Conditions of Fukushima Dai-ichi Nuclear Power Station **Unit 1**
(As of 14:00 March 27th, 2011)

**Major Events after the earthquake**
- 11th 14:46: Under operation, Automatic shutdown by the earthquake
- 11th 15:42: Report based on the Article 10 (Total loss of A/C power)
- 11th 16:36: Occurrence of the Article 15 event (Inability of water injection of the Emergency Core Cooling System)
- 12th 01:20: Occurrence of the Article 15 event (Unusual rise of the pressure in PCV)
- 12th 10:17: Started to vent
- 12th 15:36: Sound of explosion
- 12th 20:20: Started to inject seawater and borated water to core
- 23rd 02:33: The amount of injected water to the Reactor Core was increased utilizing the Feedwater Line in addition to the Fire Extinguish Line. (2m³/h → 18m³/h)
- 23rd 09:00: Switched to the Feedwater Line only. (18m³/h → 11m³/h)
- 24th 11:30: Lighting in the Central Control Room was recovered.
- 25th 15:37: Started fresh water injection

**Current Conditions:** Fresh water is being injected to the core

- **Spent Fuel Pool Water Temperature** — °C
  Condition: No data available
- **Reactor Pressure Vessel (RPV) Temperature:**
  - Feedwater Nozzle Temperature: 224.8 °C
  - Temperature at the bottom head of RPV: 143.4 °C
- **PCV** Pressure 0.270MPa
  Condition: No large fluctuation
- **S/P** Water Temperature — °C
  Condition: No data available
  S/P Pressure 0.270MPa
  Condition: No large fluctuation

*1 Residual Heat Removal System
*2 Emergency Diesel Generator
*3 Primary Containment Vessel
*4 Suppression Pool

(Editorial committee for Nuclear Energy Handbook, Nuclear Energy Handbook)
Conditions of Fukushima Dai-ichi Nuclear Power Station Unit 2
(As of 14:00 March 27th, 2011)

**Current Conditions:** Sea water is being injected to the Spent Fuel Pool and fresh water is being injected to the core

**Major Events after the earthquake**

11th 14:46 Under operation, Automatic shutdown by the earthquake
11th 15:42 Report based on the Article 10 (Total loss of A/C power)
11th 16:36 Occurrence of the Article 15 event (Inability of water injection of the Emergency Core Cooling System)
13th 11:00 Started to vent
14th 13:25 Occurrence of the Article 15 event (Loss of reactor cooling functions)
14th 16:34 Started to inject water to the Reactor Core
14th 22:50 Occurrence of the Article 15 event (Unusual rise of the pressure in PCV)
15th 00:02 Started to vent
15th 06:10 Sound of explosion
15th around 06:20 Possible damage of the suppression chamber
20th 15:05～17:20 Approximately 40 ton seawater injection to the Spent Fuel Pool (SFP) via the Fuel Pool Cooling Line (FPC)
20th 15:46 Power Center received electricity.
21st 18:22 White smoke generated. The smoke died down and almost invisible at 07:11 March 22nd.
22nd 16:07 Injection of around 18 tons of seawater to SFP
25th 10:30～12:19 Sea water injection to SFP via FPC
26th 10:10 Started to inject fresh water to the Reactor Core
26th 16:46 Lighting in the Central Control Room was recovered.

**Spent Fuel Pool Water Temperature:** 67 °C

**Reactor Pressure Vessel (RPV) Temperature:**
- Feedwater Nozzle Temperature: 123.6 °C
- Temperature at the bottom head of RPV: 111.2 °C

**PCV*3 Pressure:** 0.110MPa
- Condition: No large fluctuation

**S/P*4 Water Temperature:**
- Condition: No data available
- **S/P*4 Pressure:** MPa
- Condition: Down scale (under survey)

**Possible damage of the suppression chamber**

**External Power:**
- RHRS *1
- EDG*2

*1 Residual Heat Removal System
*2 Emergency Diesel Generator
*3 Primary Containment Vessel
*4 Suppression Pool

(Editorial committee for Nuclear Energy Handbook, Nuclear Energy Handbook)
Conditions of Fukushima Dai-ichi Nuclear Power Station Unit 3
(As of 14:00 March 27th, 2011)

- **Spent Fuel Pool Water Temperature**
  - Condition: No data available

- **Reactor Pressure A**
  - 0.133MPa*
  - Condition: No large fluctuation
  - *converted to absolute pressure

- **Reactor Pressure C**
  - 0.002MPa*
  - Condition: No large fluctuation

- **Reactor Water Level A**
  - -1,900mm

- **Reactor Water Level B**
  - -2,300mm
  - Condition: No flooding of top of active fuel to the above level

- **Reactor Water Temperature**
  - Condition: No data available

- **S/P**
  - Water Temperature — °C
  - Condition: No data available

- **PCV**
  - Pressure 0.1076MPa
  - Condition: No large fluctuation

- **S/P Pressure**
  - 0.1806MPa
  - Condition: No large fluctuation

**Current Conditions**:
Sea water is being injected to the Spent Fuel Pool and fresh water is being injected to the core

**Major Events after the earthquake**

- **11th 14:46** Under operation, Automatic shutdown by the earthquake
- **11th 15:42** Report based on the Article 10 (Total loss of A/C power)
- **12th 20:41** Started to vent
- **13th 08:41** Started to vent
- **13th 13:12** Started to inject seawater and borated water to core
- **14th 05:20** Started to vent
- **14th 07:44** Occurrence of the Article 15 event (Unusual rise of the pressure in PCV)
- **14th 11:01** Sound of explosion
- **16th** around 08:30 White smoke generated.
- **17th 09:48～10:01** Water discharge by the helicopters of Self-Defense Force
- **17th 19:05～20:09** Water spray from the ground by High pressure water-cannon trucks
- **18th** before 14:00～14:38 Water spray from the ground by 6 fire engines of Self-Defense Force
- **18th～14:45** Water spray from the ground by a fire engine of the US Military
- **19th 00:30～01:10** Water spray by Hyper Rescue Unit of Tokyo Fire Department
- **19th 14:10～20th 03:40** Water spray by Hyper Rescue Unit of Tokyo Fire Department
- **20th 11:00** Pressure of PCV rose(320kPa). Afterward fell.
- **20th 21:36～21st 03:58** Water spray by Hyper Rescue Unit of Tokyo Fire Department
- **21st** around 15:55 Grayish smoke generated and was confirmed to be died down at around 17:55.
- **22nd 15:10～16:00** Water spray by Hyper Rescue Unit of Tokyo Fire Department and Osaka City Fire Bureau.
- **22nd 22:46** Lighting in the Central Control Room was recovered.
- **23rd 11:05～13:20** Injection of about 35ton of sea water to the Spent Fuel Pool (SFP) via the Fuel Pool Cooling Line (FPC)
- **23rd around 16:20** Black smoke generated and was confirmed to be died down at around 23:30 and 24th 04:50.
- **24th 05:35～16:05** Approximately 120 ton sea water injection to SFP via FPC
- **25th 13:28～16:00** Water spray by Kawasaki City Fire Bureau supported by Tokyo Fire Department
- **25th 18:02** Started fresh water injection to the core
- **27th 12:34～14:36** Water spray by Concrete Pump Truck

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*1 Residual Heat Removal System
*2 Emergency Diesel Generator
*3 Primary Containment Vessel
*4 Suppression Pool
Conditions of Fukushima Dai-ichi Nuclear Power Station Unit 4
(As of 14:00 March 27th, 2011)

Current Conditions: No fuel is in RPV*3. Sea water is being injected to the Spent Fuel Pool.

(Editorial committee for Nuclear Energy Handbook, Nuclear Energy Handbook)
Conditions of Fukushima Dai-ichi Nuclear Power Station **Unit 5**
(As of 14:00 March 27th, 2011)

**In periodic inspection outage**

Water Temperature in the Pool: 37.8℃
Condition: Recovery of heat removal function

Spent Fuel Pool Cooling System

Spent Fuel Pool Cooling System

External Power

RHRS *1

*1 Residual Heat Removal System

**Reactor Pressure**: 0.108MPa*
**Reactor Water Level**: 1,930mm
**Reactor Water Temperature**: 30.3℃
Condition: Pressure is under control.
*converted to absolute pressure

**Water Temperature in the Pool**: 37.8℃
Condition: Recovery of heat removal function

**Reactor Pressure Vessel Temperature**: Monitoring by Reactor Water Temperature

※Heat removal was carried out alternately with the water in the Reactor Core and in the Spent Fuel Pool.

Current Conditions:
20th 14:30 Cold shutdown
21st 11:36 Receiving electricity from external power supply
23rd 17:24 Pump for Residual Heat Removal Seawater System (RHRS) was automatically stopped when the power supply was switched from the temporary to the permanent.
24th 16:14 Repair of the RHRS pump was completed.
24th 16:35 Cooling started.

(Editorial committee for Nuclear Energy Handbook, Nuclear Energy Handbook)
Conditions of Fukushima Dai-ichi Nuclear Power Station **Unit 6**
(As of 14:00 March 27th, 2011)

**In periodic inspection outage**

- **Spent Fuel Pool Cooling System**
  - Water Temperature in the Pool: 21.0°C

- **External Power**

- **RHRS**
  - Reactor Pressure: 0.106 MPa
  - Reactor Water Level: 2,035 mm
  - Reactor Water Temperature: 29.1°C
  - Condition: Pressure is under control.
  - *converted to absolute pressure

**Current Conditions:**
- 20th 19:27 Cold shutdown.
- 22nd 19:17 Receiving electricity from external power supply.

- **Heat removal was carried out alternately with the water in the Reactor Core and in the Spent Fuel Pool.**

*1 Residual Heat Removal System

(Editorial committee for Nuclear Energy Handbook, Nuclear Energy Handbook)