

Fukushima Daiichi Nuclear Power Station: Am and Cm analysis result in the soil

1. Analysis result

(Unit : Bq/kg·dry soil)

Sampling spot (): Distance from the stack of Unit 1, 2	Data sampling/Analysis organization	Pu-238 ^{*1}	Pu-239 ^{*1} Pu-240 ^{*1}	U-234 ^{*2}	U-235 ^{*2}	U-238 ^{*2}	Am-241	Cm-242	Cm-243 Cm-244
Playground (west-northwest approx. 500m)	May 30 Japan Chemical Analysis Center	(1.9±0.16) × 10 ⁻¹	(6.6±0.90) × 10 ⁻²	(14±0.70) × 10 ⁰	(9.1±1.3) × 10 ⁻¹	(15±0.80) × 10 ⁰	(3.5±0.71) × 10 ⁻²	(2.7±0.10) × 10 ⁰	(1.1±0.12) × 10 ⁻¹
Near the industrial waste disposal plant (south-southwest approx. 500m)		(4.7±0.74) × 10 ⁻²	(2.1±0.49) × 10 ⁻²	(6.5±0.39) × 10 ⁰	N.D.	(6.3±0.38) × 10 ⁰	N.D.	(6.9±0.45) × 10 ⁻¹	(3.2±0.79) × 10 ⁻²
Average nuclide density ratio of fuel in Units 1 to 3 (ratio in case the ratio of Pu-238 is considered as 1) ^{*3}		1	-	-	-	-	0 . 1	1 0	1

*1 : Released on June 14, 2011 *2 : Released on June 25th, 2011 *3 : Values calculated by ORIGEN Code (round number)

2. Evaluation

Detected Am and Cm are considered to derive from the accident due to following reasons.

- Cm-242, Cm-243 and Cm-244 are nuclides that do not exist in the natural world. In particular, Cm-242 whose half-life is relatively short (approximately 160 days) was detected.

- The density ratio of each nuclides (Am-241/Cm-242/Cm-243,Cm-244) to Pu-238 in the sample and is almost the same as the average nuclide density ratio of fuel in Units 1 to 3.

Pu-238 in the sample : (Am-241/Cm-242/Cm-243,Cm-244) 1 : (0.2/14/0.6)

Pu-238 in the sample : (Am-241/Cm-242/Cm-243,Cm-244) 1 : (- /15/0.7)

END