

Exposure dose of workers engaged in emergency work at Fukushima Daiichi Nuclear  
Power Station and related matters

1. Distribution of exposure dose



The internal exposure dose of workers who newly engaged in the emergency works in the power station in September 2011 is shown in Attachment 1.

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

Countermeasure for the workers whose contact information are unknown and who are 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	
		WBC before Oct.21	3,742(March) 3,608(April) 3,017(May) 2,111(June) 2,118(July)	1,011(August) 1,046(Sept.)  Table 2	3,742(March) 3,608(April) 3,017(May) 2,111(June) 2,118(July)	1,101(August) 1,146(Sept.)  Table 3
Since March:3,745	3,745(March)	To be evaluated	3(March)	19(August)	3(March)	19(August)
Since April:3,620	3,620(April)		12(April)	87 (Sept.)	12(April)	87(September)
Since May:3,030	3,030(May)		13(May)		13(May)	
Since June:2,138	2,138(June)		27(June)		27(June)	
Since July:2,130	2,130(July)		12(July)		12(July)	
Since August:1,120	1,120(August)					
Since September: 1,133	1,133 (September)					

( \* ) 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 August (March: from March 11 to 31, April: from April 1 to 30, May: from May 1 to 31, June: from June 1 to 30, July: from July to 31, August: from August 1 to 31, September: from September 1 to 30) of those who engaged in emergency works.

\*1 The results in May to September 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.

**Table 1**

(mSv)	March			April			May			June			July			August			September		
	TEPC O	Contra ctor	Total	TEPC O	Contra ctor	Total	TEPC O	Contra ctor	Total	TEPC O	Contra ctor	Total	TEPC O	Contra ctor	Total	TEPC O	Contra ctor	Total	TEPC O	Contra ctor	Total
Over 250	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Over 200 - 250 or less	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Oer 150 - 200 or less	6	3	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Over 100 - 150 or less	20	8	28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Over 50 - 100 or less	108	55	163	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Over 20 - 50 or less	275	146	421	6	50	56	2	16	18	0	18	18	0	6	6	0	0	0	0	7	7
Over 10 - 20 or less	561	322	883	25	251	276	9	122	131	1	95	96	0	69	69	0	21	21	0	28	28
10 or less	688	1,553	2,241	592	2,694	3,286	271	2,610	2,881	185	1,839	2,024	220	1,835	2,055	122	977	1,099	90	1,008	1,098
Total	1,658	2,087	3,745	623	2,997	3,620	282	2,748	3,030	186	1,952	2,138	220	1,910	2,130	122	998	1,120	90	1,043	1,133
Max. (mSv)	182.33	199.42	199.42	42.73	65.92	65.92	24.61	41.59	41.59	11.94	39.62	39.62	3.89	31.22	31.22	1.98	18.27	18.27	1.57	30.81	30.81
Ave. (mSv)	19.31	9.16	13.66	2.67	3.43	3.29	2.44	2.76	2.73	0.99	2.33	2.22	0.45	1.99	1.83	0.23	1.58	1.44	0.19	1.84	1.70

## 2. Internal exposure dose

Table 2 shows the distribution of internal exposure dose (<sup>\*2</sup>) for workers who had WBC measurement by October 21, 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			July			August			September		
	TEPC O	Contra ctor	Total	TEPC O	Contra ctor	Total	TEPC O	Contra ctor	Total	TEPC O	Contra ctor	Total	TEPC O	Contra ctor	Total	TEPC O	Contra ctor	Total	TEPC O	Contra ctor	Total
Over 250	5	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Over 200 - 250 or less	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Over 150 - 200 or less	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Over 100 - 150 or less	5	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Over 50 - 100 or less	36	42	78	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Over 20 - 50 or less	182	78	260	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Over 10 - 20 or less	402	264	666	1	18	19	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0
10 or less	1,026	1,700	2,726	622	2,966	3,588	282	2,734	3,016	186	1,925	2,111	220	1,898	2,118	122	979	1,101	90	956	1,046
Total	1,658	2,084	3,742	623	2,985	3,608	282	2,735	3,017	186	1,925	2,111	220	1,898	2,118	122	979	1,101	90	956	1,046
Max. (mSv)	590.00	98.53	590.00	18.81	41.80	41.80	0.24	10.12	10.12	0.09	0.86	0.86	0.24	1.90	1.90	1.13	0.20	1.13	0.05	1.22	1.22
Ave. (mSv)	12.07	6.40	8.91	0.25	0.60	0.54	0.02	0.12	0.11	0.01	0.02	0.02	0.01	0.02	0.02	0.02	0.00	0.01	0.00	0.00	0.00

### 3. Total dose of internal and external exposure

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

**Table 3 .**

(mSv)	March			April			May			June			July			August			September		
	TEPC O	Contra ctor	Total	TEPC O	Contra ctor	Total	TEPC O	Contra ctor	Total	TEPC O	Contra ctor	Total	TEPC O	Contra ctor	Total	TEPC O	Contra ctor	Total	TEPC O	Contra ctor	Total
Over 250	6	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Over 200 - 250 or less	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Oer 150 - 200 or less	12	2	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Over 100 - 150 or less	62	15	77	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Over 50 - 100 or less	197	112	309	0	3	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Over 20 - 50 or less	527	332	859	10	71	81	2	17	19	0	18	18	0	6	6	0	0	0	0	7	7
Over 10 - 20 or less	536	505	1,041	26	284	310	9	135	144	1	95	96	0	69	69	0	21	21	0	28	28
10 or less	318	1,116	1,434	587	2,627	3,214	271	2,583	2,854	185	1,812	1,997	220	1,823	2,043	122	958	1,080	90	921	1,011
Total	1,658	2,084	3,742	623	2,985	3,608	282	2,735	3,017	186	1,925	2,111	220	1,898	2,118	122	979	1,101	90	956	1,046
Max. (mSv)	670.36	238.42	670.36	45.55	69.28	69.28	24.77	41.61	41.61	11.94	39.62	39.62	3.91	31.24	31.24	1.99	18.27	18.27	1.57	30.81	30.81
Ave. (mSv)	31.38	15.57	22.58	2.92	4.03	3.83	2.45	2.89	2.85	1.00	2.38	2.26	0.46	2.02	1.85	0.25	1.62	1.46	0.19	1.95	1.80

#### 4. Total dose of internal and external exposure (the total dose of each month)

Table 4 shows the distribution of the total dose of internal and external exposure dose until the end of September (March: from March 11 to September 30, April: April 1 to September 30, May: from May 1 to September 30, July: from July 1 to September 30, August: from August to 31, September: from September 1 to September 30) of those who engaged in emergency works.

**Table 4 .**

(mSv)	March			April			May			June			July			August			September		
	TEPC O	Contra ctor	Total	TEPC O	Contra ctor	Total	TEPC O	Contra ctor	Total	TEPC O	Contra ctor	Total	TEPC O	Contra ctor	Total	TEPC O	Contra ctor	Total	TEPC O	Contra ctor	Total
Over 250	6	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Over 200 - 250 or less	1	2	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Oer 150 - 200 or less	18	2	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Over 100 - 150 or less	110	23	133	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Over 50 - 100 or less	289	253	542	6	36	42	2	2	4	0	0	0	0	0	0	0	0	0	0	0	0
Over 20 - 50 or less	579	628	1207	44	488	532	13	222	235	4	105	109	0	87	87	0	16	16	0	7	7
Over 10 - 20 or less	395	473	868	60	574	634	17	518	535	5	251	256	2	229	231	0	81	81	0	28	28
10 or less	260	706	966	513	1899	2412	250	2006	2256	177	1596	1773	218	1594	1812	122	901	1023	90	1008	1098
Total	1658	2087	3745	623	2997	3620	282	2748	3030	186	1952	2138	220	1910	2130	122	998	1120	90	1043	1133
Max. (mSv)	678.08	238.42	678.08	96.53	86.96	96.53	53.91	53.45	53.91	29.98	44.19	44.19	15.49	39.38	39.38	5.49	37.17	37.17	1.57	30.81	30.81
Ave. (mSv)	39.63	24.38	31.13	5.90	10.34	9.57	4.50	7.30	7.04	1.92	5.41	5.11	0.96	4.99	4.58	0.35	3.31	2.99	0.19	1.84	1.71

END

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

### 1. Result of investigation

The number of workers whose contact information was unknown and who were newly engaged in works in the Nuclear Power Station from March to June was 20 persons in the previous report. However, the number has been reduced to 16 persons in this report.

The 16 persons consist of 10 persons who are not applicable as the result of investigation of the prime contractors, and of 6 persons who are not available to contact.

There has been no worker whose contact information is unknown since July 2011.

### 2. Current status of investigation

For those whose contact information was unknown from March to June, we have conducted interview with prime contractors as well as interview with the branch on site, in addition to the investigation on the list of exposure dose records and APD circulation books. As a result, the contact information of 4 persons among them was identified, though that of the rest of 16 persons remains unknown.

For reference, among the identified 4 persons, there are no one whose age is under 18.

The detail of the remaining 16 persons are as follows:

For the 10 persons who are “not applicable,”

- Those whose record is only their family name with Katakana, and whose date of entry is unknown, too.
- Those who has APD lending records but left the site without returning records.
- Those who has both APD lending and returning records but whose records data such as company name, work name, and date have inconsistent, regarded as low reliable data.

For the every six person “who are not available to contact,” each one’s identity has been identified, though he/ she has become unavailable to contact due to reasons such as retirement of his/ her company and move, according to the investigation by partner companies.

We will analyze and implement new approach like the investigation by experts in order to reduce the number of workers whose contact information is unknown.

END