

March 13, 2011

Nuclear and Industrial Safety Agency

Seismic Damage Information(the 20th Release)
(As of 16:30 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. Summary of Damage(Earthquake at Sanriku-Oki)

- (1) Time of Occurrence: 14:46 (UTC 5:46) March 11, 2011, Friday
- (2) Epicenter: Off-Coast of Sanriku (North Latitude: 38; East Longitude: 142.9), 10km deep, M9.0
- (3) Seismic Intensity in Japanese Scale
<Area of Seismic Intensity Larger Than and Including 4>
7: Northern Miyagi Prefecture
6+: Northern and southern Ibaraki Prefecture
5+: Sanpachi-Kamikita Aomori Prefecture
5-: Chuetsu, Niigata Prefecture
<Municipality of Seismic Intensity Larger than and Including 4>
6+: Naraha Machi, Tomioka Machi, Ookuma-machi, and Futaba-machi, Fukushima Prefecture
6-: Ishinomaki-city and, Onagawa town (by Seismograph of NPP)of , Miyagi Prefecture and Tokaimura, Ibaraki Pref.
5-: Kariwa-village, Niigata Prefecture
4: Rokkasho-village, Higashidori-village, Aomori Prefecture, Kashiwazaki-city, Niigata Prefecture and Yokosuka-city, Kanagawa Prefecture
1: Tomari-village, Hokkaido

2. The status of operation at Power Stations (Number of automatic shutdown(units): 10 (as of 13:00, March 13)

a. Onagawa Nuclear Power Station (Onagawa-cho 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

It is confirmed Smoke in the first basement of the Turbine Building was confirmed the 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)

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(784MW): in periodic inspection outage

Unit 5(784MW): in periodic inspection outage

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

(2) Readings at monitoring post

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 04:00, March 12 now.

MP1 (Monitoring at North End of site boundary) :

5.2microSv/h(05:50 March 13)

-> 17microSv/h(11:40 March 13)

(*Measurement Point changed from MP8 to MP1 at 07:40 March 13)

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

40microSv/h(03:08 March 13)

->47.1microSv/h(12:20 March 13)

MP6 (Monitoring at the Main Gate)

3.2microSv/h(05:50 March 13)

->26microSv/h(09:30 March 13)

(3) Wind direction/wind speed(as of 12:20, March 13)

Wind direction: North West

Wind Speed: 2.6 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 containment via fire extinguishing
system line (11:55 March 13)

For Unit 2: Electric Power Source secured, Water Injection Function has
been maintained. (14:00 March 13)

For Unit 3: Fresh water is being injected to containment via fire
extinguishing system line (11:55 March 13)

For Unit 3:Sea water is being injected to containment via fire extinguishing
system line (13:12 March 13)

c. Fukushima-Daini Nuclear Power Station(TEPCO)

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

(1) The status of operation

Unit1(1,100MW): automatic shutdown

Unit2(1,100MW): automatic shutdown

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

Unit4(1,100MW): automatic shutdown

(2) Readings at monitoring post etc.

MP1 (Monitoring at the North End of site boundary)

36microSv/h(13:20 March 13)

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

37microSv/h(13:20 March 13)

MP4 (Monitoring at the North/West End of site boundary)

38microSv/h(13:20 March 13)

MP5 (Monitoring at the West End of site boundary)

42microSv/h(13:20 March 13)

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

Direction: South

Velocity: 4.5m /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)

3. Industrial Safety

○Electricity as of 14:10, March 13, 2011

* Tokyo Electric Power Co. (as of 14:09, March 13, 2011)

Scale of loss of electrical power: approx. 230 thousand houses (Total 4,050 thousand)

Power loss area:

Ibaraki Pref.: Almost whole area (approx. 226 thousand houses),

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

Chiba Pref.: Katori-shi, etc. approx 3 hundred houses)

* Tohoku Electric Power Co. (as of 13:00, March 13, 2011)

Scale of loss of electrical power: approx.1,680 thousand houses (Total 4780 thousand)

Power loss area:

Iwate Pref.: Some area, (approx 329 thousand houses)

Miyagi Pref: Whole area (approx 1,242 thousand houses)

Aomori Pref.: Some parts of Hachinohe and Kamikita (approx 4 thousand

houses)

Yamagata Pref: Recovered (as of 21:13, March 12)

Fukushima Pref: Some parts of Naka-dori and Hama-dori (approx 101 thousand houses)

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

Electrical outage be restored. (Total approx. 3 thousand houses)

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

Electrical outage be restored. (Total approx. 4,000 thousand houses)

○General Gas (as of 12:00, March 13)

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

No communication with Kesennuma-city municipal Gas and Souma Gas.

No report of supply disruption from Hokkaido, Yamagata prefecture and Akita prefecture.

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

* Tokyo Gas Co. (Hitachi-city): 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.

*Hachinohe Gas (Hachinohe-shi): approx.1,300 houses are in supply disruption.

*Kamaishi Gas Co. (Kamaishi-shi) : approx.10,000 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.

*Fukushima Gas Co. (Fukushima-shi): 1,695 houses are in supply disruption

*Tohoku Gas (Shirakawa-shi): approx. 270 houses are in supply disruption.

*Joban kyodo Gas(Iwaki-shi): approx. 15,000 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.

*Joban Toshi Gas (Mito-shi) : approx. 50 houses in supply disruption

○Community Gas (as of 15:50, March 12)

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

*Japan Community Gas Association: Information of northern part of Ibaraki prefecture has not gathered yet.

*Tokyo Gas Energy (Kitaibaraki-shi): 943 houses in Nakago-New Town due to the leakage from pipe.

*Sato Kosan (Iwatsuki-ku, Saitama City) Iwatsuki-housing complex: 451 sites are in supply disruption.

*Syutoken Gas (Sakura-City) Chitose-housing complex: 1,320 houses are in supply disruption. (due to leakage from pipe)

*Kashima Marui Gas (Kamisu-shi): Gas conduit was damaged. 527 houses are in supply disruption. Time of recovery is not certain.

*Nagashima Central Gas (Katori-shi) Tamatsukuri-housing complex, 438 houses are in supply disruption due to short circuit now under recovery works.

*Taihei Sangyo (Takahagi-shi) Hagigaoka-housing complex 112 houses are in supply disruption due to short circuit. Recovery has completed at 21:00 11 March. (Takahagi-shi) Ishidaki-housing complex 648 houses and (Hitachi-shi) Hitachi-Densen Akasaka-housing complex 222 houses are in supply disruption. Under recovery works.

*Taiyo Nissan Energy Kanto Kajima Branch: (Kamisu-shi) Mitsubishi Chemicals Yatabe Complex: 90 houses are in supply disruption due to activation. Investigation is underway for possible gas leakage on the main pipe.

*Nihon Gas (Yaita-shi) Narita Koufuku high residential complex: Production of gas is stopped due to partial damage of the specific production building. 140 houses are in supply disruption[

(Nasukarasuyama-shi) Kounodai New Town: Gas leakage from Main Pipe. 27 houses are in supply disruption.

(Itako-shi) Kajima Hinode Housing Complex: 1876 houses are in supply disruption due to damage in the main and branch/torch in and out pipes

(Tokai-mura) Arayadai Housing Complex of JAEA Gas supply was disrupted due to smell of gas in the specified gas production facility.

(Tokai-mura) Nagahori Housing Complex of JAEA 145 houses were in supply disruption due to break of mid-pressure pipe. Affected parts are under repair.

(Hitachioota-shi) Mayumigaoka New Town: 482 gas supply stopped due to autonomy request.

(Inashiki-shi) Yuisa Flat: There are possibilities of breaks in main and branch pipes and supply pipes. 94 houses are in supply disruption. Gas conduit is under repair.

*Imaichi Gas: Gas leakage occurred from conduit at the simple gas complex in Nikko-shi: 240 houses were in gas supply disruption.

*Nihon Gas: Gas leakage occurred from conduit at simple gas complex in the jurisdiction: 76 houses in Nasu-karasuyama-shi, 97 houses in Inashiki-shi, 594 houses in Tokai-mura, Natsu-gun, 370 houses in Yaita-shi, and 3,299 houses in Itako-shi were in gas supply disruption.

These areas other than Itako-shi will be restored on March 19. Residents in 1876 houses of Hinode housing complex in Itako-shi evacuated from this region due to liquefaction of the ground. Time of recovery is not certain.

212 houses in Noda-shi were in gas supply disruption. This area has been restored in March 11.

*Horikawa Industry (Bando city, Ibaraki Pref.) : Iwai Greenland Due to liquefaction of the ground, 566 houses are in supply disruption.

*Tajima : 250 houses were in gas supply disruption at the simple gas complex in Hachioji-city. This area will be restored within March 12.

*Iwatani Kanto (Saitama-shi) Sashiogi Housing Complex: 6 houses are stopped supply. Currently leakage location is under remedy.

○Gas conduit Operators (as of 15:50, March 12)

*JX Nikko Nisseki Energy: Hachinohe LNG Base

Premise, electric room and in-house electricity generator equipment, were

flooded by the 2nd wave of tsunami and the gas supply was stopped. Pipe line and bubble station Petroleum Resources Development around Sendai-shi appeared to be flooded with water. Disruption of gas supply does not pose impediment because demands for gas were also disrupted.

○Heat supply (as of 15:50, March 12)

West side area at Morioka station: heat supply was stopped due to power failure.

*Yamagata Netsu Kyokyu (Yamagata-shi): Supply was stopped due to emergency shut down condition.

*Onahama Haiyu (Onahama, Iwaki-shi): stopped heat supply due to the breakage of pipe. Heat supply pipes underground might be affected. Time of recovery is not certain.

*"HITACHI NETSU ENERGY"(Hitachi City): stopped heat supply due to the electrical outage at 15:19, March 11.

*"CHIBA NETSU KYOKYU"(Chiba-city): stopped freezer, etc. at 16:19, March 11. Supply was stopped and walkdown is conducted at 16:19, March 11.

*"NISHI-IKEBUKURO NETSU KYOKYU": stopped freezer and boiler at 15:45, March 11.

*"TOKYO NETSU KYOKYU";

-stopped boiler in Takeshiba and Yurakucho areas at 15:20, March 11

-stopped supply to one of the building complex at Hikarigaoka for approx. 3 hours due to the leakage of pipe at 21:35, March 11 (Restart supplying at 00:05, March 12)

*"Yokohama Business Park NETSU KYOKYU (Hodogaya-ku, Yokohama city)

15:50 Stopped steam and cold water supply to PREZZO building

16:20 restored by temporary repair (March 11)

○Complex (as of 11:00, March 12)

*Cosmo Oil factory Chiba branch

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-city, Miyagi prefecture)

-Fire occurred from an explosion at shipping facility area.

4. 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.

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-ichi 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-ichi 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 Oookuma 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 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 Paragrah 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 Mayers 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 15 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.

<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.

(Contact Person)

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