

- For the subdrain water treatment facilities, water purification performance verification test has been conducted since August 12, 2014 to evaluate the water quality before and after the water treatment. And this time, in order to check the extent of their removal capacities, additional detailed verification test targeting 47 nuclides*¹ was conducted for the water quality at the time of the water quality verification test.

*¹ Selection is made on the basis that, of 62 designated nuclides to be removed from accumulated water in the buildings, 15 with short-half life are excluded taking into account their waning nature in nuclide activity with time as three years has passed since the accident.

- As the result, it was verified that the radiation level of the water undergone the water treatment is being low enough. At the same time, it was found that the subdrain water treatment facilities have a purification capability to reduce the radiation concentration to less than 1/1500*².

*² Comparison in water quality (where a measured value falls below the detection limit value, the lower value is chosen) before and after the water treatment for the nuclide(s) detected before the water treatment.

Table 1. Detailed results of purification performance verification test for subdrain water treatment facilities (Cs-134 and 137, and Sr-90)*³

Unit: Bq/L

	Water quality before purification	Water quality after purification		Comparison in water quality (Before/after purification)* ²	Operational targets for groundwater bypass	Density limit by the announcement of reactor regulation * ⁵	WHO guidelines for drinking water quality
		TEPCO	Third parties				
Cesium 134	59	Less than detection limit value (0.053)	Less than detection limit value (0.029)	Less than 1/2000	1	60	10
Cesium 137	190	0.070	Less than detection limit value (0.050)	Approx. 1/2700	1	90	10
Strontium 90	15	Less than detection limit value (0.19)	Less than detection limit value (0.010)	Less than 1/1500	5 (1) * ⁴	30	10

• Number shown in parenthesis indicates detection limit value.

*³ Nuclides detected from the untreated water. However any nuclide with radioactive equilibrium occurring or the one hard to be detected is excluded from the listed nuclides. For the analysis results of other 47 nuclides and tritium, refer to Appendix 1.

*⁴ For Gross β in the operational target (Strontium 90 is included in Gross β), the analysis is conducted applying the detection limit of 1 Bq/L every 10 days.

*⁵ Density limit by the announcement of reactor regulation: Annex 2-6, "Notification for Radiation Dose Rate Limits, etc. Based on the Provisions of the Rules for Installation, Operation, etc. of Commercial Power Reactors".

(Reference) Purification performance verification test for subdrain water treatment facilities (Previously announced on August 22 and 28, 2014)

- Through the purification performance verification test for subdrain water treatment facilities, it was verified that water quality after the water treatment falls below the operational targets set for groundwater bypass.

Table 2. Results of purification performance verification test for subdrain water treatment facilities

Unit: Bq/L

	Water quality before purification	Water quality after purification		Operational target for groundwater bypass	Density limit by the announcement of reactor regulation *5	WHO guidelines for drinking water quality
		TEPCO	Third parties			
Cesium 134	57	Less than detection limit value (0.54)	Less than detection limit value (0.50)	1	60	10
Cesium 137	190	Less than detection limit value (0.46)	Less than detection limit value (0.60)	1	90	10
Nuclides emitting γ ray, etc.	Not detected	Not detected	Not detected	Not to be detected *1	-	-
Gross β	290	Less than detection limit value (0.83)	Less than detection limit value (0.40)	5 (1) ※ 2	-	-
Tritium	660	670	610	1,500	60,000	10,000

• Number shown in parenthesis indicates detection limit value.

*1 No amount should be detected by the analysis to verify that the concentration of cesium 134 and 137 is 1 Bq/L or less.

*2 For Gross β in the operational target (Strontium 90 is included in Gross β), the analysis is conducted applying the detection limit of 1 Bq/L every 10 days.

*5 Density limit by the announcement of reactor regulation: Annex 2-6, "Notification for Radiation Dose Rate Limits, etc. Based on the Provisions of the Rules for Installation, Operation, etc. of Commercial Power Reactors".