

Fukushima Daiichi Nuclear Power Station

Analysis Results for the Water Stored in the Discharge Vertical Shaft (Upper-stream Storage) as Part of the First Stage of the Third Discharge in FY2023

< Reference document >
November 1, 2023
Tokyo Electric Power Company Holdings, Inc.
Fukushima Daiichi Decontamination and
Decommissioning Engineering Company

- As the First Stage of the third discharge, on October 31 at 11:24, we transferred a very small amount of ALPS treated water (approximately 1m³) to the dilution facility, using transfer facilities. The water was diluted with seawater (approximately 1,200m³). In order to confirm that the water is being diluted as expected, we stored and also sampled the water in the discharge vertical shaft (upper-stream storage).
- Going forward, the concentrations of tritium in the sampled water will be measured in order to confirm that the actual concentration is approximately equal to the calculated concentration, and below 1,500Bq/liter.

<[Announced by October 31](#)>

- On October 31, diluted ALPS treated water stored in the discharge vertical shaft (upper-stream storage) was sampled and the tritium concentration of the water has been measured. The results showed that the analysis value is approximately equal to the calculated concentration and below 1,500Bq/liter. The sample of the water was also analyzed by the Japan Atomic Energy Agency (hereinafter referred to as, "JAEA") who confirmed that the analysis value is below 1,500 Bq/liter.
- Since the analysis results for the water stored in the discharge vertical shaft (upper-stream storage) have been confirmed, the decision will be made to proceed to the Second Stage tomorrow morning (November 2) depending on weather and sea conditions.
- If we decide to proceed to the Second Stage tomorrow morning, the seawater transfer pumps will be started up at around 10:30, and discharge will be commenced thereafter. During the discharge, one tank group-worth of ALPS treated water from the measurement/confirmation facility, and the water stored in the discharge vertical shaft (upper-stream storage) during the First Stage, will be continuously transferred, diluted and discharged into the sea.
- We will continue to engage in this process with the utmost vigilance to ensure that there are no unintentional discharge of ALPS treated water into the sea.

Analysis results for the water stored in the discharge vertical shaft (upper-stream storage) (analysis results of the First Stage)



- The concentration of tritium in diluted ALPS treated water sampled on October 31 was measured and we confirmed that the analysis value is approximately equal to the calculated concentration, and below 1,500 Bq/liter.
- Furthermore, the JAEA also analyzed the sampled water and confirmed the analysis value is below 1,500 Bq/liter.

November 01, 2023

TEPCO Holdings

Fukushima Daiichi D&D Engineering Company

Analysis Results of the Water in the Discharge Vertical Shaft (Upper-stream Storage)

Confirmed the followings:

- ① The analysis value is below 1,500 Bq/liter.
- ② The analysis value (55 Bq/liter ~ 77 Bq/liter) is within the range of calculated value which is taken into account of uncertainty of mixed dilution.
Furthermore, the analysis value is approximately equal to the calculated value (49 Bq/liter ~ 194 Bq/liter).

Summary	Analysis Value	55~77 (Bq/L) (confirmed to be less than 1,500 Bq/L)
	Comparison with calculated value	Confirmed to be consistent with calculated value (49~194Bq/L)*3

Analysis Results

Nuclide	Date and Time of Sampling	TEPCO HD			JAEA *2		
		Analysis Value (Bq/L)	Uncertainty *1 (Bq/L)	Detection Limit (Bq/L)	Analysis Value (Bq/L)	Uncertainty *1 (Bq/L)	Detection Limit (Bq/L)
H-3	2023/10/31 14:11	6.6E+01	± 1.1E+01	6.2E+00	6.5E+01	± 1.3E+01	1.5E+01

• Values are expressed in exponential notation.

For example, "3.1E+01" means "3.1×10¹" and equals 31. Similarly, "3.1E+00" means "3.1×10⁰" and equals 3.1, and "3.1E-01" means "3.1×10⁻¹" and equals 0.31.

*1 "Uncertainty" refers to the accuracy of analysis data.

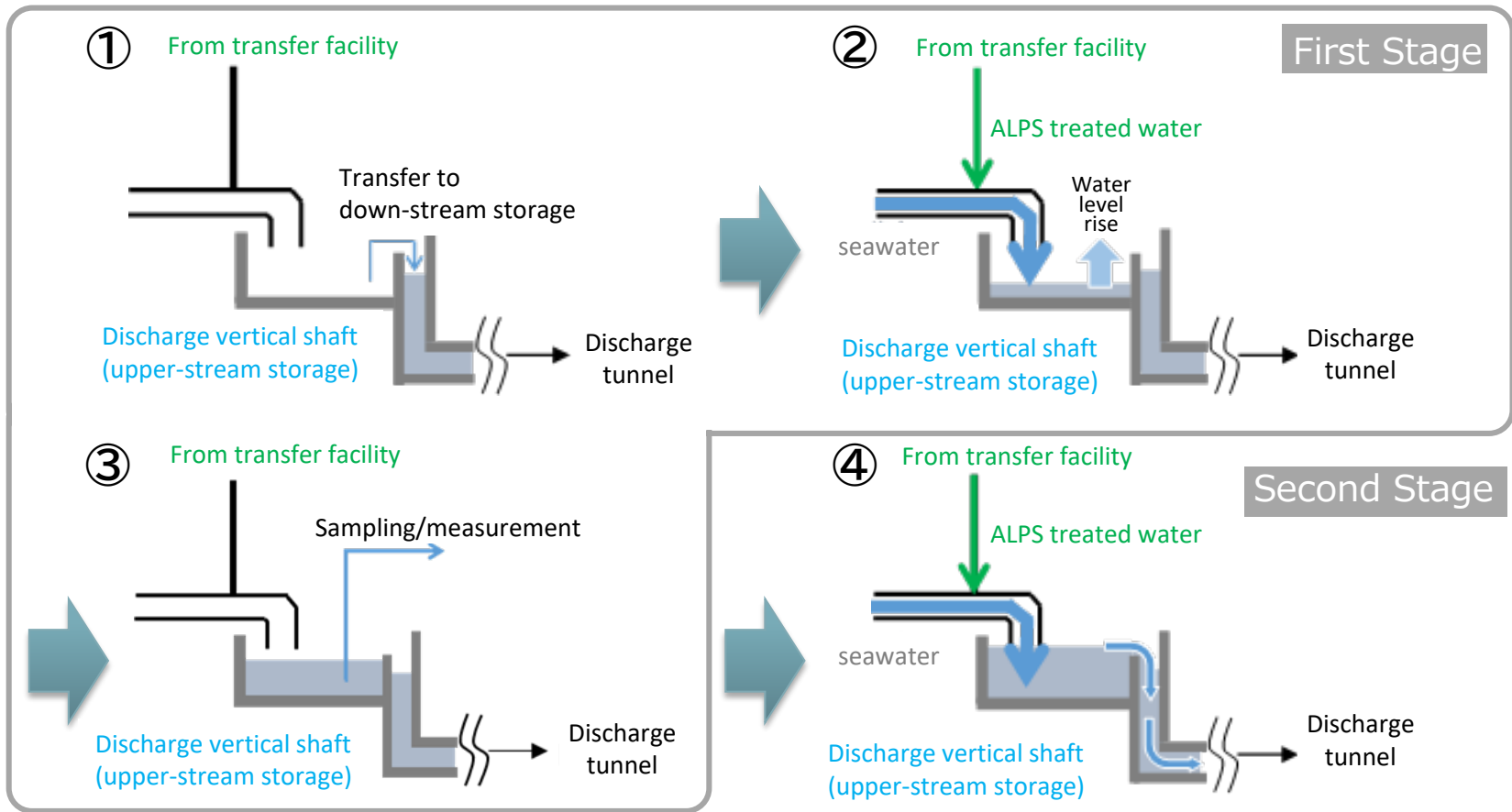
"Uncertainty" is calculated using "Expanded Uncertainty: Coverage Factor k=2".

*2 Analysis results from the Okuma Analysis and Research Center of the Japan Atomic Energy Agency, a National Research and Development Agency, which are based on the basic policy on handling of ALPS treated water.

*3 Analysis value (66±11≒55~77) is within the calculated value (49~194) which is taken into account of uncertainty of mixed dilution.

The JAEA also analyzed the sampled water and confirmed the analysis value is below 1,500 Bq/liter.

[Reference] Method of initially discharging small amounts



- ① The discharge vertical shaft (upper-stream storage) will be emptied.
- ② A very small amount of (approximately 1m³) ALPS treated water will be diluted with seawater (approximately 1,200m³) and then held in the discharge vertical shaft (upper-stream storage).
- ③ The water in the discharge vertical shaft (upper-stream storage) will be sampled and the tritium concentration will be measured in order to confirm that actual concentration is approximately the same as the calculated tritium concentration, and that the concentration of tritium is less than 1,500Bq/liter. [Processes ① through ③ comprise the First Stage]
- ④ Then, TEPCO will move on to the Second Stage which will be continuous discharge into the sea.