

Site Workers' Exposure Doses during Emergency Work at Fukushima Daiichi Nuclear Power Station

1. External exposure doses

External exposure doses are calculated by adding up the indicated values of the alarm personal dosimeter (APD) distributed to each worker on each work day. Currently, APDs have been provided to workers at J Village, a base approaching Fukushima Daiichi Nuclear Power Station, or at the Main Anti-Earthquake Building at the site. This time, we calculate the external exposure doses by adding up both of them.

In this calculation, external exposure doses during the stays inside the Main Anti-Earthquake Building and the travels to Fukushima Daiichi New Clear Power Station have not been counted (partially counted), thus we are planning to execute evaluations in consideration of those afterwards.

2. Internal exposure doses (Primary evaluation)

Radioactive materials absorbed by the human body are subject to decay over time (half-life), and simultaneously are expelled per the body's metabolism. The internal exposure doses are evaluated in accordance with: the results of the measurements with the whole-body counter (WBC); and the estimated amount of radioactive materials bodily absorbed based on when they were taken in and the amount of radioactive materials remaining inside bodies. The purpose of the hearing investigation is to specifically determine at what point in time the radiation substances were bodily absorbed. Internal exposure doses are computed by adding up effects arising from the radioactive materials remaining inside the bodies over the next 50 years.

In the phase of the primary evaluation, it's difficult to conduct hearing investigations for all of the site workers. Thus, an evaluation is conducted assuming that each worker absorbed all amounts of radioactive materials only on the date he started work at the site (March 12, if engaged initially). The results of the primary evaluation will show the maximum values.

Subsequently, as for workers whose results of the primary evaluation indicate significant values, we'll carry out a reevaluation based on the exact dates when they took in radioactive materials, which will be determined at the hearing investigation. Moreover, workers whose results indicate relatively high values will be subjected to a more detailed WBC administered by the Japan Atomic

Energy Agency.

In this instance, we have reported the results of the primary evaluation of workers who worked at the site in March and underwent a WBC before the end of May, which showed that the results of TEPCO employees are relatively high.

Workers who engaged in emergency work in March but haven't had a WBC so far are planned to be inspected with WBC before the end of June.

3 . Combined values of external and internal exposure doses (Primary evaluation)

We've reported the combined values of external and internal exposure doses (primary evaluation) of workers who engaged in emergency work at the site in March and the completed evaluation of internal exposure.

In case that the evaluated values of workers exceed 200mSv, the workers shall be ordered to leave Fukushima Daiichi Nuclear Power Station. Moreover, if the values from the primary evaluation before the detailed measurement exceed 200mSv, the workers will also be ordered to leave the site after the detailed evaluation.

- Attachment : Distribution of external and internal exposure doses (Primary evaluation)

END

**Distribution of external exposure doses and internal exposure doses
(Primary evaluation)**

【Scope of counting】

No. of workers engaged in emergency work in March	External exposure	Internal exposure (Primary evaluation)		External exposure + Internal exposure (Primary evaluation)
3726 in total	3726 ➡ Table 1	WBC before May 31	2367 ➡ Table 2	2367 ➡ Table 3
		After June 1	1359	1359

1. External exposure doses

Table 1 shows the distribution of external exposure doses*1 (March 11 to March 31) for site workers engaged in emergency work in March

*1: The external exposure doses do not include the exposure doses during the stays inside the Main Anti-Earthquake Building and the travels to Fukushima Daiichi New Clear Power Station. (But, data such as glass badges may be included.)

Table 1.

Categories (mSv)	TEPCO employee	Workers of partner companies	Total
Over 250	0	0	0
Over 200 - 250 or less	0	0	0
Over 150 - 200 or less	4	3	7
Over 100 - 150 or less	14	3	17
Over 50 - 100 or less	75	41	116
Over 20 - 50 or less	163	134	297
Over 10 - 20 or less	241	286	527
10 or less	930	1,832	2,762
Total	1,427	2,299	3,726
Maximum (mSv)	173.77	198.24	198.24
Average (mSv)	13.0	7.3	9.5

2. Internal exposure doses (Primary evaluation)

Table 2 below show shows the distribution of the internal exposure doses (Primary evaluation*2) of workers who conducted measurements with WBC before May 31 out of the workers engaged in emergency work.

*2: Primary evaluation: Prior to the official evaluation based on exact period when workers took in radioactive materials, a tentative evaluation may be conducted in the event that each worker took in all amounts of radioactive materials only on the date when he started work at the site (March 12, if engaged initially) when the exposure dose amounts were at their peak.

Table 2. (No. of workers)

Categories (mSv)	TEPCO employee	Workers of partner companies	Total
Over 250	6	0	6
Over 200 - 250 or less	3	0	3
Over 150 - 200 or less	7	0	7
Over 100 - 150 or less	9	4	13
Over 50 - 100 or less	89	11	100
Over 20 - 50 or less	252	69	321
Over 10 - 20 or less	255	114	369
10 or less	788	760	1548
Total	1409	958	2367

3. Combined values of external and internal exposure doses (Primary evaluation)

As for the workers who were estimated as having received internal exposure doses (Primary evaluation) in the above Section 2, the distribution of the combined values of the external and internal exposure doses is shown in Table 3 below.

Table 3.

Categories (mSv)	TEPCO employee	Workers of partner companies	Total
Over 250	8	0	8
Over 200 - 250 or less	4	2	6
Over 150 - 200 or less	19	2	21
Over 100 - 150 or less	59	8	67
Over 50 - 100 or less	179	36	215
Over 20 - 50 or less	271	146	417
Over 10 - 20 or less	232	160	392
10 or less	637	604	1241
Total	1409	958	2367

End