

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 organizatio n	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
① Playground ( west-northwest approx. 500m)	March 28/ Japan	(2.6±0.22) × 10 <sup>-1</sup>	(1.2±0.14) × 10 <sup>-1</sup>	(12±0.6) × 10 <sup>0</sup>	(5.0±0.86) × 10 <sup>-1</sup>	(12±0.6) × 10 <sup>0</sup>	(3.3±0.64) × 10 <sup>-2</sup>	(4.0±0.15) × 10 <sup>0</sup>	(2.0±0.17) × 10 <sup>-1</sup>
③ Adjacent to industrial waste disposal facility (south-southwest approx. 500m)	Chemical Analysis Center	(5.1±0.83) × 10 <sup>-2</sup>	(2.6±0.58) × 10 <sup>-2</sup>	(4.4±0.27) × 10 <sup>0</sup>	(2.3±0.57) × 10 <sup>-1</sup>	(4.3±0.27) × 10 <sup>0</sup>	(1.8±0.51) × 10 <sup>-2</sup>	(1.4±0.07) × 10 <sup>0</sup>	(4.0±0.79) × 10 <sup>-2</sup>
Average density ratio of radioactive materials in Unit 1-4(ratio when the ratio of Pu-238 is considered as 1)*3		1	—	—	—	—	0.1	1.0	1

\*1 : Released on April 6<sup>th</sup>, 2011    \*2 : Released on April 14<sup>th</sup>, 2011    \*3 : Figure by ORIGEN Code (round number)

2. Valuation

Am and Cm detected for this analysis is valued as the same level as in the natural condition for following reasons.

- Radioactive densities of Cm-243, Cm-243 and Cm-244 do not exist in the natural world. In particular, Cm-242, whose half-life is shortest compared with the others (Half-life: approximately 160 days), was detected.
- The density ratio of each radioactive materials in Pu-238 sample ① and ② is almost the same as the average composition ratio of Pu-238 in Unit 1-3.

Pu-238 of sample ①: (Am-241/Cm-242/Cm-243, Cm-244)  $\cong$  1 : (0.1/15/0.7)

Pu-238 of sample ②: (Am-241/Cm-242/Cm-243, Cm-244)  $\cong$  1 : (0.4/27/0.8)

End