

# Information, December, 2020

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 subdrain and groundwater drain systems, as well as, bypassing groundwater pumped during the month of November at Fukushima Daiichi Nuclear Power Station (NPS).

### 1. Subdrain and Groundwater Drain Systems

In November, purified groundwater pumped from the subdrain 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 subdrain 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 25 <sup>th</sup> , 2020  *Discharged on November 30 <sup>th</sup>	Cs-134	ND (0.45)	ND (0.72)
	Cs-137	ND (0.69)	ND (0.51)
	Gross $\beta$	ND (1.8)	0.61
	H-3	880	930
November 24 <sup>th</sup> , 2020  *Discharged on November 29 <sup>th</sup>	Cs-134	ND (0.49)	ND (0.89)
	Cs-137	ND (0.69)	ND (0.85)
	Gross $\beta$	ND (1.8)	0.52
	H-3	890	940
November 23 <sup>rd</sup> , 2020  *Discharged on November 28 <sup>th</sup>	Cs-134	ND (0.41)	ND (0.61)
	Cs-137	ND (0.60)	ND (0.58)
	Gross $\beta$	ND (1.9)	0.45
	H-3	830	890
November 22 <sup>nd</sup> , 2020  *Discharged on November 27 <sup>th</sup>	Cs-134	ND (0.55)	ND (0.44)
	Cs-137	ND (0.60)	ND (0.58)
	Gross $\beta$	ND (2.2)	0.42
	H-3	860	920
November 21 <sup>st</sup> , 2020  *Discharged on November 26 <sup>th</sup>	Cs-134	ND (0.57)	ND (0.78)
	Cs-137	ND (0.73)	ND (0.71)
	Gross $\beta$	ND (1.9)	0.49
	H-3	860	930
November 19 <sup>th</sup> , 2020  *Discharged on November 24 <sup>th</sup>	Cs-134	ND (0.68)	ND (0.76)
	Cs-137	ND (0.69)	ND (0.77)
	Gross $\beta$	ND (0.65)	0.47
	H-3	850	920
November 18 <sup>th</sup> , 2020  *Discharged on November 23 <sup>rd</sup>	Cs-134	ND (0.64)	ND (0.59)
	Cs-137	ND (0.65)	ND (0.51)
	Gross $\beta$	ND (1.8)	0.59
	H-3	870	940

November 17 <sup>th</sup> , 2020  *Discharged on November 22 <sup>nd</sup>	Cs-134	ND (0.50)	ND (0.61)
	Cs-137	ND (0.54)	ND (0.78)
	Gross $\beta$	ND (1.9)	0.48
	H-3	920	980
November 16 <sup>th</sup> , 2020  *Discharged on November 21 <sup>st</sup>	Cs-134	ND (0.53)	ND (0.69)
	Cs-137	ND (0.80)	ND (0.58)
	Gross $\beta$	ND (1.8)	ND (0.35)
	H-3	960	1,000
November 15 <sup>th</sup> , 2020  *Discharged on November 20 <sup>th</sup>	Cs-134	ND (0.68)	ND (0.41)
	Cs-137	ND (0.77)	ND (0.51)
	Gross $\beta$	ND (2.0)	ND (0.36)
	H-3	960	1,000
November 14 <sup>th</sup> , 2020  *Discharged on November 19 <sup>th</sup>	Cs-134	ND (0.76)	ND (0.57)
	Cs-137	ND (0.77)	ND (0.47)
	Gross $\beta$	ND (1.7)	ND (0.37)
	H-3	960	1,000
November 13 <sup>th</sup> , 2020  *Discharged on November 18 <sup>th</sup>	Cs-134	ND (0.65)	ND (0.57)
	Cs-137	ND (0.77)	ND (0.47)
	Gross $\beta$	ND (2.0)	ND (0.37)
	H-3	930	980
November 11 <sup>th</sup> , 2020  *Discharged on November 16 <sup>th</sup>	Cs-134	ND (0.63)	ND (0.63)
	Cs-137	ND (0.80)	ND (0.61)
	Gross $\beta$	ND (0.69)	0.42
	H-3	1,100	1,100
November 9 <sup>th</sup> , 2020  *Discharged on November 14 <sup>th</sup>	Cs-134	ND (0.76)	ND (0.61)
	Cs-137	ND (0.73)	ND (0.71)
	Gross $\beta$	ND (1.8)	ND (0.33)
	H-3	1,100	1,200
November 8 <sup>th</sup> , 2020  *Discharged on November 13 <sup>th</sup>	Cs-134	ND (0.61)	ND (0.63)
	Cs-137	ND (0.69)	ND (0.54)
	Gross $\beta$	ND (1.9)	ND (0.38)
	H-3	1,100	1,100
November 7 <sup>th</sup> , 2020  *Discharged on November 12 <sup>th</sup>	Cs-134	ND (0.63)	ND (0.63)
	Cs-137	ND (0.60)	ND (0.58)
	Gross $\beta$	ND (1.6)	ND (0.38)
	H-3	1,100	1,200
November 6 <sup>th</sup> , 2020  *Discharged on November 11 <sup>th</sup>	Cs-134	ND (0.76)	ND (0.54)
	Cs-137	ND (0.69)	ND (0.61)
	Gross $\beta$	ND (2.0)	ND (0.38)
	H-3	1,100	1,100
November 5 <sup>th</sup> , 2020	Cs-134	ND (0.50)	ND (0.59)

*Discharged on November 10 <sup>th</sup>	Cs-137	ND (0.65)	ND (0.69)
	Gross $\beta$	ND (2.0)	ND (0.36)
	H-3	1,000	1,100
November 4 <sup>th</sup> , 2020  *Discharged on November 9 <sup>th</sup>	Cs-134	ND (0.79)	ND (0.57)
	Cs-137	ND (0.54)	ND (0.58)
	Gross $\beta$	ND (2.0)	ND (0.34)
	H-3	1,000	1,100
November 3 <sup>rd</sup> , 2020  *Discharged on November 8 <sup>th</sup>	Cs-134	ND (0.74)	ND (0.69)
	Cs-137	ND (0.60)	ND (0.69)
	Gross $\beta$	ND (1.9)	ND (0.32)
	H-3	980	1,000
November 2 <sup>nd</sup> , 2020  *Discharged on November 7 <sup>th</sup>	Cs-134	ND (0.61)	ND (0.55)
	Cs-137	ND (0.65)	ND (0.61)
	Gross $\beta$	ND (1.8)	ND (0.35)
	H-3	1,000	1,100
November 1 <sup>st</sup> , 2020  *Discharged on November 6 <sup>th</sup>	Cs-134	ND (0.63)	ND (0.59)
	Cs-137	ND (0.65)	ND (0.51)
	Gross $\beta$	ND (0.65)	ND (0.39)
	H-3	1,100	1,100
October 31 <sup>st</sup> , 2020  *Discharged on November 5 <sup>th</sup>	Cs-134	ND (0.53)	ND (0.41)
	Cs-137	ND (0.54)	ND (0.76)
	Gross $\beta$	ND (2.0)	ND (0.34)
	H-3	1,100	1,100
October 30 <sup>th</sup> , 2020  *Discharged on November 4 <sup>th</sup>	Cs-134	ND (0.68)	ND (0.61)
	Cs-137	ND (0.60)	ND (0.54)
	Gross $\beta$	ND (1.7)	ND (0.37)
	H-3	1,100	1,100
October 29 <sup>th</sup> , 2020  *Discharged on November 3 <sup>rd</sup>	Cs-134	ND (0.58)	ND (0.59)
	Cs-137	ND (0.65)	ND (0.54)
	Gross $\beta$	ND (0.65)	ND (0.40)
	H-3	1,100	1,100
October 28 <sup>th</sup> , 2020  *Discharged on November 2 <sup>nd</sup>	Cs-134	ND (0.43)	ND (0.59)
	Cs-137	ND (0.46)	ND (0.73)
	Gross $\beta$	ND (2.0)	0.41
	H-3	900	960
October 27 <sup>th</sup> , 2020  *Discharged on November 1 <sup>st</sup>	Cs-134	ND (0.91)	ND (0.65)
	Cs-137	ND (0.54)	ND (0.66)
	Gross $\beta$	ND (2.0)	ND (0.39)
	H-3	1,000	1,100

- \* \* 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> ,2020	Cs-134	ND (0.0028)	ND (0.0047)	ND (0.0056)
	Cs-137	0.017	0.013	0.018
	Gross $\alpha$	ND (0.58)	ND (3.0)	ND (1.9)
	Gross $\beta$	ND (0.48)	ND (0.64)	ND (0.69)
	H-3	780	750	770
	Sr-90	0.0037	0.0039	ND (0.0058)

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

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 3 <sup>rd</sup> , 2020  *Sampled before discharge of purified groundwater.	Cs-134	ND (0.73)
	Cs-137	ND (0.50)
	Gross $\beta$	10
	H-3	ND (0.82)

(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.



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
November 18 <sup>th</sup> , 2020  *Discharged on November 26 <sup>th</sup>	Cs-134	ND (0.78)	ND (0.51)
	Cs-137	ND (0.54)	ND (0.49)
	Gross $\beta$	ND (0.64)	ND (0.61)
	H-3	100	99
November 11 <sup>th</sup> , 2020  *Discharged on November 19 <sup>th</sup>	Cs-134	ND (0.66)	ND (0.51)
	Cs-137	ND (0.83)	ND (0.53)
	Gross $\beta$	ND (0.72)	ND (0.65)
	H-3	100	96
November 4 <sup>th</sup> , 2020  *Discharged on November 12 <sup>th</sup>	Cs-134	ND (0.45)	ND (0.53)
	Cs-137	ND (0.69)	ND (0.51)
	Gross $\beta$	ND (0.75)	ND (0.55)
	H-3	130	140
October 30 <sup>th</sup> , 2020  *Discharged on November 7 <sup>th</sup>	Cs-134	ND (0.65)	ND (0.56)
	Cs-137	ND (0.60)	ND (0.43)
	Gross $\beta$	ND (0.59)	ND (0.58)
	H-3	100	100

- \* \* 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.

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 7 <sup>th</sup> , 2020	Cs-134	ND (0.0027)	ND (0.0046)	ND (0.0068)
	Cs-137	ND (0.0019)	0.0037	ND (0.0046)
	Gross $\alpha$	ND (0.65)	ND (3.2)	ND (1.9)
	Gross $\beta$	ND (0.49)	ND (0.76)	ND (0.57)
	H-3	140	140	140
	Sr-90	0.0025	ND (0.0014)	ND (0.0065)

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

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 3 <sup>rd</sup> , 2020	Cs-134	ND (0.85)
	Cs-137	ND (0.65)
	Gross $\beta$	13
	H-3	ND (0.82)

(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.