

Enhancing controls of internal exposures at Fukushima Daiichi Nuclear Power Station

1. Distribution of exposure dose

The internal exposure dose of workers who newly engaged in the emergency works in the power station during the period from March to June 2011 is shown in Attachment 1.

2. Investigation of workers whose contact information unknown for exposure dose control

Countermeasure for the workers whose contact information unknown and who engaged in the emergency works is shown in Attachment 2.

## Distribution of Exposure Dose

### 【Scope of Coverage】

Number of Emergency Workers	External Exposure	Internal Exposure		External + Internal Exposure
Since March: 3,751	3,751 (March)	WBC before Aug 26	3,738 (March)	3,738 (March)
Since April: 3,650	3,650 (April) 3,143 (May)		3,522 (April)	3,522 (April)
Since May: 3,143	2,278 (June)		2,996 (May)	2,996 (May)
Since June: 2,278	➡ <b>Table 1</b>		1,981 (June)	1,981 (June)
		To be evaluated	➡ <b>Table 2</b>	➡ <b>Table 3</b>
			13 (March)	13 (March)
			128 (April)	128 (April)
			147 (May)	147 (May)
			297 (June)	297 (June)

(\*) The results do not include those who worked outside Fukushima Daiichi Nuclear Power Station.

### 1. External Exposure Dose

Table 1 shows the distribution of external exposure dose (\*1) until the end of June (from March 11 to 31, from April 1 to 30, from May 1 to 31, from June 1 to 30) of those who engaged in emergency works.

\*1 The results in April, May and June do not include the external exposure dose during the stay inside Main Anti-Earthquake Building and the move to Fukushima Daiichi Nuclear Power Station. However, such data as glass badges may be included. The results in April, May and June include the double-counted and those who do not need to be evaluated.

**Table 1**

mSv	March			April			May			June		
	TEPCO	Contractor	Total	TEPCO	Contractor	Total	TEPCO	Contractor	Total	TEPCO	Contractor	Total
over 250	0	0	0	0	0	0	0	0	0	0	0	0
200 to 250	0	0	0	0	0	0	0	0	0	0	0	0
150 to 200	6	3	9	0	0	0	0	0	0	0	0	0
100 to 150	22	8	30	0	0	0	0	0	0	0	0	0
50 to 100	107	55	162	0	2	2	0	0	0	0	0	0
20 to 50	268	145	413	6	51	57	2	17	19	0	17	17
10 to 20	560	324	884	22	251	273	9	124	133	1	96	97
0 to 10	690	1,563	2,253	593	2,725	3,318	268	2,723	2,991	182	1,982	2,164
Total	1,653	2,098	3,751	621	3,029	3,650	279	2,864	3,143	183	2,095	2,278
Max. (mSv)	182.3	199.4	199.4	42.7	65.9	65.9	24.6	41.6	41.6	11.9	38.7	38.7
Ave. (mSv)	19.00	9.10	13.50	2.10	3.40	3.20	2.46	2.68	2.66	1.05	2.18	2.09

## 2. Internal exposure dose

Table 2 shows the distribution of internal exposure dose (<sup>2</sup>) for workers who had WBC measurement by August 26, out of those who have once experienced emergency works.

\*2 The evaluation result may be reviewed depend on the evaluation progress by investigation regarding irradiated date and/or detailed evaluation by JAEA.

**Table 2**

mSv	March			April			May			June		
	TEPCO	Contractor	Total	TEPCO	Contractor	Total	TEPCO	Contractor	Total	TEPCO	Contractor	Total
over 250	5	0	5	0	0	0	0	0	0	0	0	0
200 to 250	1	0	1	0	0	0	0	0	0	0	0	0
150 to 200	1	0	1	0	0	0	0	0	0	0	0	0
100 to 150	5	0	5	0	0	0	0	0	0	0	0	0
50 to 100	36	41	77	0	0	0	0	0	0	0	0	0
20 to 50	179	80	259	0	1	1	0	0	0	0	0	0
10 to 20	401	259	660	1	20	21	0	1	1	0	0	0
0 to 10	1,024	1,706	2,730	620	2,880	3,500	279	2,716	2,995	183	1,798	1,981
Total	1,652	2,086	3,738	621	2,901	3,522	279	2,717	2,996	183	1,798	1,981
Max. (mSv)	590.0	98.5	590.0	18.8	41.8	41.8	0.5	10.1	10.1	1.2	1.7	1.7
Ave. (mSv)	12.00	6.30	8.80	0.30	0.70	0.60	0.02	0.14	0.13	0.02	0.03	0.03

## 3. Total dose of internal and external exposure

**Table 3**

The total dose of internal and external exposure for workers who had evaluation of internal exposure dose is shown in Table 3.

mSv	March			April			May			June		
	TEPCO	Contractor	Total	TEPCO	Contractor	Total	TEPCO	Contractor	Total	TEPCO	Contractor	Total
over 250	6	0	6	0	0	0	0	0	0	0	0	0
200 to 250	0	2	2	0	0	0	0	0	0	0	0	0
150 to 200	12	2	14	0	0	0	0	0	0	0	0	0
100 to 150	66	15	81	0	0	0	0	0	0	0	0	0
50 to 100	190	112	302	0	3	3	0	0	0	0	0	0
20 to 50	525	331	856	9	71	80	2	19	21	0	17	17
10 to 20	508	496	1,004	20	287	307	9	137	146	1	95	96
0 to 10	345	1,128	1,473	592	2,540	3,132	268	2,561	2,829	182	1,686	1,868
Total	1,652	2,086	3,738	621	2,901	3,522	279	2,717	2,996	183	1,798	1,981
Max. (mSv)	670.4	238.4	670.4	45.6	69.3	69.3	24.8	41.6	41.6	11.9	38.7	38.7
Ave. (mSv)	31.10	15.50	22.40	2.30	4.20	3.90	2.48	2.94	2.90	1.08	2.48	2.35

END

## **Investigation of workers whose contact information unknown for exposure dose control**

### **[Present Status]**

We have requested companies which cooperated on rehabilitation work of Fukushima Daiichi Nuclear Power Station to get their workers who have not undergone WBC examination to undergo it. According to the investigation/confirmation results by the companies, there are some cases such as the employment records cannot be identified and the company cannot contact workers because of their retirement and so forth.

We assume that these were caused by using handwriting ledger for APD lending, and it caused miss-writing of full name, writing of family name only, illegible letter/reading, no furigana. In addition, reading error of name and input failure in listing of APD borrowers based on the ledger made the trace of individuals difficult.

Meanwhile, such events did not happen after issuance of worker ID to every worker and introduction of individual identification methods by bar-code for APD lending (in the middle of April at 1F and in early June at J-VILLAGE).

### **[Approach for resolution of the unknown]**

We have conducted following efforts so far and the number of workers whose contact information unknown reduced to approximately 90 persons in total, but it has not been resolved yet.

- To gather information such as similar name and reading, working place and entry time & date by close investigation and review of APD borrowers lists and WBC examination recipients lists, and request reconfirmation of existence of the relevant workers based on the obtained information to the companies
- To provide the list of missing workers to other companies and request to check the list against their employees' information.
- To try to find clues for identification of workers from information such as position, name and persons who entered together that were written in the APD lending ledger and request reconfirmation of existence of the relevant workers based on the obtained information to the companies
- To set up contact point for workers who have not undergone WBC

### **[Future efforts]**

We are planning to launch an investigation team in internal department that is not in charge of the exposure dose control, and develop following activities aiming for completion of the investigation in the end of September.

- To interview with companies (prime contractor, subcontractor)  
(Recruiting way of workers, salary payment information and so on)
- To interview with workers who are assumed to have conducted same work according to the entry time & date

END