

Reference

Data on Radiation Exposure Doses of the Workers who Engaged in Restoration Work
at Fukushima Daiichi Nuclear Power Station Provided to the World Health
Organization (WHO)

December 6, 2012
Tokyo Electric Power Company

The radiation exposure doses of the workers who engaged in restoration work at Fukushima Daiichi Nuclear Power Station are announced at the end of every month in the "Exposure Dose Evaluation of the Workers at Fukushima Daiichi Nuclear Power Station". The following data on radiation exposure doses was provided to the World Health Organization (WHO) as requested by the National Institute of Radiological Sciences in March 2012.

< List of data provided to the World Health Organization (WHO) >

- Radiation exposure dose distribution (sum of internal and external exposure doses) by age

Radiation exposure doses (sum of internal and external exposure doses) by age of workers as of January 31, 2012.

- Thyroid gland equivalent dose distribution

Thyroid gland equivalent doses of the workers for whom cervical thyroid gland test was performed at JAEA or the National Institute of Radiological Sciences (until February 5, 2012)

- Effective dose distribution by nuclide

Committed effective doses broken down into different types of nuclides (until February 5, 2012)

- Internal exposure dose distribution

Committed effective doses of workers evaluated until January 20, 2012

- External exposure doses (integrated value)

External exposure effective doses as of January 31, 2012

- Contribution ratio of the main nuclides to the internal exposure effective doses

Average contribution ratio of the doses by nuclide to the committed effective doses (until February 5, 2012)

End

Radiation exposure dose distribution (sum of internal and external exposure doses) by age

Distribution by age

Classification (age group)	TEPCO	Cooperative company	Total
80	0	1	1
70 (70-79)	1	24	25
60 (60-69)	27	1831	1858
50 (50-59)	693	4716	5409
40 (40-49)	1173	4720	5893
30 (30-39)	925	3254	4179
20 (20-29)	511	1546	2057
10 (18-19)	3	61	64
No record	6	611	617
Total	3339	16764	20103
Maximum age	73	84	84
Minimum age	19	18	18

Dose distribution (18-19)

Classification (mSv)	TEPCO	Cooperative company	Total
250 and up	0	0	0
200-250	0	0	0
150-200	0	0	0
100-150	0	0	0
50-100	1	0	1
20-50	0	7	7
10-20	2	7	9
10 or less	0	47	47
Total	3	61	64
Max. (mSv)	56.89	44.34	56.89
Ave. (mSv)	28.28	7.27	8.26

Dose distribution (20-29)

Classification (mSv)	TEPCO	Cooperative company	Total
250 and up	3	0	3
200-250	0	1	1
150-200	2	0	2
100-150	19	0	19
50-100	116	33	149
20-50	108	183	291
10-20	92	288	380
10 or less	171	1041	1212
Total	511	1546	2057
Max. (mSv)	477.01	230.90	477.01
Ave. (mSv)	34.98	9.55	15.86

Dose distribution (30-39)

Classification (mSv)	TEPCO	Cooperative company	Total
250 and up	1	0	1
200-250	1	1	2
150-200	2	1	3
100-150	32	2	34
50-100	106	76	182
20-50	175	437	612
10-20	157	563	720
10 or less	451	2174	2625
Total	925	3254	4179
Max. (mSv)	678.80	238.42	678.80
Ave. (mSv)	23.61	10.03	13.03

Dose distribution (40-49)

Classification (mSv)	TEPCO	Cooperative company	Total
250 and up	1	0	1
200-250	0	0	0
150-200	11	0	11
100-150	32	5	37
50-100	103	102	205
20-50	208	598	806
10-20	163	727	890
10 or less	655	3288	3943
Total	1173	4720	5893
Max. (mSv)	645.54	139.60	645.54
Ave. (mSv)	20.66	9.40	11.64

Dose distribution (50-59)

Classification (mSv)	TEPCO	Cooperative company	Total
250 and up	1	0	1
200-250	0	0	0
150-200	7	0	7
100-150	32	6	38
50-100	86	104	190
20-50	145	613	758
10-20	76	739	815
10 or less	346	3254	3600
Total	693	4716	5409
Max. (mSv)	352.08	137.00	352.08
Ave. (mSv)	26.19	9.57	11.70

Dose distribution (60-69)

Classification (mSv)	TEPCO	Cooperative company	Total
250 and up	0	0	0
200-250	0	0	0
150-200	0	1	1
100-150	2	2	4
50-100	3	20	23
20-50	5	195	200
10-20	2	264	266
10 or less	15	1349	1364
Total	27	1831	1858
Max. (mSv)	124.63	169.60	169.60
Ave. (mSv)	24.91	7.95	8.20

Dose distribution (70-80 and up)

Classification (mSv)	TEPCO	Cooperative company	Total
250 and up	0	0	0
200-250	0	0	0
150-200	0	0	0
100-150	0	0	0
50-100	0	1	1
20-50	0	0	0
10-20	0	6	6
10 or less	1	18	19
Total	1	25	26
Max. (mSv)	0.11	59.67	59.67
Ave. (mSv)	0.11	7.33	7.06

As of January 31, 2012

Thyroid gland equivalent dose distribution

Classification (mSv)	Number of workers
10,000 and up	2
2,000-10,000	10
1,000-2,000	32
500-1,000	50
200-500	69
100-200	15
100 or less	344

Thyroid gland equivalent doses of the workers for whom cervical thyroid gland test was performed at JAEA or the National Institute of Radiological Sciences until February 5, 2012

The thyroid gland equivalent doses take into account only I-131, not Cs.

Evaluation was done based on the actual I-131 measurement data (Not corrected in the case of below the detection limit).

The cervical thyroid gland test was performed at JAEA on those with committed effective dose exceeding 20mSv at the initial screening (Onahama (NaI)).

Effective dose distribution by nuclide

Classification	I-131 (Uncorrected)	Te-132/ I-132	Cs-137	Cs-134
100 and up	13	0	0	0
50-100	32	0	0	0
20-50	86	0	0	1
10-20	195	0	1	0
5-10	145	1	2	6
2-5	190	1	18	24
1-2	134	2	41	91
1 or less	22,877	23,668	23,610	23,550

Data obtained until February 5, 2012

Internal exposure dose distribution

Classification (mSv)	TEPCO	Cooperative company	Total
250 and up	5	0	5
200-250	1	0	1
150-200	1	0	1
100-150	5	0	5
50-100	37	42	79
20-50	194	94	288
10-20	425	337	762
5-10	316	424	740
5 or less	4,655	16,636	21,291
Max.	590	96.84	590

Note: Measurement data obtained until January 20, 2012 (No internal exposure has been reported since then)

Provisional data evaluated by TEPCO (The Data evaluated by the cooperative companies based on this provisional data is the finalized data)

External exposure doses (integrated value) (March 2011 to January 2012)

Classification (mSv)	TEPCO	Cooperative company	Total
250 and up	0	0	0
200-250	0	0	0
150-200	7	3	10
100-150	57	8	65
50-100	307	237	544
20-50	677	1889	2566
10-20	550	2559	3109
10 or less	1741	12068	13809
Total	3339	16764	20103
Max.	188.14	199.42	199.42
Ave.	18.83	8.38	10.11

As of January 31, 2012

Classification	Contribution ratio to the effective dose			
	I-131	Te-132/I-132	Cs-137	Cs-134
All workers*	0.28	0.00	0.08	0.10
<15mSv*	0.25	0.00	0.08	0.10
15-150mSv	0.95	0.00	0.02	0.02
>=150mSv	1.00	0.00	0.00	0.00

Data obtained until February 5, 2012.

The data below was excluded since the dose of each nuclide was unclear.

- The results of measurements which the cooperative companies conducted at different places of operations
- Measurement data obtained by plastic scintillator which does not allow for nuclide analysis

* As for those with effective dose of 0mSv, the total will not be 1 since the contribution ratio by nuclide is set to 0.