

The result of the nuclide analysis of radioactive materials in the air at the site of Fukushima Daiichi Nuclear Power Station

The result of the nuclide analysis of radioactive materials in the air in the site of Fukushima Daiichi Nuclear Power Station is as follows.

1 . Conditions of collection and measurement

Collection of sample	Place	Fukushima Daiichi: Main Gate		
	Date	3/24 5:27 ~ 5:47		
	Manner of Collection	Collecting dust by monitoring cars		
	Wind direction & speed	ESE 0.8m/s (as of 5:30)		
Measurement of sample	Date	3/24 22:03 ~		
	Measuring method	bringing the sample to Fukushima Daini Nuclear Power Station and analyzing it by the analysis device of Germanium semi-conductor type nuclide		
	Measuring time	500 s		

2 . Result

	Nuclide	Collected on March 19th								Density limit in the air to workers engaged in tasks associated with radiation (Bq/cm3)
		Radioactivity density (Bq/cm3)	Detection limit density (Bq/cm3)	Ratio to density limit in the air (/)						
Volatile characteristics	Co-58	ND	-	-						1.0E-02
	I-131	1.5E-03	1.0E-05	1.49						1.0E-03
	I-132	ND	-	-						7.0E-02
	I-133	ND	-	-						5.0E-03
	Cs-134	3.2E-05	7.9E-06	0.02						2.0E-03
Particulate characteristics	Cs-137	3.1E-05	7.3E-06	0.01						3.0E-03
	Co-58	ND	-	-						1.0E-02
	I-131	5.0E-04	4.8E-06	0.50						1.0E-03
	I-132	ND	-	-						7.0E-02
	Cs-134	1.1E-05	4.6E-06	0.01						2.0E-03
	Cs-136	ND	-	-						1.0E-02
Other detected nuclide	Cs-137	1.2E-05	3.8E-06	0.00						3.0E-03
	Zr-95	2.5E-05	6.0E-06	0.00						8.0E-02
	Te-129	4.6E+00	9.5E-01	11.4						4.0E-01
	Te-129m	3.4E-04	9.9E-05	0.08						4.0E-03
	Te-132	3.6E-04	4.4E-04	0.05						7.0E-03

Statutory density limit to the 3-month average density of radioactive nuclide contained in the air that humans breathe

X.XE - X means X.X x 10^{-x}

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1. Conditions of collection and measurement

Collection of sample	Place	Fukushima Daiichi: Main gate		
	Date	3/22 1:10 ~ 1:30	3/23 2:01 ~ 2:21	
	Manner of Collection	Collecting dust by monitoring cars		
	Wind direction & speed	W 0.5m/s (as of 1:10)	N 3.2m/s (as of 2:00)	
Measurement of sample	Date	3/22 14:50 ~	3/23 14:54 ~	
	Measuring method	bringing the sample to Fukushima Daini Nuclear Power Station and analyzing it by the analysis device of Germanium semiconductor type nuclide		
	Measuring time	500 s		

2. Result

(Data are collected on March 24th)

	Nuclide	Collected on March 22nd			Collected on March 23rd						Density limit in the air to workers engaged in tasks associated with radiation (Bq/cm3)
		Radioactivity density (Bq/cm3)	Detection limit density (Bq/cm3)	Ratio to density limit in the air (/)	Radioactivity density (Bq/cm3)	Detection limit density (Bq/cm3)	Ratio to density limit in the air (/)				
Volatile characteristics	I-131	2.2E-03	1.6E-05	2.24	6.7E-04	9.6E-06	0.67				1.0E-03
	I-132	ND	-	-	ND	-	-				7.0E-02
	I-133	ND	-	-	ND	-	-				5.0E-03
Particulate characteristics	Co-58	ND	-	-	5.1E-06	5.1E-06	0.00				1.0E-02
	Cs-134	1.6E-05	5.9E-06	0.01	1.7E-05	4.2E-06	0.01				2.0E-03
	Cs-136	ND	-	-	3.0E-06	2.7E-06	0.00				1.0E-02
	Cs-137	1.9E-05	5.3E-06	0.01	1.3E-05	4.2E-06	0.00				3.0E-03
Other detected nuclide	Te-129	ND	-	-	2.3E-01	1.2E-01	0.58				4.0E-01
	Te-132	6.7E-05	1.1E-05	0.01	4.3E-04	4.5E-06	0.06				7.0E-03
	Ce-144	ND	-	-	1.3E-03	3.7E-04	1.89				7.0E-04

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1. Conditions of collection and measurement

Collection of sample	Place	Fukushima Daiichi: North side of Office Building		
	Date	3/19 11:53~12:13 (before discharge water)	3/20 1:41~2:01	3/21 10:19~10:39
	Manner of Collection	Collecting dust by monitoring cars		
	Wind direction & speed	W 4.7m/s (as of 11:50)	SW 2.1m/s (as of 1:40)	NW 2.6m (as of 10:10)
Measurement of sample	Date	3/19 14:12~	3/21 13:28~	3/21 13:48~
	Measuring method	bringing the sample to Fukushima Daini Nuclear Power Station and analyzing it by the analysis device of Germanium semi-conductor type nuclide		
	Measuring time	500 s		

2. Result

	Nuclide	Collected on March 19th			Collected on March 20th			Collected on March 21st			③Density limit in the air to workers engaged in tasks associated with radiation (Bq/cm3)※
		①Radioactivity density (Bq/cm3)	②Detection limit density (Bq/cm3)	Ratio to density limit in the air (①/③)	①Radioactivity density (Bq/cm3)	②Detection limit density (Bq/cm3)	Ratio to density limit in the air (①/③)	①Radioactivity density (Bq/cm3)	②Detection limit density (Bq/cm3)	Ratio to density limit in the air (①/③)	
Volatile characteristics	I-131	5.9E-03	3.4E-05	5.94	2.3E-03	1.3E-05	2.30	1.5E-03	1.1E-05	1.52	1.0E-03
	I-132	2.2E-03	8.8E-05	0.03	ND	—	—	2.5E-04	2.7E-05	0.004	7.0E-02
	I-133	3.8E-05	2.9E-05	0.01	ND	—	—	ND	—	—	5.0E-03
	Cs-134	ND	—	—	4.0E-05	8.3E-06	0.02	3.1E-05	8.6E-06	0.016	2.0E-03
	Cs-137	ND	—	—	3.9E-05	8.4E-06	0.01	3.6E-05	7.9E-06	0.01	3.0E-03
Particulate characteristics	Co-58	ND	—	—	ND	—	—	ND	—	—	1.0E-02
	I-131	1.1E-03	1.6E-05	1.07	1.3E-03	6.8E-06	1.29	9.2E-06	5.0E-06	0.01	1.0E-03
	I-132	3.8E-04	5.0E-05	0.01	ND	—	—	1.1E-04	1.2E-05	0.00	7.0E-02
	Cs-134	2.2E-05	1.7E-05	0.01	2.8E-05	4.8E-06	0.01	3.4E-05	5.4E-06	0.02	2.0E-03
	Cs-136	ND	—	—	5.6E-06	5.4E-06	0.001	4.5E-06	3.3E-06	0.0005	1.0E-02
	Cs-137	2.4E-05	1.8E-05	0.01	2.9E-05	5.0E-06	0.01	3.8E-05	4.7E-06	0.01	3.0E-03
Other detected nuclide	Ru-106	2.1E-04	2.1E-04	0.36	3.8E-05	3.4E-05	0.06	ND	—	—	6.0E-04
	Te-129	ND	—	—	ND	—	—	1.3E-03	3.8E-04	0.00	4.0E-01
	Te-129m	ND	—	—	1.4E-04	1.2E-04	0.03	ND	—	—	4.0E-03
	Te-132	6.7E-05	1.8E-05	0.01	5.1E-04	6.0E-06	0.07	3.9E-04	4.3E-06	0.06	7.0E-03
	Ce-144	ND	—	—	5.0E-03	4.6E-04	7.08	ND	—	—	7.0E-04

※ Statutory density limit to the 3-month average density of radioactive nuclide contained in the air that humans breathe

※ X.XE-X means X.X x 10^{-x}