

March 13, 2011

Nuclear and Industrial Safety Agency

Seismic Damage Information(the 21<sup>th</sup> Release)  
(As of 20:30 March 13, 2011)

Nuclear and Industrial Safety Agency (NISA) confirmed the current situation of Higashidori and Onagawa NPSs, Tohoku Electric Power Co., Inc; Higashidori, Fukushima Dai-ichi, Fukushima Dai-ni and Kashiwazaki-Kariwa NPSs, Tokyo Electric Power Co., Inc. and electricity, gas, heat supply and complex as follows:

1. The status of operation at Power Stations (Number of automatic shutdown units: 10 [as of 19:30, March 13])

a. Readings at Monitoring Posts of Fukushima Dai-ichi and Dai-ni NPSs are summarized in the Annex

b. Fukushima Dai-ichi Nuclear Power Station, Tokyo Electric Power Co., Inc. (TEPCO)  
(Okuma-machi and Futaba-machi, Futaba-gun, Fukushima Prefecture )

(1) The status of operation

Unit 1 (460MWe): automatic shutdown

Unit 2 (784MWe): automatic shutdown

Unit 3 (784MWe): automatic shutdown

Unit 4 (784MWe): in periodic inspection outage

Unit 5 (784MWe): in periodic inspection outage

Unit 6 (1,100MWe): in periodic inspection outage

(2) Readings at monitoring posts

The measurement of radioactive materials in the environmental monitoring area near the site boundary by a monitoring car confirmed the increase in the radioactivity compared to the radioactivity at 04:30, March 13.

MP1 (Monitoring at North End of Site Boundary) :

17microSv/h( 11:40 March 13)

26microSv/h(18:30 March 13)

MP4 (Monitoring Car at North West Site Boundary for Unit 1)

47.1microSv/h(12:20 March 13)

44microSv/h(19:33 March 13)

MP6 (Monitoring at the Main Gate)

26microSv/h(09:30 March 13)

5.2microSv/h(19:00 March 13)

(3) Wind direction/wind speed (as of 17:52, March 13)

Wind direction: North North West

Wind Speed: 0.5 m/s

(4) Report concerning other malfunction

Article 10\* of Act on Special Measures Concerning Nuclear Emergency  
Preparedness (Fukushima Dai-ichi)

(\*A heightened alert condition)

Article 15\*\* of Act on Special Measures Concerning Nuclear Emergency  
Preparedness (Fukushima Dai-ichi, Units 1, 2 and 3)

For Unit 1: Sea water is being injected to the Containment Vessel via the  
Fire Extinguishing System Line (11:55 March 13)

For Unit 2: Water Injection Function has been sustained. (14:00 March 13)

For Unit 3: Fresh water is being injected to the Containment Vessel via the  
Fire Extinguishing System Line (11:55 March 13)

For Unit 3: Sea water is being injected to the Containment Vessel via the  
Fire Extinguishing System Line (13:12 March 13)

b. Fukushima Dai-ni Nuclear Power Station (TEPCO)

(Naraha-machi/Tomioka-machi, Futaba-gun, Fukushima pref.)

(1) The status of operation

Unit1 (1,100MWe): automatic shutdown

Unit2 (1,100MWe): automatic shutdown

Unit3 (1,100MWe): automatic shutdown, cold shut down at 12:15, March 12

Unit4 (1,100MWe): automatic shutdown

(2) Readings at monitoring post etc.

MP1 (Monitoring at the North End of Site Boundary)

0.036microSv/h(13:20 March 13)

0.036microSv/h(19:00 March 13)

MP3 (Monitoring at the North/West End of site boundary)

0.037microSv/h(13:20 March 13)

0.038microSv/h(19:00 March 13)

MP4 (Monitoring at the North/West End of Site Boundary)

0.038microSv/h(13:20 March 13)

0.036microSv/h(19:00 March 13)

MP5 (Monitoring at the West End of Site Boundary)

0.042microSv/h(13:20 March 13)

0.04microSv/h(19:00 March 13)

(3) Direction and velocity of wind (As of 20:30, 13 March)

Direction: West

Velocity: 4.0m /s

(4) Report concerning other malfunction

No report of fire, etc.

Article 10\* of Act on Special Measures Concerning Nuclear Emergency

Preparedness (Fukushima Dai-ni, Unit 1)

(\*A heightened alert condition)

Article 15\*\* of Act on Special Measures Concerning Nuclear Emergency

Preparedness (Fukushima Dai-ni, Units 1,2 and 4)

(\*\*Nuclear emergency situation)

c. Onagawa Nuclear Power Station (Onagawa-cho, Oga-gun and  
Ishinomaki-shi, Miyagi Prefecture)

(1) The status of operation

Unit 1 (524MWe): automatic shutdown, cold shut down at 0:58, March 12

Unit 2 (825MWe): automatic shutdown

Unit 3 (825MWe): automatic shutdown, cold shut down at 1:17, March 12

(2) Readings of monitoring post

Reading of monitoring post : Changed

-> Around MP2, Approx. 10,000 nGy/h (as of 13:09 March13)

(3) Report concerning other malfunction

Fire Smoke on the first basement of the Turbine Building was confirmed  
extinguished at 22:55 on March 11th.

Article 10\* of Act on Special Measures Concerning Nuclear Emergency

Preparedness (Unit No. not identified)

(\*A heightened alert condition)

## 2. Industrial Safety

○Electricity As of 20:00 March 13

\* Tokyo Electric Power Co. (as of 19:54, March 13, 2011)

Scale of loss of electrical power: About 200 thousand houses

Power loss area:

Ibaraki Pref.: Almost Whole area (about 194 thousand houses),

Tochigi Pref.: Mogi-cho, etc. (about 7 thousand houses)

Chiba Pref.: Matsudo-shi, (about 5 hundred houses)

\* Tohoku Electric Power Co. (as of 19:00, March 12, 2011)

Scale of loss of electrical power:

About 1400 thousand houses (A total of 480 houses)

Power loss area: Aomori Pref.: Part of Sanpachi 5,000 houses

Iwate Pref.: Part of Area (about 202 thousand houses)

Miyagi Pref: Whole area (about 1,112 thousand houses)

Fukushima Pref: Some parts of Naka-dori and Hama-dori  
(About 77000)

\* Hokkaido Electric Power Co. (as of 14:00, March 12, 2011)

Electrical outage has already been restored (A total of 3000thousand houses)

\* Chubu Electric Power Co. (as of 17:11, March 12, 2011)

Electrical outage has already been restored. (A total of 4000thousand houses)

○General Gas (as of 17:50, March 13)

The Japan Gas Association dispatched advance teams. They will arrive at Sendai- city on the afternoon of March 13, 2011.

There was no communication with Kesenuma-shi municipal Gas and Souma Gas.

There is no notification of supply disruption from Hokkaido, Yamagata Prefecture and Akita Prefecture.

The status of supply disruption of gas companies is as follows.

\* Tokyo Gas Co. (Hitachi-shi): 30,008 houses are in supply disruption.

- \*Gas Bureau of Sendai-shi: approx.360 thousand houses are in supply disruption.
- \*Shiogama Gas Co.: approx.12,382 houses are in supply disruption.
- \*Fukushima Gas Co. (Fukushima-shi):1,695 houses are in supply disruption.
- \*Tobu Gas (Tuchiura-shi): approx. 7,500 houses are in supply disruption.  
(Mito-shi) : approx. 330 houses are in supply disruption.
- \*Kamaishi Gas Co. (Kamaishi-shi) : approx.10,000 houses are in supply disruption.
- \*Joban kyodo Gas(Iwaki-shi): approx. 15,000 houses are in supply disruption
- \*Hatano Gas Co. (Hatanoi-shi): 163 houses are in supply disruption.
- \*Keiyo Gas Co. (Urayasu-shi): 5,445 houses are in supply disruption.
- \*Tohoku Gas (Shirakawa-shi): approx. 270 houses are in supply disruption.
- \*Hachinohe Gas (Hachinohe-shi): approx.1,300 houses are in supply disruption.
- \*Joban Toshi Gas (Mito-shi) : approx. 50 houses in supply disruption

○Community Gas (as of 17:50, March 13)

The status of supply disruption of each company is as follows.

- \*Sendai-shi Gas Bureau (Natori-shi): 1,225 houses are in supply disruption.  
(Sendai-shi): 114 houses are in supply disruption.  
(Iwanuma-shi): 342 houses are in supply disruption.  
(Tomiya-cho, Kurokawa-gun): 1,885 houses are in supply disruption.
- \*Kamei (Hitachi-shi): 301 houses are in supply disruption.  
(Kawaguchi-shi): 165 houses are in supply disruption.
- \*Tobu Liquefied Oil (Hitachi-shi): 145 houses are in supply disruption.  
(Hokota-shi): 150 houses are in supply disruption.  
(Mito-shi): 1,784 houses are in supply disruption.  
(Tsuchiura-shi): 379 houses are in supply disruption.  
(Tsukuba-shi): 444 houses are in supply disruption.  
(Hitachinaka-shi): 1,985 houses are in supply disruption.  
(Kasima-shi): 1,369 houses are in supply disruption.  
(Sakuragawa): 160 houses are in supply disruption.  
(Omitama-shi): 306 houses are in supply disruption.  
(Tokai-mura, Naka-gun): 164 houses are in supply

disruption.

(Hitachiota-shi): 70 houses are in supply disruption.

\*Horikawa Sagyo (Utsunomiya-shi) 893 houses are in supply disruption.

(Kanuma-shi) 1,983 houses are in supply disruption

(Sakura-shi) 123 houses are in supply disruption

(Kamimikawa-chou, kawachi-gun) 957 houses are

in supply disruption

\*Tochigi Liquefied Gas(Ootawara-shi) 153 houses are in supply disruption.

\*Soma Gas (Soma-shi) 143 houses are in supply disruption.

\*Yasuhara Liquefied Gas(Yasuhara-cho, Date-gun) 336 houses are in supply disruption.

\*Tsukuba Gakuen Gas(Tsukuba-shi) 269 houses are in supply disruption.

\*Katsuta Gas Utility Cooperative(Hitachinaka-shi) 774 houses are in supply disruption.

Teiseki Propane Gas(Hitachinaka-shi) 774 houses are in supply disruption

(Hitachioomiya-shi) 258 houses are in supply

disruption.

(Hitachioota-shi) 233 houses are in supply disruption.

\*Tokyo Gas Energy (Hitachinaka-shi) 90 houses are in supply disruption.

\*Nihon Gas (Tokai-mura, Naka-gun) 594 houses are in supply disruption.

(Toride-shi) 636 houses are in supply disruption

(Tsukubamirai-shi) 238 houses are in supply disruption

(Hitachioota-shi) 631 houses are in supply disruption

(Inashiki-shi) 97 houses are in supply disruption

(Yaita-shi) 370 houses are in supply disruption

(Nasukarasuyama-shi) 76 houses are in supply disruption

(Kanuma-shi) 132 houses are in supply disruption

\*Kei-i-ji (Narita-shi) 177 houses are in supply disruption.

\*Ikebe Oil Gas (Tokai-mura, Naka-gun) 153 houses are in supply disruption.

\*Saito Shoten (Tsukubamirai-shi) 110 houses are in supply disruption.

\*Imaichi-Gas (Nikko-shi) 240 houses are in supply disruption.

\*Taiyo Nissan Enerugii Kanto (Kawaguchi-shi) 169 houses are in supply disruption.

\*Oota Gas Utility Cooperatives (Oota-shi) 320 houses are in supply disruption.

\*Tatebayashi Liquefied Gas (Tatebayashi-shi) 233 houses are in supply

disruption.

- \*Gloria Gas (Sayama-shi) 185 houses are in supply disruption.
- \*Kawahara Jitsugyou (Koshigaya-shi) 153 houses are in short disruption.
- \*Higashi Gas Kanko (Hokuto-shi) 79 houses are in supply disruption.
- \*Saisan (Saku-shi) 153 houses are in supply disruption.

○Heat supply (as of 17:50, March13)

- \*Yamagata Heat Supply (Yamagata-shi) is in supply disruption.
- \*Onahama Haiyu (Onahama, Iwaki-shi) is in supply disruption.
- \*HITACHI NETSU ENERGY (Hitachi City) is in supply disruption.

○Complex (as of 20:30, March 13)

- \*Cosmo Oil factory Chiba branch (Ichihara-shi, Chiba)

A column of Butane Butylene storage tank was broken. Fire occurred due to gas leakage. One person suffered serious injury, 4 persons suffered minor injury.

- \*JX Nippon Oil&Energy Corporation Sendai oil factory (Sendai-shi, Miyagi Prefecture)

-There was an explosion of shipment equipment and fire broke out.

### 3. Action taken by NISA

(March 11)

14:46 Set up of the NISA Emergency Preparedness Headquarters (Tokyo) immediately after the earthquake

15:42: TEPCO reported to NISA in accordance with Article 10 of the Act on Special Measures Concerning Nuclear Emergency Preparedness regarding Fukushima Dai-ichi, Units 1,2 and 3.

16:36: TEPCO judged the event in accordance with Article 15 of the Act for Special Measures Concerning Nuclear Emergency Preparedness regarding Fukushima Dai-ichi, Units 1 and 2.(notified to NISA at 16:45)

18:08: Unit 1 of Fukushima Dai-ni notified NISA of the situation of the Article 10 of Act on Special Measures Concerning Nuclear Emergency Preparedness.

18:33: Units 1,2 and 4 of Fukushima Dai-ni notified NISA of the situation of the Article 10 of Act on Special Measures Concerning Nuclear

## Emergency Preparedness.

- 19:03 : Government declared the state of nuclear emergency (Establishment of Government Nuclear Emergency Response Headquarters and Local Emergency Response Headquarters)
- 20:50: Fukushima Prefecture's Emergency Response Headquarters issued a direction regarding the accident occurred at Fukushima-Dai-ichi Nuclear Power Station, TEPCO, that the residents living in the area of 2km radius from Unit 1 of the Nuclear Power Station must evacuate.(The population of this area is 1,864)
- 21:23: Directives from Prime Minister to the Governor of Fukushima, Mayor of Ookuma and Mayor of Futaba were issued regarding the accident occurred at Fukushima-Dai-ichi Nuclear Power Station, TEPCO, pursuant to Paragraph 3, Article 15 of the Act on Special Measures Concerning Nuclear Emergency Preparedness as follows:
- Residents living in the area of 3km radius from Unit 1 of the Nuclear Power Station must evacuate.
  - Residents living in the area of 10km radius from the Unit 1 must take sheltering.
- 24:00: Mr. Matsushita, Vice Minister of METI, arrived at the Local Emergency Response Headquarters

(March12)

- 05:22 Unit 1 of Fukushima Dai-ni notified NISA of the situation of the Article 15 of Act on Special Measures Concerning Nuclear Emergency Preparedness.
- 05:32 Unit 2 of Fukushima Dai-ni notified NISA of the situation of the Article 15 of Act on Special Measures Concerning Nuclear Emergency Preparedness.
- 05:44 Residents living in the area of 10km radius from unit 1 of the Nuclear Power Station must evacuate by the Prime Minister Direction.
- 06:07 Regarding Units 1,2 and 4 of Fukushima Dai-ni NPS, TEPCO reported NISA in accordance with Article 15 of Act for Special Measures Concerning Nuclear Emergency Preparedness.
- 06:50 According to the article 64, 3 of the Nuclear Regulation Act, government order to control the internal pressure in Fukushima-dai-ichi Units 1 and 2



- 07:45 Directives from Prime Minister to Governor of Fukushima, Mayors of Hirono, Naraha, Tomioka, Ookuma and Futaba were issued regarding the accident occurred at Fukushima-Dai-ni Nuclear Power Station, TEPCO, pursuant to Paragraph 3, Article 15 of the Act for Special Measures Concerning Nuclear Emergency Preparedness as follows:
- Residents living in the area of 3km radius from Fukushima Dai-ni Nuclear Power Station (NPS) must evacuate.
  - Residents living in the area of 10km radius from Fukushima Dai-ni NPS must take sheltering
- 17:00 Notification pursuant to Article 15 of the Act for Special Measure Concerning Nuclear Emergency Preparedness since the radiation level exceeded the acceptable level of Fukushima Dai-ichi NPS.
- 17:39 Prime Minister directed evacuation of the residents living within the 10 km radius from the Fukushima-Dai-ni NPS
- 18:25 Prime Minister directed evacuation of the residents living within the 20km radius from the Fukushima Dai-ichi NPS
- 19:55 Directives from Prime Minister was issued regarding sea water injection to Unit No.1 of Fukushima Dai-ichi NPS.
- 20:05 Based on the directives form Prime Minister and pursuant to Paragraph 3, Article 64 of the Nuclear Regulation Act, the Government issued an order to inject sea water Unit 1 of Fukushima Dai-ichi NPS.
- 20:20 Fukushima Dai-chi NPS, Unit1 started sea water injection.

(March 13)

- 05:38 TEPCO notified NISA of the situation pursuant to the Article 15 of Act on Special Measures Concerning Nuclear Emergency Preparedness that Unit 3 of Fukushima Dai-ichi NPS is in a loss of all coolant injection function. Recovering efforts of the power source and coolant injection function and work on venting are underway.
- 09:08 Pressure suppression in the Containment Vessel and fresh water injection started at Unit 3 of Fukushima Dai-ichi NPS.
- 09:20 Opening of Pressure vent valve of Unit 3 of Fukushima Dai-ichi NPS.
- 09:30 The Governor of Fukushima Prefecture directed the Mayors of Ookuma-machi, Futaba-machi, Tomioka-machi and Namie-machi based on the Act for Special Measures Concerning Nuclear Emergency

Preparedness on radioactivity decontamination screening.

- 09:38 TEPCO notified NISA that Unit 1 of Fukushima Dai-ichi NPS reached a situation specified in Article 15 of the Act for Special Measures Concerning Nuclear Emergency Preparedness.
- 13:09 Tohoku Electric notified NISA that Onagawa NPS reached a situation specified in Article 10 of the Act for Special Measures Concerning Nuclear Emergency Preparedness.
- 13:12 Fresh water injection was switched to sea water injection at Unit 3 of Fukushima Dai-ichi NPS.
- 14:25 TEPCO notified NISA that Fukushima Dai-ichi NPS reached a situation specified in Article 15 of the Act for Special Measures Concerning Nuclear Emergency Preparedness.

<Possible Exposure to Residents>

(1) Case for Travel from Futaba Public Welfare Hospital to Nihonmatsu Man and Woman Symbiosis Center, Fukushima Prefecture

- i) No. of persons to be measured: About 60 persons
- ii) Measured Result: Not yet
- iii) Passage: Exposure could have happened while waiting to be picked up by helicopter at the Futaba high school ground
- iv) Other

Prefectural Response Headquarters judged that there were no exposure to 35 persons who traveled from Futaba Public Welfare Hospital to Kawamata Saiseikai Hospital, Kawamata-machi by the private bus provided by Fukushima Prefecture.

(2) Case for Futaba-machi Residents Evacuated by Buses

- i) No. of Persons: About 100 persons
- ii) Measured Result: 9 persons out of 100 persons

No. of Counts	No. of Persons
18,000cpm	1
30,000-36000cpm	1
40,000cpm	1
little less than 40,000cpm*	1
very small counts	5

\*(This results was measured without shoes, though the first measurement exceeded 100,000cpm)

- iii) Passage: Under investigation
- iV) Other

Though persons evacuated in different location outside of the Prefecture (Miyagi Prefecture), all destinations are under confirmation.

<Status of Evacuation (As of 18:30 March 13)>

Ookuma-machi: Evacuation of subject evacuees (about 11,000 persons) completed. (Area of Refuge: Tamura Comprehensive Gymnasium, etc.)

Futaba-machi: Evacuation of subject evacuees (about 7,000 persons) completed. (Area of Refuge: Iizaka Primary School, Kawamata Primary School, etc.)

Tomioka-machi: Evacuation of subject evacuees (about 16,000 persons as of 13:30 March 12) completed. (Area of Refuge: Kawauchi Village Office, etc)

Namie-machi: Evacuation of about 2,000 persons out of subject evacuees (about 20,000 persons) completed. (Area of Refuge: Tsushima Public Hall, etc.)

Naraha-machi: Evacuation of subject evacuees (about 7,800 persons as of 13:30 March 12) completed. (Area of Refuge: Kusano Junia High School, Taira No 6 Primary School, etc)

Hirono-machi: Evacuation of subject evacuees (about 5,300 persons) completed. (Area of Refuge: Hirata-mura Public Hall, etc.)

Kawauchi-machi: Evacuation of subject evacuees (about 300 persons) completed. (Area of Refuge: Unidentified)

Minami Souma-shi: Communication with municipal staff was not possible. Effort to communication continues.

Tamura-shi: Evacuation of subject evacuees (about 3,000 persons) completed. (Area of Refuge: Tamura Comprehensive Gymnasium, etc.)

Kuzuo-mura: Communication with municipal staff was not possible. Effort to communication continues.

Population Around Fukushima Dai-ichi		Population Around Fukushima Dai-ni	
	0-20Km		0-10Km
Tomioka-machi	15,736	Tomioka-machi	Same as left
Ookuma-machi	11,321	Ookuma-machi	Same as left
Futaba-machi	6,900		
Namie-machi	20,661		
Kawauchi-mura	2,893		
Naraha-machi	7,826	Nraha-machi	Same as left
Minami Souma-shi	70,954		
Tamura-shi	41,212		
Kuzsuo-mura	1,485		
		Hirono-machi	1,328

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\*Population by municipality (Total Population: 180,226)

Readings at Monitoring Posts in the Vicinity of Fukushima Dai-ichi and  
 Dai-ni Nuclear Power Stations (as of 18:00, March 13)

March 13, 2011

Local Nuclear Emergency Response Headquarters

Readings (updated readings) at monitoring posts are as follows as of 18  
 o'clock today (March 13):

There is no significant effect on health by the measured values.

Type	Location	Time	Readings
Monitoring Post (Fukushima pref.)	Oono District (in Fukushima Nuclear Center	17:30	5.36microSv/h
Monitoring Post (Utility)	In front of Fukushima Dai-ichi NPS MainGate	16:00	5.15microSv/h
	Monitoring Post No 4 (Near West Gate, outside the NPS site)	16:04	71.1microSv/h
Emergency Monitoring (on land)	Ohta-bashi, Ohta-gawa of Namie-kajima line to Chimei-ji intersection of 6 <sup>th</sup> line	8:50-9:22	5.25-9.59microSv/h
	Haramachi Namie Intersection to Yokokawa dum entrance	11:42-12:13	8.2microSv/h-more than 30microSv/h
	Kusano Station to Takita Station	8:15-9:14	0.06-0.07microSv/h
	Dust and Iodine monitoring (In front of Fukushima Nuclear Center)	16:00	I-131: 1.7Bq/m3 Cs-137:ND I-132:ND Te-132:ND

(Note)

Normal Air Dose Readings at Monitoring Post is about 0.05microSv/h.

Criteria to indicate the occurrence of nuclear emergency is 0.5mSv/h (500microSv/h).

Dose limit of the general public is 1mSv (1000microSv)

Annual average dose from natural exposure is 2.4mSv (2400microSv)

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