

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	Date of sampling/ Analyses 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
①Playground (west-northwest approx. 500m)	MKay 2/ Japan Chemical Analysis Center	(5.2±0.83) ×10 ⁻²	(3.3±0.64)×1 0 ⁻²	(2.3±0.11) ×10 ¹	(9.4±1.4) ×10 ⁻¹	(2.3±0.11) ×10 ¹	N.D.	(6.4±0.42) ×10 ⁻¹	N.D.
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	10	1

*1 : Released on May 20th, 2011 *2 : Released on May 28th, 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 ① is almost the same as the average nuclide density ratio of fuel in Units 1 to 3.

Pu-238 in the sample ①: (Am-241/Cm-242/Cm-243,Cm-244) ≐ 1 : (0.1/11/0.9)

End