

## 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 2016			September 2016			October 2016		
	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	35	35	0	33	33
1-5	41	532	573	20	689	709	19	838	857
1 or less	1125	7951	9076	1160	8029	9189	982	7596	8578
Total	1166	8502	9668	1180	8753	9933	1001	8467	9468
Maximum (mSv)	4.39	7.10	7.10	3.50	8.80	8.80	2.23	8.34	8.34
Average (mSv)	0.17	0.28	0.27	0.14	0.36	0.33	0.13	0.38	0.35

• 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 2016. Two different periods of time are shown in the Table 2 and Table 3: from April 1, 2016 to September 30, 2016 and from April 1, 2016 to October 31, 2016 for comparison.

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

Dose Ranges (mSv)	April 2016 - September 2016			April 2016 - October 2016			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	32	32	0	52	52	0	20	20
10-20	0	293	293	2	368	370	2	75	77
5-10	16	662	678	25	804	829	9	142	151
1-5	259	3363	3622	286	3701	3987	27	338	365
1 or less	1272	7486	8758	1254	7334	8588	-18	-152	-170
Total	1547	11836	13383	1567	12259	13826	20	423	443
Maximum (mSv)	9.51	36.21	36.21	11.03	36.21	36.21	-	-	-
Average (mSv)	0.66	1.61	1.50	0.74	1.82	1.69	-	-	-

• 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 2016**

Dose Ranges (mSv)	April 2016 - September 2016			April 2016 - October 2016			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	32	32	0	52	52	0	20	20
10-20	0	293	293	2	368	370	2	75	77
5-10	16	662	678	25	804	829	9	142	151
1-5	259	3363	3622	286	3701	3987	27	338	365
1 or less	1272	7486	8758	1254	7334	8588	-18	-152	-170
Total	1547	11836	13383	1567	12259	13826	20	423	443
Maximum (mSv)	9.51	36.21	36.21	11.03	36.21	36.21	-	-	-
Average (mSv)	0.66	1.61	1.50	0.74	1.82	1.69	-	-	-

• 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 2016			September 2016			October 2016		
	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	2	2	0	0	0	0	0	0
10-20	0	4	4	0	16	16	0	12	12
5-10	0	51	51	0	71	71	0	51	51
1-5	50	753	803	27	958	985	22	1007	1029
1 or less	1116	7692	8808	1153	7708	8861	979	7397	8376
Total	1166	8502	9668	1180	8753	9933	1001	8467	9468
Maximum (mSv)	4.39	21.10	21.10	3.50	15.80	15.80	2.23	16.23	16.23
Average (mSv)	0.18	0.40	0.37	0.15	0.48	0.44	0.13	0.45	0.42

• 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 2016			September 2016			October 2016		
	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	0	0	0	0	0	0	12	12
5-10	0	37	37	0	52	52	0	51	51
1-5	44	649	693	21	804	825	22	1007	1029
1 or less	1122	7816	8938	1159	7897	9056	979	7397	8376
Total	1166	8502	9668	1180	8753	9933	1001	8467	9468
Maximum (mSv)	4.39	8.70	8.70	3.50	8.80	8.80	2.23	16.23	16.23
Average (mSv)	0.17	0.33	0.31	0.15	0.40	0.37	0.13	0.45	0.42

• 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, 2016 to September 30, 2016 and from April 1, 2016 to October 31, 2016 for comparison.

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

Dose Ranges (mSv)	April 2016 - September 2016			April 2016 - October 2016			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	5	5	0	5	5	0	0	0
75-100	0	3	3	0	3	3	0	0	0
50-75	0	2	2	0	5	5	0	3	3
20-50	0	214	214	0	252	252	0	38	38
10-20	2	511	513	4	587	591	2	76	78
5-10	26	894	920	33	1005	1038	7	111	118
1-5	267	3109	3376	293	3392	3685	26	283	309
1 or less	1252	7098	8350	1237	7010	8247	-15	-88	-103
Total	1547	11836	13383	1567	12259	13826	20	423	443
Maximum (mSv)	17.30	125.00	125.00	17.81	125.00	125.00	-	-	-
Average (mSv)	0.73	2.48	2.28	0.80	2.71	2.49	-	-	-

• 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 2016 - September 2016			April 2016 - October 2016			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	0	0	0	0	0	0	0	0
50-75	0	2	2	0	4	4	0	2	2
20-50	0	105	105	0	132	132	0	27	27
10-20	0	398	398	2	501	503	2	103	105
5-10	18	784	802	26	919	945	8	135	143
1-5	259	3242	3501	289	3528	3817	30	286	316
1 or less	1270	7305	8575	1250	7175	8425	-20	-130	-150
Total	1547	11836	13383	1567	12259	13826	20	423	443
Maximum (mSv)	9.51	53.50	53.50	11.13	55.02	55.02	-	-	-
Average (mSv)	0.67	1.98	1.83	0.75	2.22	2.06	-	-	-

• 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.