

Primary Containment Vessel of Unit 2 of Fukushima Daiichi Nuclear Power Station Sampling Result by the Gas Control System

February 14, 2012
Tokyo Electric Power Company

[Sampling time & date] February 13, 2012 (Mon) 16:12-16:22 (particulate filter)
16:24-16:54 (charcoal filter)

[Measurement result]

Nuclides		Density of sample (Bq/cm ³)	Detection limits (Bq/cm ³)	Half-life
particulate filter	I-131	Below detection limit	2.4×10^{-6}	About 8 days
	Cs-134	8.5×10^{-6}	6.4×10^{-6}	About 2 years
	Cs-137	1.9×10^{-5}	7.2×10^{-6}	About 30 years

Nuclides		Density of sample (Bq/cm ³)	Detection limits (Bq/cm ³)	Half-life
charcoal filter	I-131	Below detection limit	1.5×10^{-6}	About 8 days
	Cs-134	9.4×10^{-6}	3.3×10^{-6}	About 2 years
	Cs-137	1.0×10^{-5}	3.9×10^{-6}	About 30 years
	Kr-85	1.9×10^{-1}	5.5×10^{-1}	About 11 years
	Xe-131m	Below detection limit	1.1×10^{-1}	About 12 days
	Xe-133	1.6×10^{-2}	6.4×10^{-3}	About 5 days
	Xe-135	2.3×10^{-2}	2.6×10^{-3}	About 9 hours

We evaluate the density and detection limits of rare gas (Kr-85, Xe-131, Xe-133, Xe-135) by calculating rate of capture of rare gas at charcoal filter from the sampled data at gas vial container. (Please note that this time, since the result of rare gas at gas vial container is below detection limit,, we used the highest rate of capture in the past.)

(Reference) Values before using the rate of capture of rare gas

Nuclides	Density of sample (Bq/cm ³)	Detection limits (Bq/cm ³)
Kr-85	9.6×10^{-3}	2.8×10^{-4}
Xe-131m	Below detection limit	5.5×10^{-5}
Xe-133	8.1×10^{-6}	3.2×10^{-6}
Xe-135	1.2×10^{-5}	1.3×10^{-6}

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【Sampling place】 Outlet of the gas control system in PCV of Unit 2

【Sampling time and date】 16:05, February 13, 2012 (Mon)

【Result】

Nuclides		Density of radioactive materials (Bq/cm ³)	Detection limits (Bq/cm ³)	Half-life
Gas vial container	Kr-85	Below detection limit	2.4×10^1	About 11 years
	Xe-131m	Below detection limit	3.1×10^0	About 12 days
	Xe-133	Below detection limit	2.6×10^{-1}	About 5 days
	Xe-135	Below detection limit*	1.1×10^{-1}	About 9 hours

Cs-137 which may exist as particle is detected. However, result of gas vial container will diverse as volume of sampled particles are very small and so the sampled particles diverse, and so it is not suitable to survey the low density particulate nuclides. Therefore, we evaluate rare gas (Kr, Xe and etc) that is expected to exist in uniform in gas control system.