Information (17:00), June 12, 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 until March

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 until the month of March at Fukushima Daiichi Nuclear Power Station (NPS).

1. Summary of decommissioning and contaminated water management

In March, the summary of monthly progress on decommissioning and contaminated water management of TEPCO's 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/mp202003.pdf

2. Subdrain and Groundwater Drain Systems

Until March, purified groundwater pumped from the subdrain 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 until March 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 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

Until March, 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 until March 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)

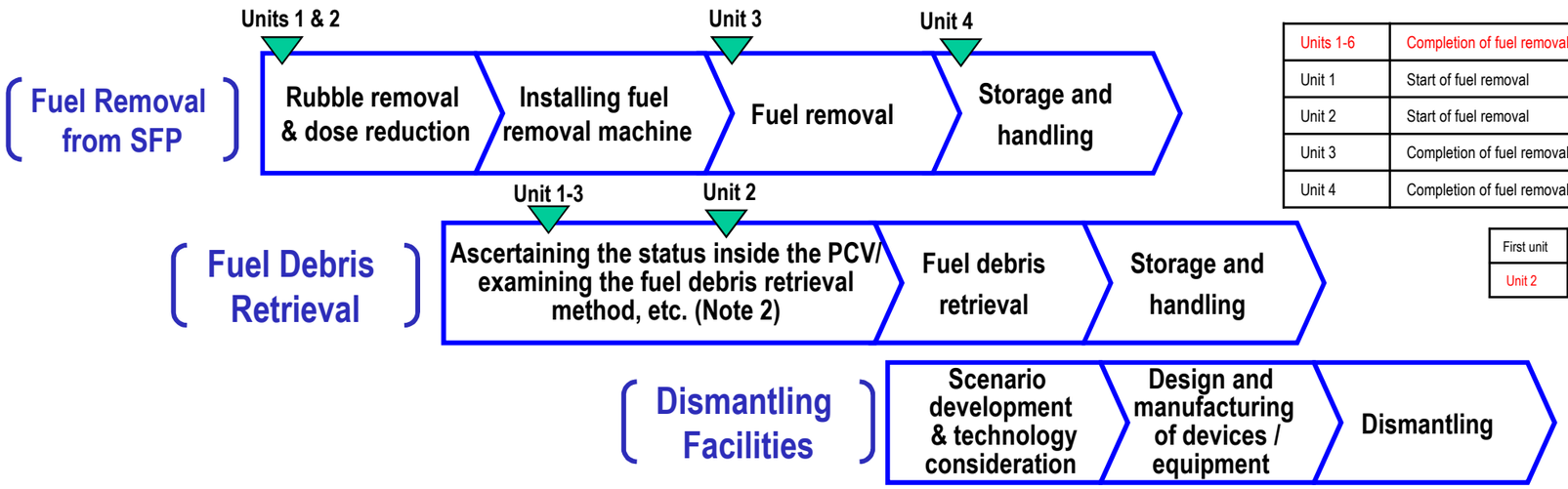
Contact: International Nuclear Cooperation Division,
Ministry of Foreign Affairs, Tel 03-5501-8227

Outline of Decommissioning and Contaminated Water Management

Appendix 1
March 27, 2020
Secretariat of the Team for Countermeasures for Decommissioning and Contaminated Water Treatment

Main decommissioning work and steps

Fuel removal from the spent fuel pool was completed in December 2014 at Unit 4 and started from April 15, 2019 at Unit 3. Dust density in the surrounding environment is being monitored and work is being implemented with safety first. Work continues sequentially toward the start of fuel removal from Units 1 and 2 and debris (Note 1) retrieval from Units 1-3.



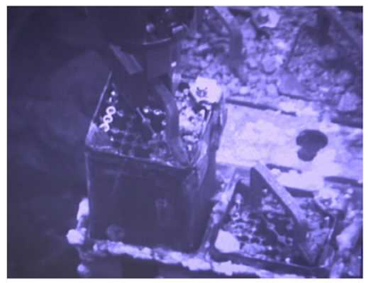
Units 1-6	Completion of fuel removal	Within 2031
Unit 1	Start of fuel removal	FY2027 - FY2028
Unit 2	Start of fuel removal	FY2024 - FY2026
Unit 3	Completion of fuel removal	Within FY2020
Unit 4	Completion of fuel removal	2014

First unit	Start of fuel debris retrieval
Unit 2	Within 2021

(Note 1) Fuel assemblies having melted through in the accident.

Fuel removal from the spent fuel pool

Fuel removal from the spent fuel pool started from April 15, 2019 at Unit 3.
Toward completion of fuel removal by the end of FY2020, rubble and fuel are being removed.



Fuel removal
(April 15, 2019)

Removed fuel (assemblies)
119/566
(As of March 27, 2020)

Contaminated water management proceeds with the following three efforts:

(1) Effort to promote contaminated water management based on the three basic policies

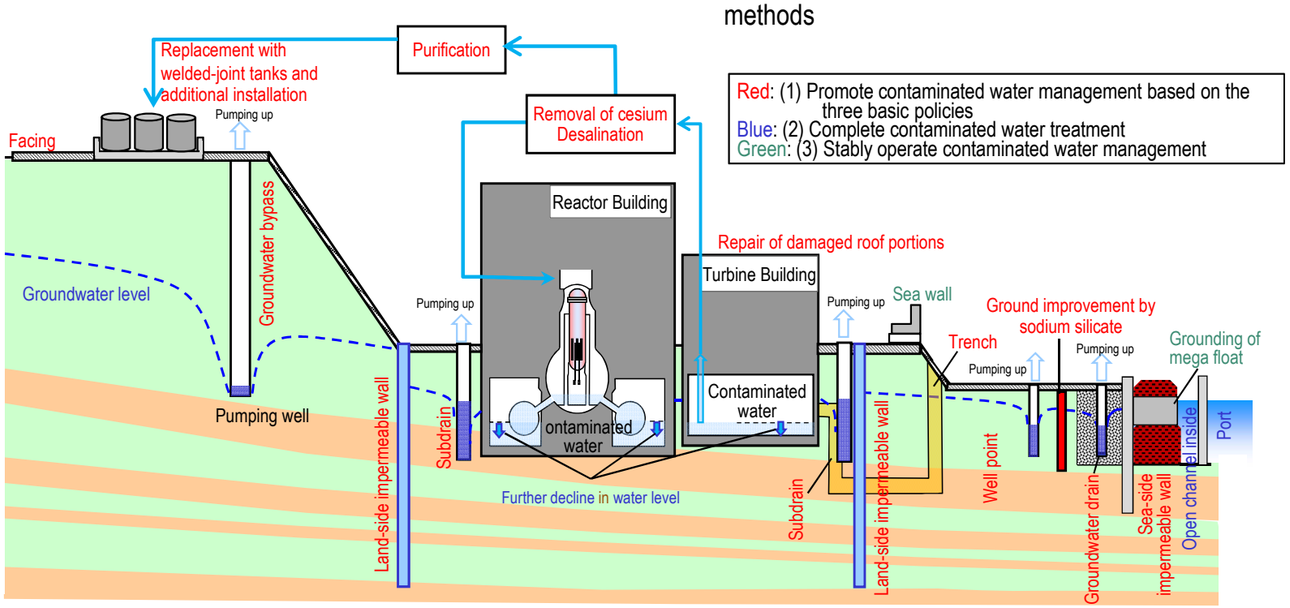
[Three basic policies]
1. “Remove” the source of water contamination
2. “Redirect” fresh water from contaminated areas
3. “Retain” contaminated water from leakage

(2) Effort to complete contaminated water treatment

4. Treatment of contaminated water in buildings
5. Measures to remove α–nuclide and reduce the density in contaminated water
6. Measures to alleviate the radiation dose of Zeolite sandbags in the Process Main Building and High Temperature Incinerator Building and examination of safe management methods

(3) Effort to stably operate contaminated water management

7. Planning and implementing necessary measures to prepare for large-scale disasters such as tsunami and heavy rain
8. Periodically inspecting and updating facilities to maintain the effect of contaminated water management going forward
9. Examining additional measures as required, with efforts to gradually expand the scale of fuel debris retrieval in mind



(1) Effort to promote contaminated water management based on the three basic policies

- Strontium-treated water from other equipment is being re-treated in the multi-nuclide removal equipment (ALPS) and stored in welded-joint tanks.
- Multi-layered contaminated water management measures, including land-side impermeable walls and subdrains, have stabilized the groundwater at a low level. The increased amount of 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 m^3/day (in May FY2014) to approx. 170 m^3/day (in FY2018).
- Measures continue to be implemented to further suppress the generation of contaminated water to approx. 150 m^3/day within FY2020 and 100 m^3/day or less within 2025.

(2) Effort to complete contaminated water treatment

- Contaminated water levels in buildings declined as planned and connected parts between Units 1 and 2 and Units 3 and 4 were separated. For α-nuclide detected as the decline in water levels progressed, characteristics are being determined and treatment methods examined.
- Treatment of contaminated water in buildings will be completed within 2020, excluding Unit 1-3 Reactor Buildings, Process Main Building and High Temperature Incinerator Building. For Reactor Buildings, the amount of contaminated water there will be reduced from that 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 toward stabilization.

(3) Effort to stably operate contaminated water management

- To prepare for tsunamis, measures are being implemented including closing openings of buildings, installing sea walls and transferring and grounding the mega float. For heavy rain, sandbags are being installed to suppress direct inflow into buildings while work to enhance drainage channels and other measures are being implemented as planned.

Progress Status and Future Challenges of the Mid-and-Long-Term Roadmap toward Decommissioning of TEPCO Holdings Fukushima Daiichi Nuclear Power Station (Outline)

Progress status

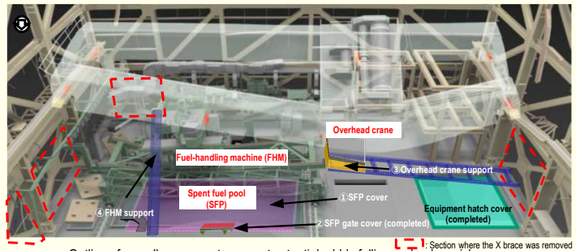
◆ The temperatures of the Reactor Pressure Vessel (RPV) and Primary Containment Vessel (PCV) of Units 1-3 have been maintained within the range of approx. 15-25°C[*1] over the past month. There was no significant change in the density of radioactive materials newly released from Reactor Buildings into the air[*2]. It was concluded that the comprehensive cold shutdown condition had been maintained.

* 1 The values varied somewhat, depending on the unit and location of the thermometer.
* 2 In February 2020, the radiation exposure dose due to the release of radioactive materials from the Unit 1-4 Reactor Buildings was evaluated at less than 0.00005 mSv/year at the site boundary. The annual radiation dose from natural radiation is approx. 2.1 mSv/year (average in Japan).

Completion of installing the Unit 1 SFP gate cover

Before removing the falling roof on the south side of the Reactor Building operating floor, measures are being implemented to prevent rubble falling on the spent fuel pool (SFP) and reduce risks. On March 18, the SFP gate cover was installed, reducing the risks of the water level declining due to gate misaligning or damaging if the roof steel frame falls on the SFP gate. After creating a necessary work space by removing small rubble around the SFP, the SFP cover, fuel-handling machine support and overhead crane support will be sequentially installed.

<Installation of the SFP gate cover (March 18, 2020)>



<Outline of overall measures to prevent potential rubble falling and reduce risks>

Preparation of the Unit 2 Reactor Building south side toward installing a gantry for fuel removal

As part of work to install a gantry for fuel removal from the SFP, preparation on the south side of the Unit 2 Reactor Building is underway, including completing the dismantling, except for a portion of the common boiler building. From April, preparation of the south side yard, such as removing buried objects, will start before ground improvement work.

<Before dismantling the common boiler building (December 2019)>

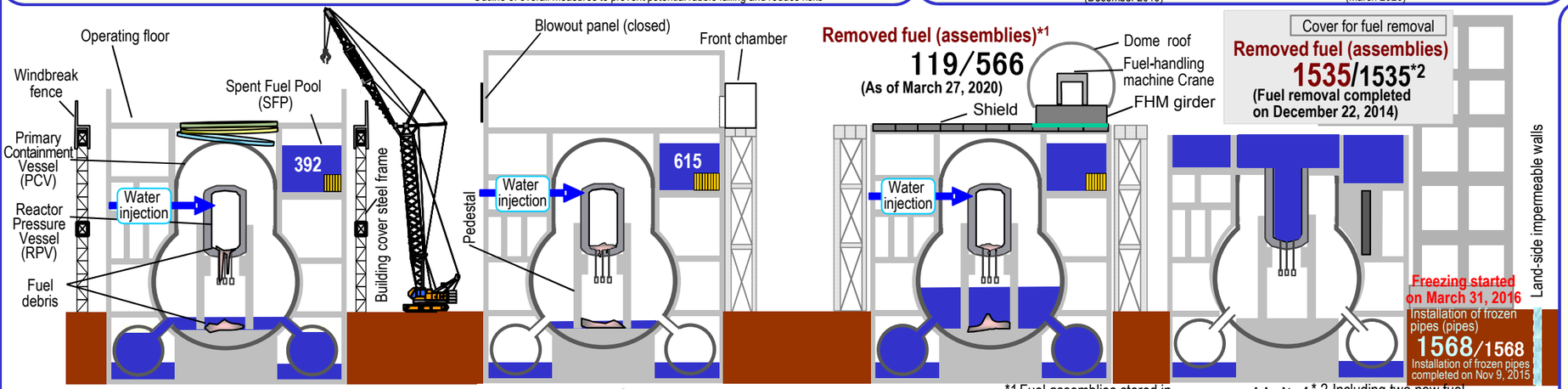
<After dismantling the common boiler building (March 2020)>

Steady progress in Unit 3 fuel and rubble removal

Fuel and rubble removal proceeded as planned. As of March 27, 119 fuel assemblies had been removed.

From March 30, fuel and rubble removal will be temporarily suspended due to a legal inspection of cranes and fuel-handling machine and replacement of rack at the common pool. The removal work will resume from June.

Work continues with safety first toward completing the fuel removal by the end of FY2020.

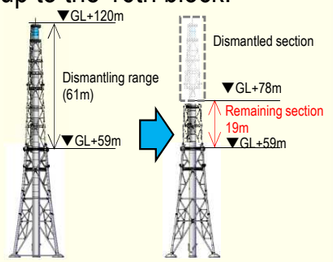


*1 Fuel assemblies stored in the rack of the common pool
* 2 Including two new fuel assemblies removed first in 2012.

Dismantling for the 16th block of the Unit 1/2 exhaust stack

The Unit 1/2 exhaust stack was divided into 23 blocks for dismantling. By March 22, dismantling had been completed up to the 16th block.

Work continues with safety first toward completing the dismantling in early May.

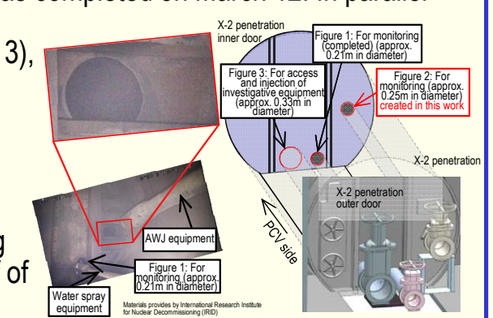


<Before dismantling> <Present>

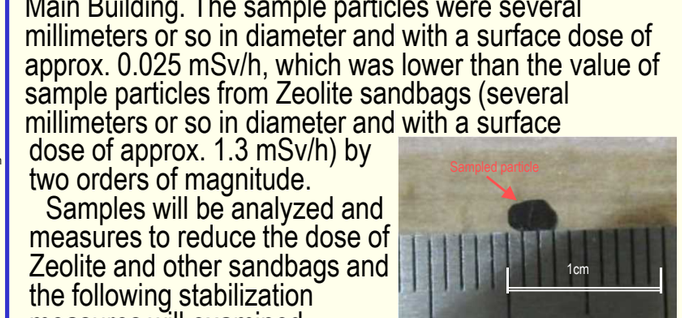
Creation of the second of three inner door holes to construct the Unit 1 access route

As part of work to investigate the inside of the Unit 1 primary containment vessel (PCV), an access route is being constructed. Work to create the second hole (approx. 0.25 m in diameter: Figure 2) was completed on March 12. In parallel with preparatory work to create the last hole (approx. 0.33 m in diameter: Figure 3), pre-investigation by inserting a camera from the completed hole will start from mid-April; if possible before cutting obstacles inside the PCV.

Construction of an access route continues with safety first toward starting the inner investigation in the second half of FY2020.



<Penetration of Figure 2 monitoring hole (approx. 0.25 m in diameter)>


<Image of the hole-drilling location>

Confirmation of the surface dose rate of activated carbon sandbags

Samples were also taken from activated carbon sandbags in addition to high radiation-dose Zeolite sandbags identified on the basement floor of the Process Main Building. The sample particles were several millimeters or so in diameter and with a surface dose of approx. 0.025 mSv/h, which was lower than the value of sample particles from Zeolite sandbags (several millimeters or so in diameter and with a surface dose of approx. 1.3 mSv/h) by two orders of magnitude.

Samples will be analyzed and measures to reduce the dose of Zeolite and other sandbags and the following stabilization measures will examined.

<Sampled particle from an activated carbon sandbag (enlarged) (February 27, 2020)>

Creation of the "Mid-and-Long-Term Decommissioning Action Plan 2020

The“Mid-and-Long-Term Decommissioning Action Plan 2020”was created for indicating the main work processes involved in decommissioning as a whole, in order to achieve the goals laid out in the Mid-and-Long-Term Road-map and the NRA Risk Map.

Under the basic principle of "coexistence of reconstruction and decommissioning", TEPCO aspires to carefully communicate about the future prospects of decommissioning in an easy-to-understand manner, so as to proceed with decommissioning while obtaining the understanding of the region and the people.

Moreover, the initiatives undertaken during the work of decommissioning the Fukushima Daiichi Nuclear Power Station are unprecedented in the world, and hence, TEPCO will revise this plan regularly in accordance with the progress made and the challenges faced, as TEPCO systematically proceeds with safe and stable decommissioning.

Appendix 2

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
March 26th, 2020 *Discharged on March 31st	Cs-134	ND (0.52)	ND (0.59)
	Cs-137	ND (0.74)	ND (0.76)
	Gross β	ND (1.9)	ND (0.34)
	H-3	730	790
March 26th, 2020 *Discharged on March 31st	Cs-134	ND (0.52)	ND (0.61)
	Cs-137	ND (0.60)	ND (0.45)
	Gross β	ND (1.9)	ND (0.31)
	H-3	810	840
March 25th, 2020 *Discharged on March 30th	Cs-134	ND (0.62)	ND (0.77)
	Cs-137	ND (0.63)	ND (0.62)
	Gross β	ND (1.9)	ND (0.34)
	H-3	850	940
March 25th, 2020 *Discharged on March 30th	Cs-134	ND (0.54)	ND (0.68)
	Cs-137	ND (0.63)	ND (0.62)
	Gross β	ND (1.9)	ND (0.32)
	H-3	860	890
March 24th, 2020 *Discharged on March 29th	Cs-134	ND (0.71)	ND (0.64)
	Cs-137	ND (0.75)	ND (0.56)
	Gross β	ND (0.66)	ND (0.33)
	H-3	910	1,000
March 15th, 2020 *Discharged on March 20th	Cs-134	ND (0.60)	ND (0.61)
	Cs-137	ND (0.63)	ND (0.62)
	Gross β	ND (0.71)	ND (0.33)
	H-3	900	1,000
March 13th, 2020 *Discharged on March 18th	Cs-134	ND (0.81)	ND (0.55)
	Cs-137	ND (0.68)	ND (0.62)
	Gross β	ND (1.6)	ND (0.32)
	H-3	770	870

March 12th, 2020 *Discharged on March 17th	Cs-134	ND (0.78)	ND (0.57)
	Cs-137	ND (0.85)	ND (0.56)
	Gross β	ND (1.9)	ND (0.30)
	H-3	980	1,100
March 10th, 2020 *Discharged on March 15th	Cs-134	ND (0.59)	ND (0.64)
	Cs-137	ND (0.63)	ND (0.69)
	Gross β	ND (0.61)	ND (0.31)
	H-3	920	1,000
March 8th, 2020 *Discharged on March 13th	Cs-134	ND (0.89)	ND (0.53)
	Cs-137	ND (0.71)	ND (0.53)
	Gross β	ND (2.0)	ND (0.33)
	H-3	1,100	1,100
March 7th, 2020 *Discharged on March 12th	Cs-134	ND (0.52)	ND (0.55)
	Cs-137	ND (0.60)	ND (0.59)
	Gross β	ND (2.0)	ND (0.30)
	H-3	840	930
March 2nd, 2020 *Discharged on March 7th	Cs-134	ND (0.62)	ND (0.57)
	Cs-137	ND (0.74)	ND (0.64)
	Gross β	ND (0.72)	ND (0.34)
	H-3	630	680
February 29th, 2019 *Discharged on March 5th	Cs-134	ND (0.62)	ND (0.64)
	Cs-137	ND (0.60)	ND (0.59)
	Gross β	ND (2.0)	ND (0.30)
	H-3	660	700
February 27th, 2020 *Discharged on March 3rd	Cs-134	ND (0.48)	ND (0.57)
	Cs-137	ND (0.68)	ND (0.62)
	Gross β	ND (0.56)	ND (0.31)
	H-3	640	670
February 25th, 2020 *Discharged on March 1st	Cs-134	ND (0.63)	ND (0.62)
	Cs-137	ND (0.70)	ND (0.64)
	Gross β	ND (1.9)	ND (0.33)
	H-3	560	600
February 23rd, 2020 *Discharged on February 28th	Cs-134	ND (0.62)	ND (0.60)
	Cs-137	ND (0.65)	ND (0.59)
	Gross β	ND (1.9)	ND (0.35)
	H-3	600	650
February 21st, 2020 *Discharged on February 26th	Cs-134	ND (0.56)	ND (0.54)
	Cs-137	ND (0.65)	ND (0.62)
	Gross β	ND (1.6)	ND (0.31)
	H-3	580	620

February 20th, 2020 *Discharged on February 25th	Cs-134	ND (0.58)	ND (0.66)
	Cs-137	ND (0.78)	ND (0.83)
	Gross β	ND (1.9)	ND (0.34)
	H-3	520	570
February 19th, 2020 *Discharged on February 24th	Cs-134	ND (0.63)	ND (0.83)
	Cs-137	ND (0.63)	ND (0.77)
	Gross β	ND (2.0)	ND (0.28)
	H-3	560	610
February 19th, 2020 *Discharged on February 24st	Cs-134	ND (0.64)	ND (0.51)
	Cs-137	ND (0.82)	ND (0.62)
	Gross β	ND (2.0)	ND (0.31)
	H-3	720	770
February 17th, 2020 *Discharged on February 22nd	Cs-134	ND (0.49)	ND (0.73)
	Cs-137	ND (0.63)	ND (0.53)
	Gross β	ND (0.65)	ND (0.33)
	H-3	850	920
February 16th, 2020 *Discharged on February 21th	Cs-134	ND (0.64)	ND (0.77)
	Cs-137	ND (0.58)	ND (0.62)
	Gross β	ND (2.1)	ND (0.32)
	H-3	790	860
February 15th, 2020 *Discharged on February 20th	Cs-134	ND (0.54)	ND (0.83)
	Cs-137	ND (0.75)	ND (0.62)
	Gross β	ND (2.0)	ND (0.34)
	H-3	720	760
February 14th, 2020 *Discharged on February 19th	Cs-134	ND (0.40)	ND (0.54)
	Cs-137	ND (0.68)	ND (0.59)
	Gross β	ND (1.8)	ND (0.29)
	H-3	670	710
February 13th, 2020 *Discharged on February 18th	Cs-134	ND (0.54)	ND (0.68)
	Cs-137	ND (0.63)	ND (0.64)
	Gross β	ND (2.0)	ND (0.34)
	H-3	750	810
February 12th, 2020 *Discharged on February 17th	Cs-134	ND (0.58)	ND (0.81)
	Cs-137	ND (0.53)	ND (0.74)
	Gross β	ND (1.7)	ND (0.33)
	H-3	740	810
February 11th, 2020 *Discharged on February 16th	Cs-134	ND (0.48)	ND (0.64)
	Cs-137	ND (0.63)	ND (0.71)
	Gross β	ND (1.9)	ND (0.33)
	H-3	700	750

February 10th, 2019 *Discharged on February 15th	Cs-134	ND (0.58)	ND (0.64)
	Cs-137	ND (0.58)	ND (0.80)
	Gross β	ND (1.7)	0.45
	H-3	660	720
February 9th, 2019 *Discharged on February 14th	Cs-134	ND (0.44)	ND (0.67)
	Cs-137	ND (0.53)	ND (0.45)
	Gross β	ND (0.58)	ND (0.37)
	H-3	610	660
January 31st, 2019 *Discharged on February 5th	Cs-134	ND (0.76)	ND (0.61)
	Cs-137	ND (0.58)	ND (0.64)
	Gross β	ND (1.9)	ND (0.34)
	H-3	910	960
January 28th, 2019 *Discharged on February 2nd	Cs-134	ND (0.68)	ND (0.64)
	Cs-137	ND (0.58)	ND (0.49)
	Gross β	ND (1.9)	ND (0.33)
	H-3	970	1,100
January 27th, 2019 *Discharged on February 1st	Cs-134	ND (0.48)	ND (0.59)
	Cs-137	ND (0.53)	ND (0.67)
	Gross β	ND (1.9)	ND (0.35)
	H-3	1,200	1,200
February 23rd, 2020 *Discharged on February 28th	Cs-134	ND (0.62)	ND (0.60)
	Cs-137	ND (0.65)	ND (0.59)
	Gross β	ND (1.9)	ND (0.35)
	H-3	600	650
February 21st, 2020 *Discharged on February 26th	Cs-134	ND (0.56)	ND (0.54)
	Cs-137	ND (0.65)	ND (0.62)
	Gross β	ND (1.6)	ND (0.31)
	H-3	580	620
February 20th, 2020 *Discharged on February 25th	Cs-134	ND (0.58)	ND (0.66)
	Cs-137	ND (0.78)	ND (0.83)
	Gross β	ND (1.9)	ND (0.34)
	H-3	520	570
February 19th, 2020 *Discharged on February 24th	Cs-134	ND (0.63)	ND (0.83)
	Cs-137	ND (0.63)	ND (0.77)
	Gross β	ND (2.0)	ND (0.28)
	H-3	560	610
February 19th, 2020 *Discharged on February 24st	Cs-134	ND (0.64)	ND (0.51)
	Cs-137	ND (0.82)	ND (0.62)
	Gross β	ND (2.0)	ND (0.31)
	H-3	720	770

February 17th, 2020 *Discharged on February 22nd	Cs-134	ND (0.49)	ND (0.73)
	Cs-137	ND (0.63)	ND (0.53)
	Gross β	ND (0.65)	ND (0.33)
	H-3	850	920
February 16th, 2020 *Discharged on February 21th	Cs-134	ND (0.64)	ND (0.77)
	Cs-137	ND (0.58)	ND (0.62)
	Gross β	ND (2.1)	ND (0.32)
	H-3	790	860
February 15th, 2020 *Discharged on February 20th	Cs-134	ND (0.54)	ND (0.83)
	Cs-137	ND (0.75)	ND (0.62)
	Gross β	ND (2.0)	ND (0.34)
	H-3	720	760
February 14th, 2020 *Discharged on February 19th	Cs-134	ND (0.40)	ND (0.54)
	Cs-137	ND (0.68)	ND (0.59)
	Gross β	ND (1.8)	ND (0.29)
	H-3	670	710
February 13th, 2020 *Discharged on February 18th	Cs-134	ND (0.54)	ND (0.68)
	Cs-137	ND (0.63)	ND (0.64)
	Gross β	ND (2.0)	ND (0.34)
	H-3	750	810
February 12th, 2020 *Discharged on February 17th	Cs-134	ND (0.58)	ND (0.81)
	Cs-137	ND (0.53)	ND (0.74)
	Gross β	ND (1.7)	ND (0.33)
	H-3	740	810
February 11th, 2020 *Discharged on February 16th	Cs-134	ND (0.48)	ND (0.64)
	Cs-137	ND (0.63)	ND (0.71)
	Gross β	ND (1.9)	ND (0.33)
	H-3	700	750
February 10th, 2019 *Discharged on February 15th	Cs-134	ND (0.58)	ND (0.64)
	Cs-137	ND (0.58)	ND (0.80)
	Gross β	ND (1.7)	0.45
	H-3	660	720
February 9th, 2019 *Discharged on February 14th	Cs-134	ND (0.44)	ND (0.67)
	Cs-137	ND (0.53)	ND (0.45)
	Gross β	ND (0.58)	ND (0.37)
	H-3	610	660
January 31st, 2019 *Discharged on February 5th	Cs-134	ND (0.76)	ND (0.61)
	Cs-137	ND (0.58)	ND (0.64)
	Gross β	ND (1.9)	ND (0.34)
	H-3	910	960

January 28th, 2019 *Discharged on February 2nd	Cs-134	ND (0.68)	ND (0.64)
	Cs-137	ND (0.58)	ND (0.49)
	Gross β	ND (1.9)	ND (0.33)
	H-3	970	1,100
January 27th, 2019 *Discharged on February 1st	Cs-134	ND (0.48)	ND (0.59)
	Cs-137	ND (0.53)	ND (0.67)
	Gross β	ND (1.9)	ND (0.35)
	H-3	1,200	1,200

- * 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 3

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
February 9th,2020	Cs-134	ND (0.0028)	ND (0.0045)	ND (0.0065)
	Cs-137	0.0081	0.010	0.0069
	Gross α	ND (0.51)	ND (3.6)	ND (2.1)
	Gross β	ND (0.47)	ND (0.58)	ND (0.57)
	H-3	730	620	650
	Sr-90	0.0014	ND (0.0028)	ND (0.0055)
January 2nd,2020	Cs-134	ND (0.0032)	ND (0.0045)	ND (0.0062)
	Cs-137	0.011	0.015	0.012
	Gross α	ND (0.70)	ND (3.0)	ND (2.4)
	Gross β	ND (0.46)	ND (0.64)	ND (0.51)
	H-3	1,100	930	1,000
	Sr-90	0.0021	ND (0.0028)	ND (0.0054)
December 1st,2019	Cs-134	ND (0.0025)	ND (0.0044)	ND (0.0066)
	Cs-137	0.014	0.013	0.013
	Gross α	ND (0.63)	ND (3.6)	ND (2.1)
	Gross β	ND (0.46)	ND (0.64)	ND (0.60)
	H-3	830	720	750
	Sr-90	0.0022	ND (0.0032)	ND (0.0053)

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

Appendix 4

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)
March 12th, 2020 *Sampled before discharge of purified groundwater.	Cs-134	ND (0.55)
	Cs-137	ND (0.65)
	Gross β	12
	H-3	ND (1.5)
December 18th, 2019 *Sampled before discharge of purified groundwater.	Cs-134	ND (0.61)
	Cs-137	ND (0.63)
	Gross β	15
	H-3	ND (1.6)

(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.

Appendix 5

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
March 19th, 2020 *Discharged on March 28th	Cs-134	ND (0.69)	ND (0.59)
	Cs-137	ND (0.58)	ND (0.57)
	Gross β	ND (0.67)	ND (0.55)
	H-3	130	130
March 12th, 2020 *Discharged on March 19th	Cs-134	ND (0.50)	ND (0.54)
	Cs-137	ND (0.68)	ND (0.53)
	Gross β	ND (0.59)	ND (0.58)
	H-3	120	130
March 4th, 2020 *Discharged on March 12th	Cs-134	ND (0.62)	ND (0.54)
	Cs-137	ND (0.70)	ND (0.58)
	Gross β	ND (0.65)	ND (0.49)
	H-3	150	140
February 26th, 2020 *Discharged on March 5th	Cs-134	ND (0.66)	ND (0.56)
	Cs-137	ND (0.60)	ND (0.55)
	Gross β	ND (0.58)	ND (0.64)
	H-3	110	120
February 27th, 2020 *Discharged on February 19th	Cs-134	ND (0.62)	ND (0.52)
	Cs-137	ND (0.90)	ND (0.60)
	Gross β	ND (0.62)	ND (0.53)
	H-3	130	130
February 12th, 2020 *Discharged on February 20th	Cs-134	ND (0.52)	ND (0.59)
	Cs-137	ND (0.53)	ND (0.44)
	Gross β	ND (0.63)	ND (0.67)
	H-3	120	120
February 5th, 2020 *Discharged on February 13th	Cs-134	ND (0.69)	ND (0.64)
	Cs-137	ND (0.63)	ND (0.50)
	Gross β	ND (0.52)	ND (0.67)
	H-3	120	120
January 30th, 2019 *Discharged on February 7th	Cs-134	ND (0.51)	ND (0.54)
	Cs-137	ND (0.58)	ND (0.52)
	Gross β	ND (0.67)	ND (0.52)
	H-3	110	120
January 24th, 2020	Cs-134	ND (0.60)	ND (0.57)

*Discharged on February 1st	Cs-137	ND (0.53)	ND (0.55)
	Gross β	ND (0.67)	ND (0.63)
	H-3	110	120
January 17th, 2020 *Discharged on January 25th	Cs-134	ND (0.76)	ND (0.50)
	Cs-137	ND (0.63)	ND (0.52)
	Gross β	ND (0.65)	ND (0.61)
	H-3	120	130
January 14th, 2020 *Discharged on January 22nd	Cs-134	ND (0.62)	ND (0.45)
	Cs-137	ND (0.68)	ND (0.56)
	Gross β	ND (0.56)	ND (0.55)
	H-3	120	130
January 6th, 2020 *Discharged on January 15th	Cs-134	ND (0.65)	ND (0.59)
	Cs-137	ND (0.58)	ND (0.42)
	Gross β	ND (0.65)	ND (0.55)
	H-3	130	130
December 27th, 2019 *Discharged on January 11th	Cs-134	ND (0.67)	ND (0.71)
	Cs-137	ND (0.70)	ND (0.77)
	Gross β	ND (0.59)	ND (0.31)
	H-3	140	150

* * 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.

Appendix 6

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
February 5th, 2020	Cs-134	ND (0.0024)	ND (0.0044)	ND (0.0070)
	Cs-137	ND (0.0021)	ND (0.0041)	ND (0.0054)
	Gross α	ND (0.62)	ND (3.6)	ND (2.1)
	Gross β	ND (0.46)	ND (0.62)	ND (0.61)
	H-3	130	110	120
	Sr-90	ND (0.0010)	ND (0.0014)	ND (0.0057)
January 6th, 2020	Cs-134	ND (0.0032)	ND (0.0047)	ND (0.0066)
	Cs-137	ND (0.0024)	ND (0.0041)	ND (0.0051)
	Gross α	ND (0.53)	ND (3.1)	ND (2.4)
	Gross β	ND (0.46)	ND (0.65)	ND (0.59)
	H-3	150	140	150
	Sr-90	ND (0.0011)	ND (0.0014)	ND (0.0055)
December 5th, 2019	Cs-134	ND (0.0029)	ND (0.0049)	ND (0.0064)
	Cs-137	ND (0.0023)	ND (0.0041)	ND (0.0039)
	Gross α	ND (0.51)	ND (3.9)	ND (2.1)
	Gross β	ND (0.47)	ND (0.64)	ND (0.59)
	H-3	200	170	170
	Sr-90	ND (0.0011)	ND (0.0017)	ND (0.0059)

* 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)
March 12th, 2020	Cs-134	ND (0.79)
	Cs-137	ND (0.67)
	Gross β	12
	H-3	ND (1.5)
December 18th, 2019	Cs-134	ND (0.76)
	Cs-137	ND (0.67)
	Gross β	13
	H-3	8.5

(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.