

## Exposure Dose Distribution

### 1. Effective Dose from External Exposure

Table 1 shows the distribution of external exposure dose of workers who were involved in radiation work at the Fukushima Daiichi Nuclear Power Station for the past three month.

**Table 1. External Exposure Dose**

Dose Ranges (mSv)	August 2017			September 2017			October 2017		
	TEPCO Employees	Contractors	Total	TEPCO Employees	Contractors	Total	TEPCO Employees	Contractors	Total
Above 100	0	0	0	0	0	0	0	0	0
75-100	0	0	0	0	0	0	0	0	0
50-75	0	0	0	0	0	0	0	0	0
20-50	0	0	0	0	0	0	0	0	0
10-20	0	0	0	0	0	0	0	0	0
5-10	0	19	19	0	16	16	0	29	29
1-5	19	651	670	15	657	672	28	678	706
1 or less	979	7164	8143	1033	7082	8115	952	6841	7793
Total	998	7834	8832	1048	7755	8803	980	7548	8528
Maximum (mSv)	3.20	7.60	7.60	3.30	7.50	7.50	2.48	9.71	9.71
Average (mSv)	0.13	0.32	0.30	0.11	0.32	0.30	0.14	0.33	0.31

• The values of the exposure dose and the number of the workers in the table above are subject to change, because there are times when APD data are replaced with monthly dose data measured by integral dosimeters. Or dose data of workers who wore only an integral dosimeter (ex., workers who entered only the Main Anti-earthquake Building) need to be updated in the table after the publication of the data.

### 2. Sum of External and Internal Exposure Dose (Effective Dose)

Table 2 shows the distribution of cumulative exposure dose of workers who are involved in radiation work at Fukushima Daiichi for five years, starting on April 1, 2016. Table 3 shows the distribution of cumulative exposure dose in the fiscal year of 2017. Two different periods of time are shown in the Table 2: from April 1, 2016 to September 30, 2017 and from April 1, 2016 to October 31, 2017, and Table 3: from April 1, 2017 to September 30, 2017 and from April 1, 2017 to October 31, 2017 for comparison.

**Table 2. Cumulative Exposure Dose for Five Years**

Dose Ranges (mSv)	April 2016 - September 2017			April 2016 - October 2017			Difference		
	TEPCO Employees	Contractors	Total	TEPCO Employees	Contractors	Total	TEPCO Employees	Contractors	Total
Above 100	0	0	0	0	0	0	0	0	0
75-100	0	0	0	0	0	0	0	0	0
50-75	0	7	7	0	7	7	0	0	0
20-50	0	612	612	1	661	662	1	49	50
10-20	54	1403	1457	64	1439	1503	10	36	46
5-10	127	1695	1822	124	1757	1881	-3	62	59
1-5	463	4525	4988	470	4534	5004	7	9	16
1 or less	1208	7565	8773	1220	7669	8889	12	104	116
Total	1852	15807	17659	1879	16067	17946	27	260	287
Maximum (mSv)	19.21	55.56	55.56	20.33	57.32	57.32	-	-	-
Average (mSv)	1.61	3.97	3.72	1.66	4.06	3.81	-	-	-

• The values of the exposure dose and the number of the workers in the table above are subject to change, because there are times when APD data are replaced with monthly dose data measured by integral dosimeters. Or dose data of workers who wore only an integral dosimeter (ex., workers who entered only the Main Anti-earthquake Building) need to be updated in the table after the publication of the data.

• No significant internal exposure has been reported since October 2011.

**Table 3. Cumulative Exposure Dose in the Fiscal Year of 2017**

Dose Ranges (mSv)	April 2017 - September 2017			April 2017 - October 2017			Difference		
	TEPCO Employees	Contractors	Total	TEPCO Employees	Contractors	Total	TEPCO Employees	Contractors	Total
Above 100	0	0	0	0	0	0	0	0	0
75-100	0	0	0	0	0	0	0	0	0
50-75	0	0	0	0	0	0	0	0	0
20-50	0	30	30	0	40	40	0	10	10
10-20	0	412	412	1	495	496	1	83	84
5-10	18	726	744	29	816	845	11	90	101
1-5	227	2519	2746	251	2793	3044	24	274	298
1 or less	1169	7110	8279	1179	7009	8188	10	-101	-91
Total	1414	10797	12211	1460	11153	12613	46	356	402
Maximum (mSv)	9.10	29.57	29.57	11.21	29.57	29.57	-	-	-
Average (mSv)	0.60	1.76	1.63	0.68	1.93	1.78	-	-	-

• The values of the exposure dose and the number of the workers in the table above are subject to change, because there are times when APD data are replaced with monthly dose data measured by integral dosimeters. Or dose data of workers who wore only an integral dosimeter (ex., workers who entered only the Main Anti-earthquake Building) need to be updated in the table after the publication of the data.

### 3. Sum of External and Internal Exposure Dose of Workers Exposed to Especially High Radiation (Effective Dose)

Table 4 shows the distribution of cumulative exposure dose of workers exposed to especially high radiation.\*<sup>1</sup>

**Table 4. Cumulative Exposure Dose (workers exposed to especially high radiation)**

Dose Ranges (mSv)	March 2011 - September 2015
Above 100	1
75-100	191
50-75	233
20-50	267
10-20	186
5-10	129
1-5	145
1 or less	51
Total	1203
Maximum (mSv)	102.69
Average (mSv)	36.49

(Since October 2015, TEPCO Holdings has opted not to report to the Labour Standards Inspection Office about workers exposed to especially high radiation.)

\*1. Workers exposed to especially high radiation means workers who are involved in operations in which they could be exposed to the emergency exposure dose limit (100mSv), which is stipulated in "Ordinance on Prevention of Ionizing Radiation Hazards, Chapter 7." In more detail, they are workers engaged in the work to maintain the function of the cooling facility to cool down the reactor facility or the spent fuel tank in the reactor facility, the steam turbine and its related facilities or the surrounding area where the radiation doses exceed 0.1mSv/h. Or they are workers who would engage in keeping running the function to control or prevent the release of a large number of radioactive materials should it be likely to occur due to malfunction or damage of the reactor facility.

So far workers who have worked as "workers exposed to especially high radiation" are all TEPCO employees.

\*2. The number of "workers exposed to especially high radiation" each month is the number of the workers who reported working as such workers in a given month and were engaged in that work. The figures in the cumulative data during the period from March 2011 to September

2015 in Table 4 above include the numbers of workers who have been reported to work as “workers exposed to especially high radiation” at least once.

\*3. The values of the exposure dose and the number of the workers in the table above are subject to change, because there are times when APD data are replaced with monthly dose data measured by integral dosimeters. Or the dose data of workers who wore only an integral dosimeter (ex., workers who entered only the Main Anti-earthquake Building) need to be updated in the table after the publication of the data.

\*4. The figure shown in the dose range, “Above 100mSv,” in the cumulative data during the period from March 2011 to September 2015 is the figure when the March 2011 data of the internal exposure dose were reevaluated in July 2013.

#### 4. Equivalent Dose

Table 5 and Table 6 show equivalent dose to the skin and the lens of the eyes of the workers, respectively, who were involved in radiation work at the Fukushima Daiichi Nuclear Power Station for the past three months.

**Table 5. Equivalent Dose to the Skin**

Dose Ranges (mSv)	August 2017			September 2017			October 2017		
	TEPCO Employees	Contractors	Total	TEPCO Employees	Contractors	Total	TEPCO Employees	Contractors	Total
Above 500	0	0	0	0	0	0	0	0	0
300-500	0	0	0	0	0	0	0	0	0
250-300	0	0	0	0	0	0	0	0	0
200-250	0	0	0	0	0	0	0	0	0
150-200	0	0	0	0	0	0	0	0	0
100-150	0	0	0	0	0	0	0	0	0
75-100	0	0	0	0	0	0	0	0	0
50-75	0	0	0	0	0	0	0	0	0
20-50	0	0	0	0	0	0	0	0	0
10-20	0	12	12	0	5	5	0	2	2
5-10	1	84	85	0	95	95	0	65	65
1-5	22	798	820	17	854	871	30	848	878
1 or less	975	6940	7915	1031	6801	7832	950	6633	7583
Total	998	7834	8832	1048	7755	8803	980	7548	8528
Maximum (mSv)	5.20	15.70	15.70	3.30	13.50	13.50	2.48	12.09	12.09
Average (mSv)	0.15	0.46	0.43	0.12	0.47	0.43	0.15	0.42	0.39

• The values of the exposure dose and the number of the workers in the table above are subject to change, because there are times when APD data are replaced with monthly dose data measured by integral dosimeters. Or the dose data of workers who wore only an integral dosimeter (ex., workers who entered only the Main Anti-earthquake Building) need to be updated in the table after the publication of the data.

• Equivalent dose is a measure of the radiation dose to organs and tissues, and the equivalent dose limit to the skin is 500mSv/year (the emergency exposure dose limit is 1Sv).

• Equivalent dose to the skin is measured at a depth of 70 micrometers from the skin surface. When the equivalent dose is measured with a dosimeter other than the one put on around the chest and the abdomen, for example, a finger dosimeter, the maximum measurement value is counted as the equivalent dose.

**Table 6. Equivalent Dose to the Lens of the Eyes**

Dose Ranges (mSv)	August 2017			September 2017			October 2017		
	TEPCO Employees	Contractors	Total	TEPCO Employees	Contractors	Total	TEPCO Employees	Contractors	Total
Above 150	0	0	0	0	0	0	0	0	0
100-150	0	0	0	0	0	0	0	0	0
75-100	0	0	0	0	0	0	0	0	0
50-75	0	0	0	0	0	0	0	0	0
20-50	0	0	0	0	0	0	0	0	0
10-20	0	2	2	0	2	2	0	2	2
5-10	1	50	51	0	55	55	0	65	65
1-5	19	786	805	15	822	837	30	848	878
1 or less	978	6996	7974	1033	6876	7909	950	6633	7583
Total	998	7834	8832	1048	7755	8803	980	7548	8528
Maximum (mSv)	5.20	10.90	10.90	3.30	13.50	13.50	2.48	12.09	12.09
Average (mSv)	0.14	0.40	0.37	0.12	0.42	0.38	0.15	0.42	0.39

• The values of the exposure dose and the number of the workers in the table above are subject to change, because there are times when APD data are replaced with monthly dose data measured by integral dosimeters. Or the dose data of workers who wore only an integral dosimeter (ex., workers who entered only the Main Anti-earthquake Building) need to be updated in the table after the publication of the data.

• Equivalent dose is a measure of the radiation dose to organs and tissues, and the equivalent dose limit to the lens of the eye is 150mSv/year (the emergency exposure dose limit is 300mSv).

• The equivalent dose to the lens of the eyes is measured at a depth of 70 micrometers from the skin surface using a dosimeter put on around the chest or the abdomen, and thus the shielding effect of face masks is not taken into consideration.

## 5. Cumulative Equivalent Dose

Table 7 and Table 8 show the distribution of cumulative equivalent dose to the skins and the lens of the eyes of the workers, respectively, who were involved in radiation work at the Fukushima Daiichi Nuclear Power Station during two different periods of time, from April 1, 2017 to September 30, 2017 and from April 1, 2017 to October 31, 2017 for comparison.

**Table 7. Equivalent Dose to the Skin**

Dose Ranges (mSv)	April 2017 - September 2017			April 2017 - October 2017			Difference		
	TEPCO Employees	Contractors	Total	TEPCO Employees	Contractors	Total	TEPCO Employees	Contractors	Total
Above 500	0	0	0	0	0	0	0	0	0
300-500	0	0	0	0	0	0	0	0	0
250-300	0	0	0	0	0	0	0	0	0
200-250	0	0	0	0	0	0	0	0	0
150-200	0	0	0	0	0	0	0	0	0
100-150	0	0	0	0	0	0	0	0	0
75-100	0	2	2	0	2	2	0	0	0
50-75	0	9	9	0	14	14	0	5	5
20-50	0	209	209	0	244	244	0	35	35
10-20	5	574	579	6	642	648	1	68	69
5-10	20	805	825	32	908	940	12	103	115
1-5	228	2589	2817	250	2772	3022	22	183	205
1 or less	1161	6609	7770	1172	6571	7743	11	-38	-27
Total	1414	10797	12211	1460	11153	12613	46	356	402
Maximum (mSv)	15.70	81.60	81.60	17.09	85.29	85.29	-	-	-
Average (mSv)	0.68	2.58	2.36	0.75	2.79	2.55	-	-	-

• The values of the exposure dose and the number of the workers in the table above are subject to change, because there are times when APD data are replaced with monthly dose data measured by integral dosimeters. Or the dose data of workers who wore only an integral dosimeter (ex., workers who entered only the Main Anti-earthquake Building) need to be updated in the table after the publication of the data.

**Table 8. Equivalent Dose to the Lens of the Eyes**

Dose Ranges (mSv)	April 2017 - September 2017			April 2017 - October 2017			Difference		
	TEPCO Employees	Contractors	Total	TEPCO Employees	Contractors	Total	TEPCO Employees	Contractors	Total
Above 150	0	0	0	0	0	0	0	0	0
100-150	0	0	0	0	0	0	0	0	0
75-100	0	1	1	0	1	1	0	0	0
50-75	0	7	7	0	10	10	0	3	3
20-50	0	136	136	0	170	170	0	34	34
10-20	1	521	522	3	597	600	2	76	78
5-10	20	798	818	30	899	929	10	101	111
1-5	226	2553	2779	250	2776	3026	24	223	247
1 or less	1167	6781	7948	1177	6700	7877	10	-81	-71
Total	1414	10797	12211	1460	11153	12613	46	356	402
Maximum (mSv)	10.51	79.50	79.50	11.21	83.19	83.19	-	-	-
Average (mSv)	0.63	2.31	2.12	0.71	2.53	2.31	-	-	-

• The values of the exposure dose and the number of the workers in the table above are subject to change, because there are times when APD data are replaced with monthly dose data measured by integral dosimeters. Or the dose data of workers who wore only an integral dosimeter (ex., workers who entered only the Main Anti-earthquake Building) need to be updated in the table after the publication of the data.