

## Primary Containment Vessel of Unit 3 of Fukushima Daiichi Nuclear Power Station Sampling Result of the Gas Control System

[Sampling time & date] February 24, 2012 (Fri) 11:25-11:35 (particulate filter)  
11:36-12:06 (charcoal filter)

February 28, 2012  
Tokyo Electric Power Company

[Measurement result]

	Nuclides	Density of sample (Bq/cm <sup>3</sup> )	Detection limits (Bq/cm <sup>3</sup> )	Half-life
particulate filter	I-131	Below measurable limit	$2.3 \times 10^{-6}$	About 8 days
	Cs-134	$1.8 \times 10^{-5}$	$6.1 \times 10^{-6}$	About 2 years
	Cs-137	$1.4 \times 10^{-5}$	$7.0 \times 10^{-6}$	About 30 years

	Nuclides	Density of sample (Bq/cm <sup>3</sup> )	Detection limits (Bq/cm <sup>3</sup> )	Half-life
charcoal filter	I-131	Below measurable limit	$1.8 \times 10^{-6}$	About 8 days
	Cs-134	$3.6 \times 10^{-5}$	$3.4 \times 10^{-6}$	About 2 years
	Cs-137	$4.8 \times 10^{-5}$	$3.9 \times 10^{-6}$	About 30 years
	Kr-85	Below measurable limit	$6.1 \times 10^{-1}$	About 11 years
	Xe-131m	Below measurable limit	$7.3 \times 10^{-2}$	About 12 days
	Xe-133	$1.0 \times 10^{-2}$	$5.2 \times 10^{-3}$	About 5 days
	Xe-135	$1.3 \times 10^{-2}$	$2.9 \times 10^{-3}$	About 9 hours

We evaluated the radioactive material densities and detection limits of rare gases (Kr-85, Xe-131m, Xe-133 and Xe-135). ( Because the measurement result of rare gases in the gas vial container was below the measurable limit, we used the past maximum capture rate of Unit 2 for the evaluation. \* - 1 )

\*-1 : We used the past maximum capture rate of Unit 2 since we supposed that the capture rate of rare gases at the charcoal filter was the same as the one of Unit 2 where equivalent radioactive materials of the outlet sampling were confirmed under the same measurement condition (sampling flow rate).

(Reference) Values before evaluation by the capture rate of rare gases

<u>Nuclides</u>	<u>Density of sample (Bq/cm<sup>3</sup>)</u>	<u>Detection limits (Bq/cm<sup>3</sup>)</u>
Kr-85	Below measurable limit	$3.1 \times 10^{-4}$
Xe-131m	Below measurable limit	$3.7 \times 10^{-5}$
Xe-133	$5.3 \times 10^{-6}$	$2.6 \times 10^{-6}$
Xe-135	$6.8 \times 10^{-6}$	$1.5 \times 10^{-6}$

**Primary Containment Vessel of Unit 3 of Fukushima Daiichi Nuclear Power Station**  
**Sampling Result of the Gas Control System**

February 28, 2012  
Tokyo Electric Power Company

[Sampling place] Outlet of gas control system of Primary Containment Vessel of Unit 3

[Sampling time & date] February 24, 2012 (Fri) 11:06

[Measurement result]

Nuclides		Density of sample (Bq/cm <sup>3</sup> )	Detection limits (Bq/cm <sup>3</sup> )	Half-life
Gas vial container	Kr-85	Below measurable limit	$2.7 \times 10^{-1}$	About 11 years
	Xe-131m	Below measurable limit	$3.0 \times 10^0$	About 12 days
	Xe-133	Below measurable limit	$2.3 \times 10^{-1}$	About 5 days
	Xe-135	Below measurable limit	$1.1 \times 10^{-1}$	About 9 hours

In addition to the above nuclides, Cs-134 was detected, which is supposed to exist as particles. The measurement using gas vial container is not suitable for the measurement of low-density radioactive materials in particle status, because the variation in sampled particles is large in each sampling case, resulting in unstable measurement result. This is mainly because the amount of sample is small. Therefore, rare gases (Kr and Xe, etc.), which are supposed to exist evenly in the gas control system, are chosen to be measured.