Gas Sampling Results of the Unit 3 PCV Gas Control System Conducted at Fukushima Daiichi Nuclear Power Station

April 17, 2012
Tokyo Electric Power Company

【Sampling date】 April 5, 2012 (Thu) 11:22 – 11:32 (particle filter)
11:33 – 12:03 (charcoal filter)

【Sampling results】

Nuclides		Radioactive Concentration (Bq/cm^3)	Detectable Limit (Bq/cm^3)	Half-Life Period
Particle filter	I-131	Below Detectible Limit	2.0×10^{-6}	About 8 Days
	Cs-134	7.9×10^{-6}	5.3×10^{-6}	About 2 Years
	Cs-137	9.2×10^{-6}	6.3×10^{-6}	About 30 Years

Nuclides		Radioactive Concentration (Bq/cm^3)	Detectable Limit (Bq/cm^3)	Half-Life Period
Charcoal filter	I-131	Below Detectible Limit	1.3×10^{-6}	About 8 Days
	Cs-134	4.3×10^{-6}	3.1×10^{-6}	About 2 Years
	Cs-137	6.6×10^{-6}	3.6×10^{-6}	About 30 Years
	Kr-85	1.3×10^{0}*	6.1×10^{-1} *	About 11 Years
	Xe-131m	Below Detectible Limit	7.8×10^{-2} *	About 12 days
	Xe-133	1.3×10^{-2} *	4.7×10^{-3} *	About 5 days
	Xe-135	2.1×10^{-2}*	2.4×10^{-3} *	About 9 hours

※Radioactive Concentration and detectible limit of rare gas (Kr-85,Xe-131m,Xe-133,Xe-135) were evaluated from the result of yield of rare gas by charcoal filter extracted with gas vial. (Maximum of past yield rate of Unit 2 was employed for this time due to the result of gas vial was Below Detectible Limit*-1)

(Ref.) Figures before employing evaluation by yield rate of rare gas

Nuclides	Radioactive Concentration (Bq/cm^3)	Detectable Limit(Bq/cm^3)
Kr-85	5.7×10^{-4}	2.7×10^{-4}
Xe-131m	Below Detectible Limit	3.5×10^{-5}
Xe-133	5.9×10^{-6}	2.1×10^{-6}
Xe-135	9.6×10^{-6}	1.1×10^{-6}

*-1:Assumed yield rate of rare gas was at same level with unit 2 which was confirmed to be in the same level of radioactive concentration under the same sampling methodology (sampling flow) at outlet sampling point.

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Tokyo Electric Power Company

【Sampling place】 Outlet of Unit 3 PCV Gas Control System

【Sampling date】 11:27, April 5, 2012 (Thu)

【Sampling results】

Nuclides		Radioactive Concentration (Bq/cm^3)	Detectable Limit (Bq/cm^3)	Half-Life Period
Gas vial	Kr-85	Below Detectible Limit	2.4×10^{1}	About 11 Years
	Xe-131m	Below Detectible Limit	3.6×10^{0}	About 12 days
	Xe-133	Below Detectible Limit	2.0×10^{-1}	About 5 days
	Xe-135	Below Detectible Limit	1.1×10^{-1}	About 9 hours

Cs-134 and Cs-137 were detected, which are considered to exist as particle, however, as gas vial is not appropriate for quantification of low concentration particle as it requires few sample amount and hardly obtain stable result due to wide variation of particle for each sampling, rare gas (Kr, Xe, etc) is targeted for sampling which is considered to exist equally within the gas control system.

Gas Sampling Results of the Unit 3 PCV Gas Control System Conducted at Fukushima Daiichi Nuclear Power Station

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Tokyo Electric Power Company

【Sampling date】 April 15, 2012 (Sun) 10:37 – 10:47 (particle filter)
10:48 – 11:18 (charcoal filter)

【Sampling results】

	Nuclides	Radioactive Concentration (Bq/cm^3)	Detectable Limit (Bq/cm^3)	Half-Life Period
Particle filter	I-131	Below Detectible Limit	2.4×10^{-6}	About 8 Days
	Cs-134	Below Detectible Limit	6.0×10^{-6}	About 2 Years
	Cs-137	Below Detectible Limit	6.8×10^{-6}	About 30 Years

	Nuclides	Radioactive Concentration (Bq/cm^3)	Detectable Limit (Bq/cm^3)	Half-Life Period
Charcoal filter	I-131	Below Detectible Limit	1.5×10^{-6}	About 8 Days
	Cs-134	4.1×10^{-6}	3.2×10^{-6}	About 2 Years
	Cs-137	6.4×10^{-6}	3.9×10^{-6}	About 30 Years
	Kr-85	9.2×10^{-1}*	6.2×10^{-1} *	About 11 Years
	Xe-131m	Below Detectible Limit	6.6×10^{-2} *	About 12 days
	Xe-133	8.7×10^{-3} *	5.8×10^{-3} *	About 5 days
	Xe-135	2.0×10^{-2}*	2.2×10^{-3} *	About 9 hours

※Radioactive Concentration and detectible limit of rare gas (Kr-85,Xe-131m,Xe-133,Xe-135) were evaluated from the result of yield of rare gas by charcoal filter extracted with gas vial. (Maximum of past yield rate of Unit 2 was employed for this time due to the result of gas vial was Below Detectible Limit*-1)

(Ref.) Figures before employing evaluation by yield rate of rare gas

Nuclides	Radioactive Concentration (Bq/cm^3)	Detectable Limit(Bq/cm^3)
Kr-85	4.1×10^{-4}	2.8×10^{-4}
Xe-131m	Below Detectible Limit	3.0×10^{-5}
Xe-133	3.9×10^{-6}	2.6×10^{-6}
Xe-135	8.9×10^{-6}	9.9×10^{-7}

*-1:Assumed yield rate of rare gas was at same level with unit 2 which was confirmed to be in the same level of radioactive concentration under the same sampling methodology (sampling flow) at outlet sampling point.

Gas Sampling Results of the Unit 3 PCV Gas Control System Conducted at Fukushima Daiichi Nuclear Power Station

April 17, 2012
Tokyo Electric Power Company

【Sampling place】 Outlet of Unit 2 PCV Gas Control System

【Sampling date】 10:52, April 15, 2012 (Sun)

【Sampling results】

Nuclides		Radioactive Concentration (Bq/cm^3)	Detectable Limit (Bq/cm^3)	Half-Life Period
Gas vial	Kr-85	Below Detectible Limit	2.5×10^{1}	About 11 Years
	Xe-131m	Below Detectible Limit	3.3×10^{0}	About 12 days
	Xe-133	Below Detectible Limit	2.2×10^{-1}	About 5 days
	Xe-135	Below Detectible Limit	1.2×10^{-1}	About 9 hours

Cs-134 and Cs-137 were detected, which are considered to exist as particle, however, as gas vial is not appropriate for quantification of low concentration particular as it requires few sample amount and hardly obtain stable result due to wide variation of particle for each sampling, rare gas (Kr, Xe, etc) is targeted for sampling which is considered to exist equally within the gas control system.