# Information (16:00), December 28, 2022

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. Summary of decommissioning and contaminated water management

In November the summary of monthly progress on decommissioning and contaminated water management of 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/mp202211.pdf

2. 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 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 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 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

In November, 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 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 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 Energy Cooperation Division,
Ministry of Foreign Affairs, Tel 03-5501-8227

# Outline of Decommissioning, Contaminated Water and Treated Water Management

November 24, 2022
Secretariat of the Team for Countermeasures for Decommissioning, Contaminated Water and Treated Water

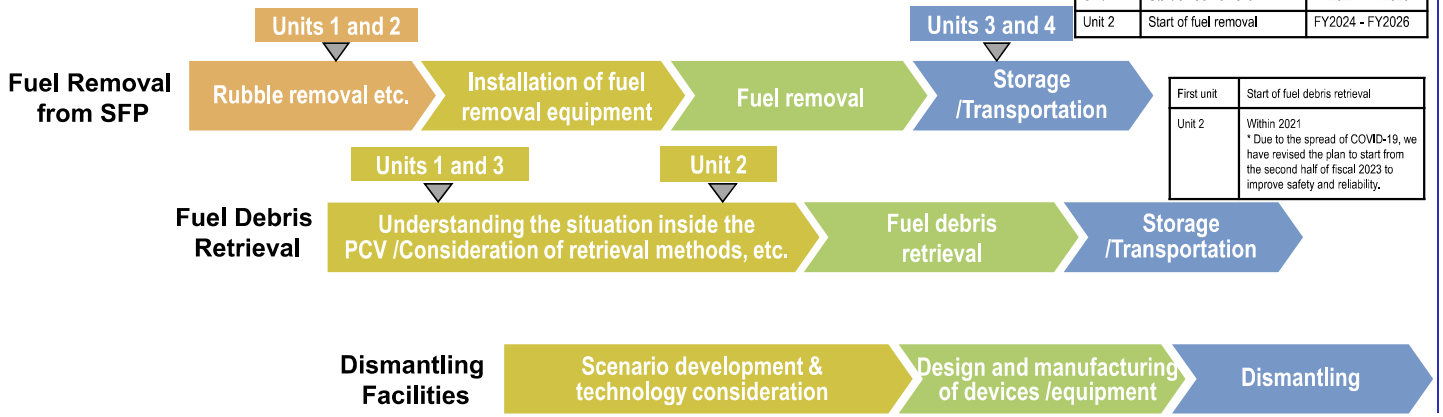
## Main decommissioning work and steps

Fuel removal from the spent fuel pool was completed in December 2014 at Unit 4 and on February 28, 2021 at Unit 3.
Work continues sequentially toward the start of fuel removal from Units 1 and 2 and debris (Note 1) retrieval from Units 1-3.

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

<Milestones in the Mid- and Long-Term Roadmap>

| | | |
|---|---|---|
| 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 |



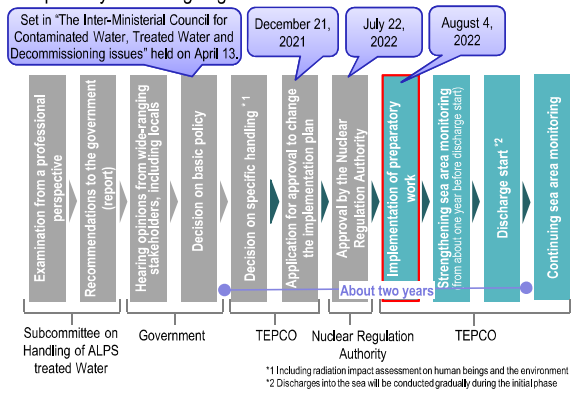

| | |
|---|---|
| First unit | Start of fuel debris retrieval |
| Unit 2 | Within 2021<br>* Due to the spread of COVID-19, we have revised the plan to start from the second half of fiscal 2023 to improve safety and reliability. |

## Measures for treated water

Appenix 1

### Handling of ALPS treated water

Regarding the discharge of ALPS treated water into the sea, TEPCO must comply with regulatory and other safety standards to safeguard the public, the surrounding environment and agricultural, forestry and fishery products. To minimize adverse impacts on reputation, monitoring will be further enhanced and objectivity and transparency ensured by engaging with third-party experts and having safety checked by the IAEA. Moreover, accurate information will be disseminated with full transparency on an ongoing basis.




## Contaminated water management - triple-pronged efforts -

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

① "Remove" the source of water contamination ② "Redirect" fresh water from contaminated areas
③ "Retain" contaminated water from leakage

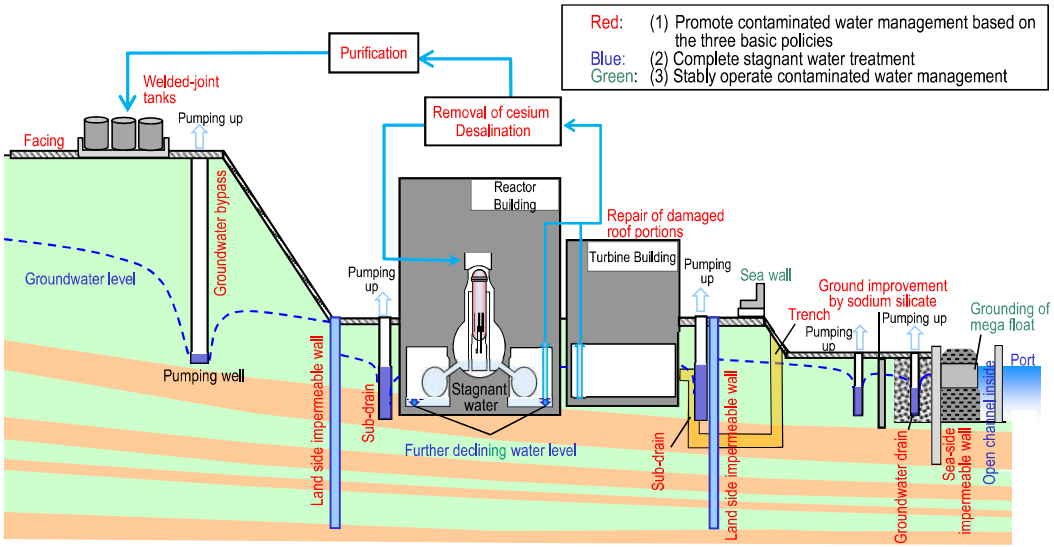
- Strontium-reduced water from other equipment is being re-treated in the Advanced Liquid Processing System (ALPS: multi-nuclide removal equipment) and stored in welded-joint tanks.
- Multi-layered contaminated water management measures, including land-side impermeable walls and sub-drains, have stabilized the groundwater at a low level and the increased 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 2014) to approx. 130 $m^3$/day (in FY2021).
- Measures continue to further suppress the generation of contaminated water to 100 $m^3$/day or less within 2025.

### (2) Efforts to complete stagnant water treatment

- To reduce the stagnant water levels in buildings as planned, work to install additional stagnant water transfer equipment is underway. At present, the floor surface exposure condition can be maintained except for the Unit 1-3 Reactor Buildings, Process Main Building and the High-Temperature Incinerator Building.
- In 2020, treatment of stagnant water in buildings was completed, except for the Unit 1-3 Reactor Buildings, Process Main Building and High-Temperature Incinerator Building. For Reactor Buildings, the amount of stagnant water there will be reduced to about half the amount 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 with stabilization in mind.

### (3) Efforts to stably operate contaminated water management

- Various measures are underway to prepare for tsunamis. For heavy rain, sandbags are being installed to suppress direct inflow into buildings while work to close openings in buildings and install sea walls to enhance drainage channels and other measures is being implemented as planned.



# Progress status

◆ The temperatures of the Reactor and the Primary Containment Vessel of Units 1-3 have been maintained stable.
There was no significant change in the concentration of radioactive materials newly released from Reactor Buildings into the air. It was concluded that the comprehensive cold shutdown condition had been maintained.

## Submission of the Application Documents for Approval to Amend the Implementation Plan regarding the Handling of ALPS treated Water

Additional description and revision were made for the organizational structure within TEPCO such as operation and maintenance management of the ALPS treated water dilution/ discharge facility, nuclides to be measured and assessed to verify that the discharge criteria is satisfied before discharge into the sea and the radiation environmental impact assessment results based on the reviewed nuclides to be measured and assessed. Subsequently, on November 14, TEPCO submitted the Application Documents for Approval to Amend the Implementation Plan to the Nuclear Regulation Agency (NRA).

TEPCO will respond sincerely to the reviews conducted by the NRA.

## IAEA review of the safety aspects of ALPS treated water (second review)

From November 14~18, a delegation of the International Atomic Energy Agency (IAEA) visited Japan and reviewed the safety aspects of ALPS treated water.

In the review, based on the IAEA international safety standards, the reflection status of items pointed out by IAEA in the previous review (mainly in the radiation environmental assessment) was examined and discussions were conducted about the details of the "Application Documents for Approval to Amend the Implementation Plan" (review of nuclides to be measured and assessed, revised radiation environmental impact assessment report and others) submitted by TEPCO to the NRA on November 14.

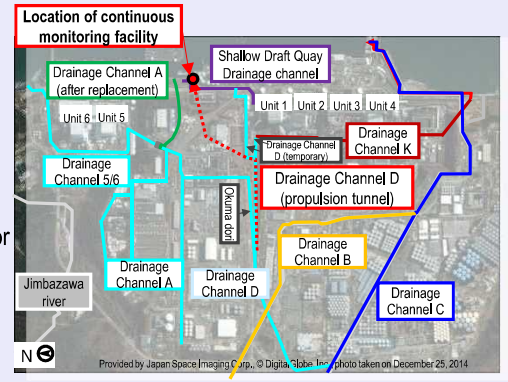
The results of this review will be published as a report from IAEA around the beginning of the following year.

## Operation start of continuous monitoring of Drainage Channel D

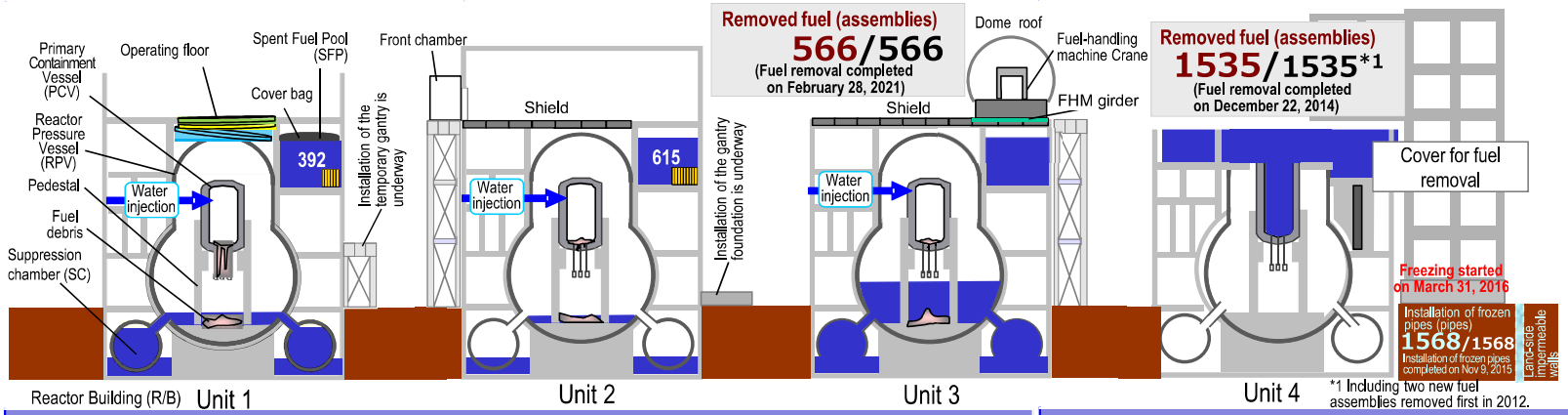
For Drainage Channel D, as part of efforts to eliminate the flooding risk around the Units 1-4 buildings due to heavy rain, a propulsion tunnel was installed and operation started from August 30 mainly in areas with a low dose on the west side of the site

To further mitigate the flooding risk around the Unit 1-4 buildings during heavy rain, a portion of rain in the area of high ground on the mountain side of the Unit 1-4 buildings will be conveyed to Drainage Channel D. Before the connection, continuous monitoring facilities for the drainage concentration have been prepared.

From November 29, remotely operated continuous monitoring will start. Moreover, a portion of the high ground area on the mountain side of the Unit 1-4 buildings will be sequentially connected with Drainage Channel D and monitoring of the drainage will continue.




<Arrangement of on-site drainage>




*1 Including two new fuel assemblies removed first in 2012.

## Examination of status monitoring conservation for land-side impermeable wall facilities brine supply pipe

In February, leakage from the refrigerant supply pipe of the land-side impermeable wall facilities was detected. From August, the space of the leakage part was measured. Based on the measurement results, monitoring methods are being examined.

The feasibility of early detection of degradation tendency by installing status monitoring sensors in the leakage part and other locations is being examined. Mockup tests of the sensor will be conducted from the beginning of next year.

## Progress of fuel removal from the Unit 2 spent fuel pool

Inside the building, removal of the fuel-handling machine control room which interferes with the installation of the new fuel-handling machine has been underway since August 22. After completing the removal, other hindrances inside the building (existing facilities on the south side of the pool) will be removed.

Outside the building, the gantry is being installed and concrete placement of the 2nd (final) layer for the gantry foundation is underway from September 13. Outside the site, ground assembly of steel frames proceeds from August 31 and assembled steel frames will be carried in from mid-January for on-site assembly.

Work continues prioritizing safety above all.

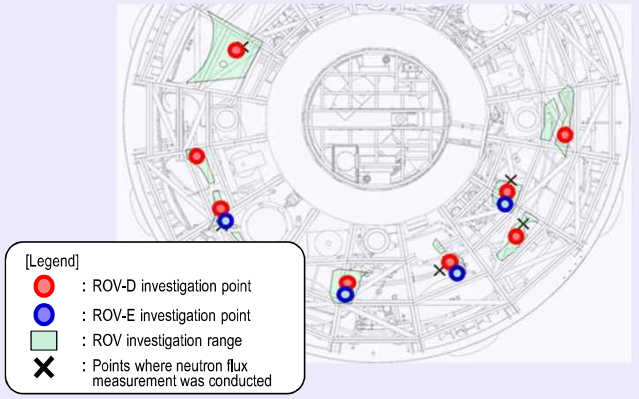
<Steel frame unit connection verification (November 5, 2022)>

## The latter half of the Unit 1 PCV internal investigation will commence in early December

The latter half of the Unit 1 Primary Containment Vessel (PCV) internal investigation will commence in early December

First, the debris detection by ROV-D (nuclide analysis of gamma-ray) will be conducted at eight points and investigative results will be evaluated for about 2-4 weeks.

Moreover, preparation is underway to commence deposit sampling by ROV-E from January 2023.




<Points of the PCV internal investigation by ROV-D and E>

Appendix 2

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<br>*Date of discharge | Detected nuclides | Analytical body | |
|---|---|---|---|
| | | TEPCO | Third-party organization |
| November 26th, 2022<br>*Discharged on December1st | Cs-134 | ND (0.74) | ND (0.57) |
| | Cs-137 | ND (0.47) | ND (0.54) |
| | Gross β | ND (1.8) | ND (0.35) |
| | H-3 | 830 | 890 |
| November 25th, 2022<br>*Discharged on November 30th | Cs-134 | ND (0.64) | ND (0.66) |
| | Cs-137 | ND (0.54) | ND (0.50) |
| | Gross β | ND (0.71) | ND (0.34) |
| | H-3 | 840 | 890 |
| November 24th, 2022<br>*Discharged on November 29th | Cs-134 | ND (0.75) | ND (0.69) |
| | Cs-137 | ND (0.65) | ND (0.67) |
| | Gross β | ND (2.0) | ND (0.33) |
| | H-3 | 890 | 960 |
| November 23rd, 2022<br>*Discharged on November 28th | Cs-134 | ND (0.63) | ND (0.59) |
| | Cs-137 | ND (0.69) | ND (0.57) |
| | Gross β | ND (1.9) | ND (0.30) |
| | H-3 | 870 | 930 |
| November 22nd, 2022<br>*Discharged on November 27th | Cs-134 | ND (0.75) | ND (0.60) |
| | Cs-137 | ND (0.69) | ND (0.63) |
| | Gross β | ND (1.9) | ND (0.35) |
| | H-3 | 930 | 980 |
| November 21st, 2022<br>*Discharged on November 26th | Cs-134 | ND (0.72) | ND (0.62) |
| | Cs-137 | ND (0.65) | ND (0.61) |
| | Gross β | ND (1.9) | ND (0.35) |
| | H-3 | 960 | 1000 |
| November 20th, 2022<br>*Discharged on November 25th | Cs-134 | ND (0.58) | ND (0.65) |
| | Cs-137 | ND (0.65) | ND (0.67) |
| | Gross β | ND (1.9) | 0.39 |
| | H-3 | 880 | 930 |
| November 19th, 2022 | Cs-134 | ND (0.64) | ND (0.59) |

| | | | |
|---|---|---|---|
| *Discharged on November 24th | Cs-137 | ND (0.69) | ND (0.64) |
| | Gross β | ND (2.0) | ND (0.34) |
| | H-3 | 900 | 970 |
| November 18th, 2022 *Discharged on November 23rd | Cs-134 | ND (0.59) | ND (0.49) |
| | Cs-137 | ND (0.60) | ND (0.52) |
| | Gross β | ND (2.0) | ND (0.34) |
| | H-3 | 890 | 960 |
| November 17th, 2022 *Discharged on November 22nd | Cs-134 | ND (0.52) | ND (0.50) |
| | Cs-137 | ND (0.54) | ND (0.61) |
| | Gross β | ND (0.65) | ND (0.36) |
| | H-3 | 840 | 910 |
| November 16th, 2022 *Discharged on November 21st | Cs-134 | ND (0.57) | ND (0.62) |
| | Cs-137 | ND (0.65) | ND (0.69) |
| | Gross β | ND (1.9) | ND (0.39) |
| | H-3 | 890 | 950 |
| November 15th, 2022 *Discharged on November 20th | Cs-134 | ND (0.59) | ND (0.69) |
| | Cs-137 | ND (0.73) | ND (0.50) |
| | Gross β | ND (1.8) | ND (0.34) |
| | H-3 | 930 | 1000 |
| November 14th, 2022 *Discharged on November 19th | Cs-134 | ND (0.72) | ND (0.62) |
| | Cs-137 | ND (0.47) | ND (0.67) |
| | Gross β | ND (2.1) | ND (0.35) |
| | H-3 | 910 | 990 |
| November 13th, 2022 *Discharged on November 18th | Cs-134 | ND (0.74) | ND (0.69) |
| | Cs-137 | ND (0.62) | ND (0.61) |
| | Gross β | ND (1.8) | ND (0.33) |
| | H-3 | 910 | 970 |
| November 11th, 2022 *Discharged on November 18th | Cs-134 | ND (0.58) | ND (0.71) |
| | Cs-137 | ND (0.69) | ND (0.61) |
| | Gross β | ND (1.9) | ND (0.30) |
| | H-3 | 890 | 940 |
| November 12th, 2022 *Discharged on November 17th | Cs-134 | ND (0.61) | ND (0.54) |
| | Cs-137 | ND (0.73) | ND (0.61) |
| | Gross β | ND (1.8) | ND (0.33) |
| | H-3 | 870 | 920 |
| November 10th, 2022 *Discharged on November 15th | Cs-134 | ND (0.56) | ND (0.41) |
| | Cs-137 | ND (0.65) | ND (0.54) |
| | Gross β | ND (1.6) | 0.48 |
| | H-3 | 840 | 890 |
| November 9th, 2022 *Discharged on | Cs-134 | ND (0.75) | ND (0.53) |
| | Cs-137 | ND (0.65) | ND (0.77) |

| | | | |
|---|---|---|---|
| November 14th | Gross β | ND (0.59) | ND (0.37) |
| | H-3 | 820 | 880 |
| November 8th, 2022<br>*Discharged on November 13th | Cs-134 | ND (0.75) | ND (0.58) |
| | Cs-137 | ND (0.60) | ND (0.67) |
| | Gross β | ND (1.9) | ND (0.36) |
| | H-3 | 810 | 900 |
| November 7th, 2022<br>*Discharged on November 12th | Cs-134 | ND (0.52) | ND (0.47) |
| | Cs-137 | ND (0.69) | ND (0.73) |
| | Gross β | ND (2.1) | ND (0.38) |
| | H-3 | 810 | 850 |
| November 6th, 2022<br>*Discharged on November 11th | Cs-134 | ND (0.55) | ND (0.52) |
| | Cs-137 | ND (0.69) | ND (0.70) |
| | Gross β | ND (1.8) | 0.36 |
| | H-3 | 740 | 770 |
| November 5th, 2022<br>*Discharged on November 10th | Cs-134 | ND (0.56) | ND (0.61) |
| | Cs-137 | ND (0.73) | ND (0.58) |
| | Gross β | ND (1.9) | ND (0.35) |
| | H-3 | 770 | 840 |
| November 4th, 2022<br>*Discharged on November 9th | Cs-134 | ND (0.57) | ND (0.64) |
| | Cs-137 | ND (0.54) | ND (0.61) |
| | Gross β | ND (2.0) | ND (0.36) |
| | H-3 | 800 | 840 |
| November 3rd, 2022<br>*Discharged on November 8th | Cs-134 | ND (0.70) | ND (0.73) |
| | Cs-137 | ND (0.77) | ND (0.76) |
| | Gross β | ND (1.7) | ND (0.38) |
| | H-3 | 760 | 810 |
| November 2nd, 2022<br>*Discharged on November 7th | Cs-134 | ND (0.61) | ND (0.79) |
| | Cs-137 | ND (0.67) | ND (0.66) |
| | Gross β | ND (1.5) | ND (0.38) |
| | H-3 | 750 | 820 |
| November 1st, 2022<br>*Discharged on November 6th | Cs-134 | ND (0.53) | ND (0.58) |
| | Cs-137 | ND (0.67) | ND (0.58) |
| | Gross β | ND (0.69) | ND (0.36) |
| | H-3 | 760 | 830 |
| October 31st, 2022<br>*Discharged on November 5th | Cs-134 | ND (0.61) | ND (0.59) |
| | Cs-137 | ND (0.76) | ND (0.61) |
| | Gross β | ND (1.6) | ND (0.39) |
| | H-3 | 720 | 780 |
| October 30th, 2022<br>*Discharged on November 4th | Cs-134 | ND (0.54) | ND (0.64) |
| | Cs-137 | ND (0.65) | ND (0.66) |
| | Gross β | ND (1.8) | ND (0.34) |

| | | | |
|---|---|---|---|
| | H-3 | 690 | 770 |
| October 29th, 2022<br>*Discharged on November 3rd | Cs-134 | ND (0.79) | ND (0.58) |
| | Cs-137 | ND (0.69) | ND (0.70) |
| | Gross β | ND (1.7) | ND (0.33) |
| | H-3 | 710 | 760 |
| October 28th, 2022<br>*Discharged on November 2nd | Cs-134 | ND (0.69) | ND (0.71) |
| | Cs-137 | ND (0.65) | ND (0.58) |
| | Gross β | ND (0.63) | ND (0.32) |
| | H-3 | 720 | 760 |

* * 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 |
| October 1st,2022 | Cs-134 | ND (0.0029) | ND (0.0047) | ND (0.0062) |
| | Cs-137 | 0.0030 | ND (0.0039) | ND (0.0050) |
| | Gross α | ND (0.43) | ND (2.5) | ND (1.8) |
| | Gross β | ND (0.47) | ND (0.59) | ND (0.57) |
| | H-3 | 590 | 580 | 590 |
| | Sr-90 | ND (0.0050) | ND (0.0032) | ND (0.0061) |

* 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 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) |
|---|---|---|
| September5th, 2022<br>*Sampled before discharge of purified groundwater. | Cs-134 | ND (0.72) |
| | Cs-137 | ND (0.51) |
| | Gross β | 9.1 |
| | H-3 | ND (0.31) |

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<br>*Date of discharge | Detected nuclides | Analytical body | |
|---|---|---|---|
| | | TEPCO | Third-party organization |
| November 25th, 2022<br>*Discharged on December 1st | Cs-134 | ND (0.58) | ND (0.53) |
| | Cs-137 | ND (0.69) | ND (0.64) |
| | Gross β | ND (0.62) | ND (0.27) |
| | H-3 | 51 | 57 |
| November 18th, 2022<br>*Discharged on November 23rd | Cs-134 | ND (0.68) | ND (0.67) |
| | Cs-137 | ND (0.60) | ND (0.52) |
| | Gross β | ND (0.64) | ND (0.32) |
| | H-3 | 63 | 63 |
| November 10th, 2022<br>*Discharged on November 17th | Cs-134 | ND (0.56) | ND (0.57) |
| | Cs-137 | ND (0.69) | ND (0.55) |
| | Gross β | ND (0.56) | ND (0.30) |
| | H-3 | 62 | 66 |
| November 2nd, 2022<br>*Discharged on November 7th | Cs-134 | ND (0.71) | ND (0.58) |
| | Cs-137 | ND (0.72) | ND (0.63) |
| | Gross β | ND (0.60) | ND (0.32) |
| | H-3 | 52 | 56 |

- * 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 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 |
| October 5th, 2022 | Cs-134 | ND (0.0024) | ND (0.0049) | ND (0.0063) |
| | Cs-137 | ND (0.0020) | ND (0.0041) | ND (0.0048) |
| | Gross α | ND (0.50) | ND (3.8) | ND (1.8) |
| | Gross β | ND (0.46) | ND (0.71) | ND (0.53) |
| | H-3 | 54 | 52 | 53 |
| | Sr-90 | ND (0.0011) | ND (0.0012) | ND (0.0058) |

* 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 7

Results of analyses on the seawater sampled near the discharge point (Around South Discharge Channel)

(Unit: Bq/L)

| Date of sampling<br>※conducted four times a year | Detected nuclides | Sampling point<br>(South discharge channel) |
|---|---|---|
| September 5th, 2022 | Cs-134 | ND (0.68) |
| | Cs-137 | ND (0.54) |
| | Gross β | 9.6 |
| | H-3 | ND (0.32) |