Information, January, 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 December

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 December at Fukushima Daiichi Nuclear Power Station (NPS).

1. Sub-drain and Groundwater Drain Systems

In December 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 December 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 December, 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 December 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

Appendix 1

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
December 27th, 2022 *Discharged on January 1st	Cs-134	ND (0.78)	ND (0.55)
	Cs-137	ND (0.69)	ND (0.66)
	Gross β	ND (1.6)	ND (0.29)
	H-3	810	860
December 25th, 2022 *Discharged on December 30th	Cs-134	ND (0.78)	ND (0.71)
	Cs-137	ND (0.65)	ND (0.64)
	Gross β	ND (1.9)	ND (0.31)
	H-3	730	810
December 24th, 2022 *Discharged on December 29th	Cs-134	ND (0.55)	ND (0.64)
	Cs-137	ND (0.65)	ND (0.67)
	Gross β	ND (1.9)	ND (0.34)
	H-3	800	860
December 23rd, 2022 *Discharged on December 28th	Cs-134	ND (0.88)	ND (0.68)
	Cs-137	ND (0.54)	ND (0.61)
	Gross β	ND (0.66)	ND (0.37)
	H-3	760	830
December 21st, 2022 *Discharged on December 26th	Cs-134	ND (0.64)	ND (0.55)
	Cs-137	ND (0.73)	ND (0.66)
	Gross β	ND (2.2)	ND (0.39)
	H-3	760	820
December 19th, 2022 *Discharged on December 25th	Cs-134	ND (0.80)	ND (0.64)
	Cs-137	ND (0.65)	ND (0.61)
	Gross β	ND (1.8)	ND (0.33)
	H-3	790	850
December 16th, 2022 *Discharged on December 21st	Cs-134	ND (0.44)	ND (0.51)
	Cs-137	ND (0.77)	ND (0.54)
	Gross β	ND (0.61)	ND (0.42)
	H-3	730	800
December 14th, 2022 *Discharged on	Cs-134	ND (0.76)	ND (0.74)
	Cs-137	ND (0.60)	ND (0.58)

December 20th	Gross β	ND (2.0)	ND (0.35)
	H-3	730	800
December 12th, 2022 *Discharged on December 17th	Cs-134	ND (0.45)	ND (0.43)
	Cs-137	ND (0.65)	ND (0.63)
	Gross β	ND (2.1)	ND (0.35)
	H-3	750	790
December 10th, 2022 *Discharged on December 15th	Cs-134	ND (0.69)	ND (0.75)
	Cs-137	ND (0.69)	ND (0.57)
	Gross β	ND (1.9)	ND (0.32)
	H-3	760	810
December 8th, 2022 *Discharged on December 13th	Cs-134	ND (0.76)	ND (0.66)
	Cs-137	ND (0.77)	ND (0.72)
	Gross β	ND (0.65)	ND (0.33)
	H-3	730	780
December 7th, 2022 *Discharged on December 12th	Cs-134	ND (0.73)	ND (0.64)
	Cs-137	ND (0.75)	ND (0.63)
	Gross β	ND (1.8)	ND (0.30)
	H-3	750	820
December 6th, 2022 *Discharged on December 11th	Cs-134	ND (0.75)	ND (0.44)
	Cs-137	ND (0.65)	ND (0.64)
	Gross β	ND (1.7)	ND (0.34)
	H-3	750	820
December 5th, 2022 *Discharged on December 10th	Cs-134	ND (0.66)	ND (0.64)
	Cs-137	ND (0.65)	ND (0.57)
	Gross β	ND (2.0)	ND (0.32)
	H-3	820	870
December 3rd, 2022 *Discharged on December 8th	Cs-134	ND (0.78)	ND (0.56)
	Cs-137	ND (0.65)	ND (0.54)
	Gross β	ND (2.0)	ND (0.32)
	H-3	760	790
December 2nd, 2022 *Discharged on December 7th	Cs-134	ND (0.70)	ND (0.58)
	Cs-137	ND (0.65)	ND (0.55)
	Gross β	ND (1.8)	ND (0.31)
	H-3	700	750
December 1st, 2022 *Discharged on December 6th	Cs-134	ND (0.50)	ND (0.70)
	Cs-137	ND (0.77)	ND (0.74)
	Gross β	ND (0.73)	ND (0.32)
	H-3	660	720
November 30th, 2022 *Discharged on December 5th	Cs-134	ND (0.53)	ND (0.55)
	Cs-137	ND (0.87)	ND (0.61)
	Gross β	ND (2.1)	ND (0.34)

	H-3	710	780
November 29th, 2022 *Discharged on December 4th	Cs-134	ND (0.41)	ND (0.67)
	Cs-137	ND (0.65)	ND (0.61)
	Gross β	ND (2.0)	ND (0.32)
	H-3	740	790
November 28th, 2022 *Discharged on December 3rd	Cs-134	ND (0.45)	ND (0.68)
	Cs-137	ND (0.54)	ND (0.74)
	Gross β	ND (1.9)	ND (0.33)
	H-3	730	790
November 27th, 2022 *Discharged on December 2nd	Cs-134	ND (0.79)	ND (0.70)
	Cs-137	ND (0.65)	ND (0.60)
	Gross β	ND (1.8)	ND (0.36)
	H-3	820	880

* * 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 2

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
November 1st,2022	Cs-134	ND (0.0034)	ND (0.0046)	ND (0.0071)
	Cs-137	0.0029	0.0068	ND (0.0047)
	Gross α	ND (0.56)	ND (3.2)	ND (1.8)
	Gross β	ND (0.49)	ND (0.69)	ND (0.55)
	H-3	790	780	800
	Sr-90	ND (0.0077)	0.0049	0.0081

* 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.

Appendix 3

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 8th, 2022 *Sampled before discharge of purified groundwater.	Cs-134	ND (0.66)
	Cs-137	ND (0.79)
	Gross β	11
	H-3	ND (0.30)

Appendix 4

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 24th, 2022 *Discharged on December 29th	Cs-134	ND (0.65)	ND (0.64)
	Cs-137	ND (0.73)	ND (0.64)
	Gross β	ND (0.67)	ND (0.35)
	H-3	54	59
December 19th, 2022 *Discharged on December 27th	Cs-134	ND (0.68)	ND (0.60)
	Cs-137	ND (0.60)	ND (0.61)
	Gross β	ND (0.65)	ND (0.30)
	H-3	52	56
December 14th, 2022 *Discharged on December 22nd	Cs-134	ND (0.56)	ND (0.53)
	Cs-137	ND (0.60)	ND (0.66)
	Gross β	ND (0.57)	ND (0.34)
	H-3	83	84
December 3rd, 2022 *Discharged on December 8th	Cs-134	ND (0.61)	ND (0.44)
	Cs-137	ND (0.54)	ND (0.72)
	Gross β	ND (0.69)	ND (0.29)
	H-3	64	64

- * 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
November 2nd, 2022	Cs-134	ND (0.0033)	ND (0.0046)	ND (0.0072)
	Cs-137	ND (0.0022)	ND (0.0040)	ND (0.0041)
	Gross α	ND (0.64)	ND (3.4)	ND (1.8)
	Gross β	ND (0.46)	ND (0.60)	ND (0.58)
	H-3	53	53	54
	Sr-90	ND (0.0013)	ND (0.0013)	ND (0.0049)

* 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.

※ 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.

Appendix 6

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 8th, 2022	Cs-134	ND (0.60)
	Cs-137	ND (0.54)
	Gross β	12
	H-3	ND (0.30)