

Fukushima Daiichi Nuclear Power Station: Uranium 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	U-234	U-235	U-238
Playground ( west-northwest approx. 500m )	May 9 Japan	13 ± 0.70	0.67 ± 0.11	13 ± 0.70
Near the industrial waste disposal plant ( south-southwest approx. 500m )	Chemical Analysis Center	5.7 ± 0.36	0.19 ± 0.053	5.7 ± 0.36
Natural Uranium specific radioactivity (Bq/g)		1.2 × 10 <sup>4</sup>	5.7 × 10 <sup>2</sup>	1.2 × 10 <sup>4</sup>
Natural Uranium abundance ratio (wt%)		0.0054	0.72	99.3

## 2. Valuation

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

- Radioactive densities of U-234 and U-238 are same in the sampling No.1. and No.2, where Uranium in nature forms radioactive balance (same radioactivity density between U-234 and U-238).
- U-235 abundance ratio of the sampling No.1 and No.2 is almost same as the natural U-235 abundance ratio, which is  $U-235/U-238 = 0.0073$ .

U-235 of the sampling No.1:  $8.4 \times 10^{-6}g$  (0.67Bq/kg Dry soil)

U-238 of the sampling No.1:  $1.0 \times 10^{-3}g$  (13Bq/kg Dry soil)

$U-235/U-238=0.0080^*$

U-235 of the sampling No.2:  $2.4 \times 10^{-6}g$  (0.19Bq/kg Dry soil)

U-238 of the sampling No.1:  $4.6 \times 10^{-4}g$  (5.7Bq/kg Dry soil)

$U-235/U-238=0.0052^*$

\* The above values may not match the calculation due to the rounding off.

End

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Sampling spot ( ): Distance from the stack of Unit 1, 2	Date of sampling/ Analyses organization	U-234	U-235	U-238
Playground ( west-northwest approx. 500m )	May 16 Japan	$14 \pm 0.80$	$0.52 \pm 0.10$	$15 \pm 0.90$
Near the industrial waste disposal plant ( south-shouthwest approx. 500m )	Chemical Analysis Center	$7.5 \pm 0.48$	$0.54 \pm 0.11$	$7.0 \pm 0.45$
Natural Uranium specific radioactivity (Bq/g)		$1.2 \times 10^4$	$5.7 \times 10^2$	$1.2 \times 10^4$
Natural Uranium abundance ratio (wt%)		0.0054	0.72	99.3

## 2. Valuation

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

- Radioactive densities of U-234 and U-238 are same in the sampling No.1. and No.2, where Uranium in nature forms radioactive balance (same radioactivity density between U-234 and U-238).
- U-235 abundance ratio of the sampling No.1 and No.2 is almost same as the natural U-235 abundance ratio, which is  $U-235/U-238 = 0.0073$ .

U-235 of the sampling No.1:  $6.5 \times 10^{-6}g$  (0.52Bq/kg Dry soil)

U-238 of the sampling No.1:  $1.2 \times 10^{-3}g$  (15Bq/kg Dry soil)

$U-235/U-238=0.0054^*$

U-235 of the sampling No.2:  $6.7 \times 10^{-6}g$  (0.54Bq/kg Dry soil)

U-238 of the sampling No.1:  $5.6 \times 10^{-4}g$  (7.0Bq/kg Dry soil)

$U-235/U-238=0.012^*$

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End

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(Unit: Bq/kg· Dry soil)

Sampling spot ( ): Distance from the stack of Unit 1, 2	Date of sampling/ Analyses organization	U-234	U-235	U-238
Playground ( west-northwest approx. 500m )	May 23 Japan	$14 \pm 0.60$	$0.75 \pm 0.10$	$14 \pm 0.60$
Near the industrial waste disposal plant ( south-shouthwest approx. 500m )	Chemical Analysis Center	$4.8 \pm 0.34$	$0.33 \pm 0.082$	$5.3 \pm 0.37$
Natural Uranium specific radioactivity (Bq/g)		$1.2 \times 10^4$	$5.7 \times 10^2$	$1.2 \times 10^4$
Natural Uranium abundance ratio (wt%)		0.0054	0.72	99.3

## 2. Valuation

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

- Radioactive densities of U-234 and U-238 are same in the sampling No.1. and No.2, where Uranium in nature forms radioactive balance (same radioactivity density between U-234 and U-238).
- U-235 abundance ratio of the sampling No.1 and No.2 is almost same as the natural U-235 abundance ratio, which is  $U-235/U-238 = 0.0073$ .

U-235 of the sampling No.1:  $9.4 \times 10^{-6}g$  (0.75Bq/kg Dry soil)

U-238 of the sampling No.1:  $1.1 \times 10^{-3}g$ (14Bq/kg Dry soil)

$U-235/U-238=0.0083^*$

U-235 of the sampling No.2:  $4.1 \times 10^{-6}g$ (0.33Bq/kg Dry soil)

U-238 of the sampling No.1:  $4.3 \times 10^{-4}g$ (5.3Bq/kg Dry soil)

$U-235/U-238=0.0097^*$

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End

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(Unit: Bq/kg· Dry soil)

Sampling spot ( ): Distance from the stack of Unit 1, 2	Date of sampling/ Analyses organization	U-234	U-235	U-238
Playground ( west-northwest approx. 500m )	May 30 Japan	$14 \pm 0.70$	$0.91 \pm 0.13$	$15 \pm 0.80$
Near the industrial waste disposal plant ( south-shouthwest approx. 500m )	Chemical Analysis Center	$6.5 \pm 0.39$	N.D.	$6.3 \pm 0.38$
Natural Uranium specific radioactivity (Bq/g)		$1.2 \times 10^4$	$1.2 \times 10^4$	$5.7 \times 10^2$
Natural Uranium abundance ratio (wt%)		0.0054	0.0054	0.72

## 2. Valuation

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

- Radioactive densities of U-234 and U-238 are same in the sampling No1. and No.2, where Uranium in nature forms radioactive balance (same radioactivity density between U-234 and U-238).
- U-235 abundance ratio of the sampling No.1 and No.2 is almost same as the natural U-235 abundance ratio, which is  $U-235/U-238 = 0.0073$ .

U-235 of the sampling No.1:  $1.1 \times 10^{-5}g(0.91Bq/kg \text{ Dry soil})$

U-238 of the sampling No.1:  $1.2 \times 10^{-3}g(15Bq/kg \text{ Dry soil})$

$U-235/U-238=0.0094^*$

\* The above values may not match the calculation due to the rounding off.

End