

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 |
|--|---|----------------------------------|--|---------------------------------|----------------------------------|---------------------------------|----------------------------------|---------------------------------|----------------------------------|
| Playground (west-northwest approx. 500m) | April 4/ Japan Chemical Analysis Center | (2.1±0.19) × 10 ⁻¹ | (6.3±0.95) × 10 ⁻² | (7.2±0.39) × 10 ⁰ | (3.2±0.69) × 10 ⁻¹ | (8.2±0.43) × 10 ⁰ | (2.7±0.70) × 10 ⁻² | (2.4±0.12) × 10 ⁰ | (1.9±0.19) × 10 ⁻¹ |
| 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 | 1 | - | - | - | 0.1 | 10 | 1 |

*1 : Released on April 14th, 2011 *2 : Released on April 22nd, 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 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 :(0.1/11/0.9)

End