October 28 <sup>th</sup> , 2024  *Discharged on November 2 <sup>nd</sup>	Cs-134	ND (0.78)	ND (0.64)
	Cs-137	ND (0.61)	ND (0.54)
	Gross $\beta$	ND (1.9)	ND (0.38)
	H-3	750	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
October 1 <sup>st</sup> , 2024	Cs-134	ND (0.0030)	ND (0.0046)	ND (0.0055)
	Cs-137	0.0031±0.00059	ND (0.0041)	ND (0.0051)
	Gross α	ND (0.62)	ND (2.2)	ND (1.8)
	Gross β	ND (0.38)	ND (0.74)	ND (0.59)
	H-3	680 ±1.5	670	680
	Sr-90	ND(0.0016)	ND (0.0015)	ND (0.0068)

\* ND: represents a value below the detection limit; values in ( ) represent the detection limit.

(Reference)

(Unit: Bq/L)

Radionuclides	Operational Targets	Density Limit specified by the Reactor Regulation	World Health Organization (WHO) Guidelines for Drinking Water Quality
Cs-134	1	60	10
Cs-137	1	90	10
Gross α	—	—	—
Gross β	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 11 <sup>th</sup> , 2024  *Sampled before discharge of purified groundwater.	Cs-134	ND (0.68)
	Cs-137	ND (0.78)
	Gross $\beta$	11
	H-3	ND (0.28)

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 22 <sup>nd</sup> , 2024  *Discharged on November 28 <sup>th</sup>	Cs-134	ND (0.65)	ND (0.60)
	Cs-137	ND (0.64)	ND (0.78)
	Gross $\beta$	ND (0.72)	ND (0.31)
	H-3	34	36
November 15 <sup>th</sup> , 2024  *Discharged on November 21 <sup>st</sup>	Cs-134	ND (0.84)	ND (0.68)
	Cs-137	ND (0.86)	ND (0.78)
	Gross $\beta$	ND (0.61)	ND (0.32)
	H-3	31	34
November 8 <sup>th</sup> , 2024  *Discharged on November 14 <sup>th</sup>	Cs-134	ND (0.79)	ND (0.48)
	Cs-137	ND (0.65)	ND (0.51)
	Gross $\beta$	ND (0.63)	ND (0.32)
	H-3	36	43
November 2 <sup>nd</sup> , 2024  *Discharged on November 8 <sup>th</sup>	Cs-134	ND (0.61)	ND (0.64)
	Cs-137	ND (0.70)	ND (0.58)
	Gross $\beta$	ND (0.65)	ND (0.30)
	H-3	37	39

- \* \* 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 4 <sup>th</sup> , 2024	Cs-134	ND (0.0026)	ND (0.0050)	ND (0.0056)
	Cs-137	ND (0.0019)	ND (0.0050)	ND (0.0052)
	Gross $\alpha$	ND (0.56)	ND (2.2)	ND (1.8)
	Gross $\beta$	ND (0.47)	ND (0.63)	ND (0.56)
	H-3	51 $\pm$ 0.44	46	47
	Sr-90	ND (0.0016)	ND (0.0014)	ND (0.0066)

\* 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 11 <sup>th</sup> , 2024	Cs-134	ND (0.68)
	Cs-137	ND (0.97)
	Gross $\beta$	12
	H-3	ND (0.32)