

# Information (15:00), January 4, 2018

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 2017

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 December 2017 at Fukushima Daiichi Nuclear Power Station (NPS).

### 1. Subdrain and Groundwater Drain Systems

In December, 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 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 (Mitsubishi Nuclear Fuel Co., Ltd, Kaken Co., Ltd and 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 is 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 are 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 has 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
December 21 <sup>st</sup> , 2017  *Discharged on December 26 <sup>th</sup>	Cs-134	ND (0.71)	ND (0.64)
	Cs-137	ND (0.46)	ND (0.67)
	Gross $\beta$	ND (2.7)	ND(0.32)
	H-3	750	800
December 20 <sup>th</sup> , 2017  *Discharged on December 25 <sup>th</sup>	Cs-134	ND (0.68)	ND (0.61)
	Cs-137	ND (0.68)	ND (0.53)
	Gross $\beta$	ND (2.0)	ND(0.33)
	H-3	740	770
December 19 <sup>th</sup> , 2017  *Discharged on December 24 <sup>th</sup>	Cs-134	ND (0.66)	ND (0.68)
	Cs-137	ND (0.53)	ND (0.62)
	Gross $\beta$	ND (2.2)	ND(0.32)
	H-3	770	820
December 17 <sup>th</sup> , 2017  *Discharged on December 22 <sup>nd</sup>	Cs-134	ND (0.68)	ND (0.50)
	Cs-137	ND (0.63)	ND (0.76)
	Gross $\beta$	ND (2.0)	ND(0.34)
	H-3	810	850
December 16 <sup>th</sup> , 2017  *Discharged on December 21 <sup>st</sup>	Cs-134	ND (0.65)	ND (0.57)
	Cs-137	ND (0.71)	ND (0.45)
	Gross $\beta$	ND (2.3)	ND(0.31)
	H-3	760	810
December 15 <sup>th</sup> , 2017  *Discharged on December 20 <sup>th</sup>	Cs-134	ND (0.74)	ND (0.68)
	Cs-137	ND (0.58)	ND (0.56)
	Gross $\beta$	ND (0.69)	ND(0.33)
	H-3	720	760
December 14 <sup>th</sup> , 2017  *Discharged on December 19 <sup>th</sup>	Cs-134	ND (0.71)	ND (0.75)
	Cs-137	ND (0.68)	ND (0.64)
	Gross $\beta$	ND (2.0)	ND(0.32)
	H-3	710	760
December 13 <sup>th</sup> , 2017  *Discharged on	Cs-134	ND (0.79)	ND (0.59)
	Cs-137	ND (0.63)	ND (0.69)

December 18 <sup>th</sup>	Gross $\beta$	ND (2.0)	ND(0.31)
	H-3	710	750
December 12 <sup>th</sup> , 2017  *Discharged on December 17 <sup>th</sup>	Cs-134	ND (0.71)	ND (0.80)
	Cs-137	ND (0.46)	ND (0.74)
	Gross $\beta$	ND (2.2)	ND (0.31)
	H-3	690	740
December 11 <sup>th</sup> , 2017  *Discharged on December 16 <sup>th</sup>	Cs-134	ND (0.60)	ND (0.87)
	Cs-137	ND (0.81)	ND (0.68)
	Gross $\beta$	ND (2.4)	ND(0.32)
	H-3	690	730
December 10 <sup>th</sup> , 2017  *Discharged on December 15 <sup>th</sup>	Cs-134	ND (0.68)	ND (0.56)
	Cs-137	ND (0.63)	ND (0.53)
	Gross $\beta$	ND(2.3)	ND(0.35)
	H-3	690	750
December 8 <sup>th</sup> , 2017  *Discharged on December 13 <sup>th</sup>	Cs-134	ND (0.72)	ND (0.59)
	Cs-137	ND (0.58)	ND (0.49)
	Gross $\beta$	ND (0.63)	ND(0.32)
	H-3	730	770
December 7 <sup>th</sup> , 2017  *Discharged on December 12 <sup>th</sup>	Cs-134	ND (0.59)	ND (0.54)
	Cs-137	ND (0.63)	ND (0.54)
	Gross $\beta$	ND (2.3)	ND(0.33)
	H-3	760	790
December 6 <sup>th</sup> , 2017  *Discharged on December 11 <sup>th</sup>	Cs-134	ND (0.52)	ND (0.62)
	Cs-137	ND (0.78)	ND (0.71)
	Gross $\beta$	ND (2.4)	ND(0.34)
	H-3	710	760
December 5 <sup>th</sup> , 2017  *Discharged on December 10 <sup>th</sup>	Cs-134	ND (0.71)	ND (0.57)
	Cs-137	ND (0.68)	ND (0.59)
	Gross $\beta$	ND (2.3)	ND(0.30)
	H-3	720	770
December 4 <sup>th</sup> , 2017  *Discharged on December 9 <sup>th</sup>	Cs-134	ND (0.58)	ND (0.54)
	Cs-137	ND (0.68)	ND (0.69)
	Gross $\beta$	ND (2.7)	ND(0.32)
	H-3	720	780
December 3 <sup>rd</sup> , 2017  *Discharged on December 8 <sup>th</sup>	Cs-134	ND (0.62)	ND (0.61)
	Cs-137	ND (0.75)	ND (0.64)
	Gross $\beta$	ND (2.2)	ND(0.34)
	H-3	690	730
December 2 <sup>nd</sup> , 2017  *Discharged on December 7 <sup>th</sup>	Cs-134	ND (0.74)	ND (0.58)
	Cs-137	ND (0.71)	ND (0.53)
	Gross $\beta$	ND (2.3)	0.52
	H-3	710	760
December 1 <sup>st</sup> , 2017	Cs-134	ND (0.60)	ND (0.52)

*Discharged on December 6 <sup>th</sup>	Cs-137	ND (0.78)	ND (0.62)
	Gross $\beta$	ND (0.66)	ND(0.34)
	H-3	710	760
November 29 <sup>th</sup> , 2017  *Discharged on December 4 <sup>th</sup>	Cs-134	ND (0.71)	ND (0.72)
	Cs-137	ND (0.58)	ND (0.71)
	Gross $\beta$	ND (2.4)	0.52
	H-3	700	760
November 28 <sup>th</sup> , 2017  *Discharged on December 3 <sup>rd</sup>	Cs-134	ND (0.65)	ND (0.49)
	Cs-137	ND (0.53)	ND (0.59)
	Gross $\beta$	ND (2.2)	0.45
	H-3	770	780
November 27 <sup>th</sup> , 2017  *Discharged on December 2 <sup>nd</sup>	Cs-134	ND (0.74)	ND (0.87)
	Cs-137	ND (0.63)	ND (0.60)
	Gross $\beta$	ND (2.4)	0.50
	H-3	830	850

- \* \* 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 : Mitsubishi Nuclear Fuel Co., Ltd, Kaken Co., Ltd and 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 1 <sup>st</sup> ,2017	Cs-134	0.018	0.023	0.017
	Cs-137	0.15	0.17	0.16
	Gross $\alpha$	ND (0.57)	ND (3.1)	ND (2.9)
	Gross $\beta$	ND (0.46)	ND (0.77)	ND (0.53)
	H-3	750	730	740
	Sr-90	0.0018	ND (0.0013)	ND(0.0070)

\* 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)
December 15 <sup>th</sup> , 2017  *Sampled before discharge of purified groundwater.	Cs-134	ND (0.68)
	Cs-137	ND (0.53)
	Gross $\beta$	11
	H-3	ND(1.7)

(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
December 14 <sup>th</sup> , 2017  *Discharged on December 21 <sup>th</sup>	Cs-134	ND (0.60)	ND (0.54)
	Cs-137	ND (0.58)	ND (0.52)
	Gross $\beta$	ND (0.73)	ND (0.50)
	H-3	130	130
December 7 <sup>th</sup> , 2017  *Discharged on December 14 <sup>th</sup>	Cs-134	ND (0.52)	ND (0.71)
	Cs-137	ND (0.71)	ND (0.52)
	Gross $\beta$	ND (0.64)	ND (0.57)
	H-3	120	140
November 30 <sup>th</sup> , 2017  *Discharged on December 7 <sup>th</sup>	Cs-134	ND (0.74)	ND (0.50)
	Cs-137	ND (0.63)	ND (0.55)
	Gross $\beta$	ND (0.74)	ND (0.55)
	H-3	120	120

- \* \* 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
November 2 <sup>nd</sup> , 2017	Cs-134	ND (0.0033)	ND (0.0045)	ND (0.0047)
	Cs-137	0.0023	ND(0.0044)	ND(0.0043)
	Gross $\alpha$	ND (0.59)	ND (3.8)	ND (2.9)
	Gross $\beta$	ND (0.46)	ND (0.63)	ND (0.52)
	H-3	130	130	130
	Sr-90	ND(0.0016)	ND (0.0015)	ND (0.0060)

\* 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)
December 14 <sup>th</sup> , 2017	Cs-134	ND (0.74)
	Cs-137	ND (0.53)
	Gross β	10
	H-3	ND(1.5)

(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.