

March 12, 2011

Nuclear and Industrial Safety Agency

Seismic Damage Information(the 16<sup>th</sup> Release)  
(As of 20:05 March 12, 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, M8.8

(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 11:00, March12)

a. Onagawa Nuclear Power Station (Onagawa-machi 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 etc.

Variation in the monitoring post readings: No

Variation in the main stack monitor readings: No

(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.

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 etc.

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.

MP4(Moitoring car data at the site boundary, North-west of Unit1):

1015microSv/h

(15:29, March12)

MP6 (at the main gate) 0.07microSv/h ->3.25 micro Sv/h

(04:00, March12->16:40, March 12)

MP8 (at the observation platform) 0.07microSv/h ->2.06 micro Sv/h  
(04:00, March 12->16:40, March 12)

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

Wind direction: South East

Wind Speed: 1.8m/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 and 2)

(\*\* Nuclear emergency situation)

Situation of power source to recover water injection function at the Station.

-Cable from electric power generating cars are under connecting work(as of 15:04, March 12)

-Pressure in the containment vessel has arisen. Steam release is undertaking in order to relieve pressure.(as of 14:40, March 12)

-A radiation level exceeding 500 microSv/h was monitored at the site boundary(15:29, March 12). A large motion occurred due to an earthquake with close epicentre and an large sound was issued near Unit1 and smoke was observed.

c. Fukushima-Daini Nuclear Power Station(TEPCO)

(Naraha-cho/Tomioka-cho, 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.

Variation in the monitoring post readings: No

Variation in the main stack monitoring readings: No

(3) Direction and velocity of wind (As of 17:43, 12 March)

Direction: South-southeast

Velocity: 5.9m/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

\* Tokyo Electric Power Co. (as of 18:54, March 12, 2011)

Scale of loss of electrical power: approx. 500 thousand houses

Power loss area:

Ibaraki Pref.: Whole area (approx. 488 thousand houses),

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

Chiba Pref.: Shibayama-cho, etc. approx 6 thousand houses)

Saitama Pref: Kuki-shi: approx 500 houses

\* Tohoku Electric Power Co. (as of 18:00, March 12, 2011)

Scale of loss of electrical power: approx.3,150 thousand houses (under investigation)

Power loss area:

Iwate Pref.: Whole area, (approx 725 thousand houses)

Akita Pref: Whole area (approx 353 thousand houses)

Miyagi Pref: whole area (approx 1,351 thousand houses)

Aomori Pref.: Almost whole area (approx 380 thousand houses)

Yamagata Pref: Almost whole area (approx 187 thousand houses)

Fukushima Pref: Some parts of Naka-dori and Hama-dori (approx 151 thousand houses)

Niigata Pref.: All of the power loss area has been recovered(as of 15:51, March 12)

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

All of the power loss area has been recovered.

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

Nagano Pref: All of the power loss has been recovered.(as of 17:11, March 12)

○General Gas (as of 17:40, March 12)

The Japan Gas Association dispatched its six advance teams of thirty staff (five teams for Sendai and one team for Joban area) at 07:00, 12 March upon request from Sendai-shi.

Sendai-city municipal Gas, Kesenuma-city municipal Gas, Ishinomaki Gas have trouble contacting at 1:00 12 March. The Japan Gas Association confirmed that there are no supply disruption in the supply area of city gas in Hokkaido, Yamagata, and Akita prefecture.

\* Tokyo Gas Co. (whole area of Hitachi-shi)

Hitachi branch: 30,007 houses are in supply disruption. There is no damage in equipment, however, equipment is inoperable due to loss of power. Walkdown unit of eight person departed at 18:45, March 11 and already arrived at 06:00, March 12. Recovery plan will be established by 12 afternoon. Time of recovery is not certain.

Eastern part of Joso: 453 houses were in supply disruption in Ushiku (supply restarted at 17:10, March 11)

471 houses were in supply disruption in Ushiku-shi  
Ushiku-cho(supply restarted at 22:36 March11)

77 houses are in supply disruption in  
Ryuugasaki(supply restarted at 16:20, March 11)

40 houses are in supply disruption in Nishi-ku,  
Yokohama-shi(supply restarted at 17:29, March 11)

Gas leaked from a Nozzle of an LNG tank at Sodegaura but no ignition (restored on 02:30, March 12)

\*Gas Bureau of Sendai-shi: whole supply disruption (approx.360 thousand houses)

\*Shiogama Gas Co.: approx.12,382 houses are in supply disruption. Shiogama-shi, Tagashiro-shi, Nanahama-shi and Rihu-syo are out of service due to no supply from Gas Bureau of Sendai)

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

\*Kamaishi Gas Co. : approx.10,000 houses are in supply disruption. First floor of this Gas facility sank.

\*Hatano Gas Co.: Approx. 380 houses are in supply disruption. Restoration will be expected 13<sup>th</sup> of March.

\*Keiyo Gas Co.: Leakage occurred at 5 locations of middle pressure conduit  
Leakage occurred at many parts of Low pressure conduits  
5,445 houses in Urayasu-shi are in supply disruption.  
Supply to Yachiyo Station stopped.

\*Kujukuri choei Gas: Approx 258 houses are in supply disruption.

\*Atsugi Gas Co: leakage occurred at 1 location of middle pressure conduit.

\*Fukushima Gas Co.: (A part of Fukushima-shi) About 2,726 houses are in supply disruption

\*Tohoku Gas (part of Shirakawa-shi): 300 houses are in supply disruption

\*Joban kyodo Gas(Iwaki-shi): 14,000 houses (whole customer) are in supply disruption

\*Tobu Gas Fukushima-shisya: 7,500 houses are in supply disruption (Koriyama-shi, Iwaki-shi) leakage occurred at 2 locations of middle pressure conduit, leakage occurred at 54 locations of low pressure conduits and another leakage occurred on 85 locations. 39 houses in supply disruption.

\*Tobu Gas (a part of Tsuchiura-shi) 7,500 houses in supply disruption  
(a part of Mito-shi) 330 houses in supply disruption

\*Joban Toshi Gas (Mito-shi) 60 houses in supply disruption

\*Tosai Gas(Kasukabe-shi) Gas leakage occurred from conduit. 150 houses in apartment are in supply disruption. Supply restarted in the afternoon 12 March.

\*Odawara Gas(Odawara-shi)

leakage occurred at 1 locations of low pressure branch conduit and 3 locations of ex-core inner conduit and have restored at 21:30 11 March. Other areas are under investigation.

○Community Gas(as of 15:50, March 12)

Severe damage has not been reported to Japan Community Gas Association

so far. No information is available about the damage in North part of Ibaraki prefecture.

\*Tokyo Gas Energy (North part of Ibaraki): Factory stopped supply to 943 houses in Nakago-New Town due to the leakage from pipe.

\*Sato Kosan (based in Iwatsuki-ku, Saitama City) Iwatsuki-housing complex: Gas leakage occurred from conduit. 451 sites are in supply disruption.

\*Syutoken Gas (based in Sakura-City) Chitose-housing complex: 1,320 houses are in supply disruption

\*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, 222 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.

\*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 12. 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 Hachiooji-city. This area will be restored within March 12.

○Gas conduit Operators (as of 15:50, March12)

\*JX Nikko Nisseki Energy: Hachinohe LNG Base

Premise, electric room and in-house electricity generator equipment, were flooded by the 2<sup>nd</sup> wave of tsunami and the gas supply was stopped.

According to Japan National Gas Association, there are no damage to pipelines of conduit-trans port companies.(as of 23:00, March 11)

○Heat supply (as of 15:50, March12)

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

○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 of low temperature LPG tank

#### 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, 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

20:50: Fukushima prefecture's emergency preparedness headquarters - issued a directive 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 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 for 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.

(March12)

5:22 Unit 1 of Fukushima Dai-ni notified NISA of the situation of the Article 15 of Act on Special Measures Concerning Nuclear Emergency Preparedness.

5:32 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 on Special Measures Concerning Nuclear Emergency Preparedness.

6:50 According to the article 64, 3 of nuclear regulation act, government order to control the internal pressure in Fukushima-daiichi unit No. 1 and 2

7:45 Directives from Prime Minister to Governor of Fukushima, Mayors of Hirono, Naraha, Tomioka, Oookuma 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 must evacuate.
- Residents living in the area of 10km radius from Fukushima-Daini 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 Nuclear Power Station.(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 According to the article 64, 3 of nuclear regulation act and concerning to directives from Prime Minister, government ordered to inject sea water Unit No.1 of Fukushima Dai-ichi NPS.

## Status of Residents Evacuation

(Information from the Resident Safety Team of OFC at 16:20 March 12 )

### Resident Safety Team of ERC

Ookuma-cho Approx 3,500 in grasped number approx 4,000 residents completed (refugee: Miyakoji junior high school)

Futaba-cho Approx 1,800 in grasped number approx 2,000 residents completed (refugee: Kawamata elementary school)

Tomioka-cho Approx 15,650 in grasped number approx 16,000 residents completed (refugee: Kawachi village office)

Namie-cho Grasped number approx 17,000 residents completed (refugee: Tsushima Kasseika Center, Tsushima branch)

Naraha-cho Grasped number approx 7,800 residents completed (refugee: Kusano junior high school, Taira Dairoku elementary school)

Among these towns, public announcement are implemented by wireless emergency preparedness radio waves and walk down is also done in these some area.

### Residents live in 10km radius

Vicinity of Fukushima Daiichi		Vicinity of Fukushima Daini		
	0-10km		0-3km	0-10km
Tomioka-cho	14,808	Tomioka-cho	6,534	15,961
Ookuma-cho	11,363	Ookuma-cho	-	7,127
Futaba-cho	7,243	Futaba-cho	-	1,238
Namie-cho	17,793	Namie-cho	1,515	8,100
Total	51,207	Total	8,049	32,426

Some area of Fukushima-daiichi 10km area and Fukushima-daini 10 km area are overlapped that cause duplication of resident number.

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