News Release

Extract

経済産業省 Ministry of Economy, Trade and Industry

June 27, 2011
Nuclear and Industrial Safety Agency

Seismic Damage Information (the 182nd Release)
(As of 12:00 June 27, 2011)

Nuclear and Industrial Safety Agency (NISA) confirmed the current situation of Onagawa NPS, Tohoku Electric Power Co. Inc.; Fukushima Dai-ichi and Fukushima Dai-ni NPSs, Tokyo Electric Power Co. Inc. (TEPCO); and Tokai Dai-ni NPS, Japan Atomic Power Co. Inc. as follows:

Major updates are as follows.

1. Nuclear Power Stations (NPSs)

・ Fukushima Dai-ichi NPS

- To switch the power supply inside the NPS accompanying the restoration of Okuma Line No. 2, the following operations were performed:
  → For Unit 1, operation of the nitrogen injection equipment was temporarily suspended (8:51 June 27)
  → For Unit 2, the alternative cooling system for the Spent Fuel Pool was temporarily suspended (8:23 June 27). The transfer pump for transferring the accumulated water in the trench of the turbine building to the Radioactive Waste Treatment Facility was also suspended (9:02 June 27).

・ Full scale implementation of spraying an anti-scattering agent was carried out by workers in an area of about 4,490 m^2 in the vicinity of the Wildbirds' Forest drainage channel, as well as the north side of the reactor building and turbine building of Unit 6. (From 09:00 till 13:00 June 26)

・ Removal of rubble (an amount equivalent to 6 containers) was carried out using remote-controlled heavy machinery. (From 8:45 till 15:00 June 26)

・ The trial operation was temporarily suspended in order to exchange the adsorption unit vessel of the Water Treatment Facility (From 10:00 till 18:10 June 26).

For more information: NISA English Home Page
http://www.nisa.meti.co.jp/english/index.html

News Release

Extract

経済産業省 Ministry of Economy, Trade and Industry

June 28, 2011
Nuclear and Industrial Safety Agency

Seismic Damage Information (the 183rd Release)
(As of 15:00 June 28, 2011)

This is the current status of Fukushima Dai-Ichi and Dai-Ni NPS (TEPCO), Onagawa NPS (Tohoku Electric Power Co.) and Tokai Dai-Ni NPS (Japan Atomic Power Inc.) as confirmed by Nuclear and Industrial Safety Agency.

Major updates are as follows:

1. Nuclear Power Stations (NPSs)

○Fukushima Dai-Ichi NPS (TEPCO)

- Water injection pumps for Units 1-3 reactor cores were switched to D/G power (8:08-14:38, June 27) to accommodate restoration work on Okuma No. 2 transmission line, and the following operations were performed:
  →Unit 1: Temproary shutdown of nitrogen injection equipment (8:51-15:07, June 27)
  →Unit 2: Temporary shutdown of the alternative cooling system for the Spent Fuel Pool (8:23-16:53, June 27), shutdown of transfer pump for transferring the accumulated water in the trench of the turbine building to the Radioactive Waste Treatment Facility (9:02-17:07, June 27)
- Regarding water injection into Units 1-3 reactors, commenced use of water treated in the water treatment facuility in addition to water from filtrate tank (16:20, June 27). Suspended supply of treated water following identification of a leak in a pipe (17:55, June 27). Resumed supply of treated water (14:36, June 28).
- Unit 3: Injected borated water (approx. 60t) via Fuel Pool Cooling and Clean-up line into the Spent Fuel Pool (15:00-17:18, June 27)
- Transported water accumulated in the basement of the Unit 3 turbine building to the Radioactive Waste Treatment Facility (15:32 June 21 – 15:44 June 27)
- Transported water accumulated in the basement of the Unit 3 turbine building to the Radioactive Waste Treatment Facility (2 pumps) (17:00

June 27 – 9:58 June 28)

- Filled the Unit 4 steam-dryer storage pool (DSP) (9:40 on, June 28)
- Started up Unit 5 Emergency D/G (5A, 5B), and returned to standby (5A: 18:03 June 27; 5B: 12:32, June 28)
- Transported water accumulated in the basement of Unit 6 turbine building, and verified the leakage of water contaminated with a low concentration of radioactive substances from the temporary tank in which it was stored (around 12:00, June 28)
- Implemented full-scale spraying of an anti-scattering agent with a crawler dump truck, in the approximately 5,300m^2-area on the west side of Units 5 and 6 reactor buildings (10:00-12:30, June 27)
- Removed rubble (4 containers's worth) with remotely-controlled heavy machinery (8:45-15:00, June 27)

Temporary Access to Restricted Areas

On June 26, residents were provided temporary access in the city Minami Soma, town of Tomioka and town of Naraha.

Instructions Regarding Foodstuff

○Additional shipping restrictions

- Sweetfish caught in Abukuma River downstream of Shinobu Dam, Mano River, Niida River, including their respective tributaries (excludes farmed fish).
- Japanese dace caught in Fukushima Prefecture's Abukuma River downstream of Shinobu Dam
- Tea produced in town of Nakai, Kanagawa Prefecture。

For more information: NISA English Home Page
http://www.nisa.meti.co.jp/english/index.html

News Release

Extract

経済産業省 Ministry of Economy, Trade and Industry

June 29, 2011
Nuclear and Industrial Safety Agency

Seismic Damage Information (the 184th Release)

(As of 12:00 June 29, 2011)

This is the current status of Fukushima Dai-Ichi and Dai-Ni NPS (TEPCO), Onagawa NPS (Tohoku Electric Power Co.) and Tokai Dai-Ni NPS (Japan Atomic Power Inc.) as confirmed by Nuclear and Industrial Safety Agency.

Major updates are as follows:

1. Nuclear Power Stations (NPSs)

○Fukushima Dai-Ichi NPS (TEPCO)

- Regarding water injection into Units 1-3 reactors, supply of water treated in the water treatment facility was resumed (15:55, June 28). The Circulating Injection Cooling of the reactor cores was temporarily suspended (10:59, June 29).
- It was confirmed that nitrogen injection into the Primary Containment Vessel(PCV) of Unit 2 was begun, aiming at reducing the possibility of hydrogen combustion in the PCV (20:06, June 28).
- Water was injected into the Unit 4 steam-dryer storage pool (DSP) (9:40-15:29, June 28)
- Accumulated water in the basement of the Unit 6 reactor building was transferred to the Radioactive Waste Treatment Facility (11:00 till 13:20 June 28)
- Spraying of an anti-scattering agent on a full scale was implemented by workers in the approximately 541m^2-area in the vicinity of a fitered water tank (9:00 till 13:00, June 28)
- Rubble (an amount equivalent to 2 containers) was removed with remotely-controlled heavy machinery (8:45 till- 16:15, June 28)

2. Actions taken by NISA, etc.

(June 28)

The Government Nuclear Emergency Response Headquarters decided to calculate distribution data of radiation dose by System for Prediction of

Environmental Emergency Dose Information (SPEEDI), in order to support estimation of radiation dose received by residents, which is to be carried out as a part of “Health Management Survey for Citizens of Fukushima Prefecture” implemented by Fukushima Prefecture.

(June 28)
NISA examined a report on nitrogen injection into the PCV of Unit 2 in Fukushima Dai-ichi Nuclear Power Station, Tokyo Electric Power Co. Inc.(TEPCO), which was submitted by TEPCO based on a written direction from NISA dated Jun 22nd. As a result, NISA determined that evaluation of TEPCO was appropriate and that the nitrogen injection was a necessary measure to avoid emergencies.

＜Temporary Access to Restricted Areas＞
On June 29, residents were provided temporary access in the city of Minami Soma, town of Tomioka and town of Naraha.

For more information: NISA English Home Page
http://www.nisa.meti.co.jp/english/index.html

News Release

Extract

経済産業省 Ministry of Economy, Trade and Industry

June 30, 2011
Nuclear and Industrial Safety Agency

Seismic Damage Information (the 185th Release)
(As of 12:00 June 30, 2011)

This is the current status of Fukushima Dai-Ichi and Dai-Ni NPS (TEPCO), Onagawa NPS (Tohoku Electric Power Co.) and Tokai Dai-Ni NPS (Japan Atomic Power Inc.) as confirmed by Nuclear and Industrial Safety Agency.

Major updates are as follows:

1. Nuclear Power Stations (NPSs)

○Fukushima Dai-Ichi NPS (TEPCO)

- Supply of treated water into the reactors of Units 1, 2 and 3 was temporarily suspended because a mitute pinhole was found on a hose in the supply line of treated water into the reactors (10:59 till 13:33, June 29)
- Fresh water (about 30t) was injected into the Spent Fuel Pool of Unit 3 via the Fuel Pool Cooling and Clean-up Line (14:45 till 15:53, June 29).
- Workers entered the 5th floor of the reactor building of Unit 4, and implemented a preliminary survey for installation works of the alternative cooling system of the Spent Fuel Pool (13:28 till 14:21, June 29)
- In order to switch power source of the ancillary facilities, pumps for the Residual Heat Removal System (RHR) of Unit 5 was temporarily suspended (10:02 till 11:48, June 30).
- Rubble (an amount equivalent to 3 containers) was removed with remotely-controlled heavy machinery (8:45 till 16:15, June 29)
- Leakage was found from a drain on the lower part of the treated water (concentrated salt water) receiving tank in a desalination facility (aroud 9:30, June 29). The leakage was stopped by a sealing cap (10:30, the same day). Leakage was found at the lower part of a sealing flange (around 17:40, the same day). The leakage was stopped by sealing works (23:17, the same day). The desalination facility was temporarily suspended to dispose treated water (concentrated salt water) (9:00, June 30).
- Since an alarm was raised in the Site Bunker Building, the water treatment facility was suspended (14:53, June 29). Although the operation

was resumed later (18:45, the same day), it was suspended again as troubles occurred in coordinated operation of the facility (18:54, the same day). The operation was resumed after confirming no disorders in the facility (21:15, the same day).

＜Possibility of Radiation Exposure (Exposure of Employees, etc.)＞

Around at 11:45 on June 29, an employee of a subcontractor found that he was not equipped with a charcoal filter for his front mask soon after he went outside the main seismic isolated building. Then he went back to the building immediately. Thereafter he took a dose assessment, and was confirmed that his radiation exposure didin't reach a level that affected his body.

For more information: NISA English Home Page
http://www.nisa.meti.co.jp/english/index.html

News Release

Extract

July 1, 2011
Nuclear and Industrial Safety Agency

Seismic Damage Information (the 186th Release)
(As of 12:00 July 1, 2011)

This is the current status of Fukushima Dai-Ichi and Dai-Ni NPS (TEPCO), Onagawa NPS (Tohoku Electric Power Co.) and Tokai Dai-Ni NPS (Japan Atomic Power Inc.) as confirmed by Nuclear and Industrial Safety Agency.

Major updates are as follows:

1. Nuclear Power Stations (NPSs)

○Fukushima Dai-Ichi NPS (TEPCO)

- Transfer of the accumulated water in the basement of the turbine building of Unit 3 to the Radioactive Waste Treatment Facility was started (Pump 1 unit) (8:56, June 30)
- Leakage test for primary line of the alternative cooling system for the Spent Fuel Pool of Unit 3 was implemented (10:43, June 30). Trial operation was started. (18:33, the same day)
- Supply of treated water into the reactors of Units 1 to 3 was temporarily suspended due to the works to install and connect a buffer tank.(from 7:27, July 1)
- Fresh water was injected into the Spent Fuel Pool of Unit 4 using a temporary spraying facility (from 11:30 till 11:55, June 30)
- Accumulated water stored in a temporary tank, which was transferred from the basement of the turbine building of Unit 6, was transferred to the Mega Float (From 13:00 till 19:00, June 30).
- Transfer of the accumulated water in the basement of the turbine building of Unit 6 to the temporary tank was started.(From 10:00, July 1)
- Transfer of the accumulated water stored in a temporary tank to the Mega Float, which was transferred from the basement of turbine building of Unit 6, was started (10:00, July1).
- Removal of rubble (an amount equivalent to 5 containers) was carried out using remote-controlled heavy machinery. (From 8:45 till 16:15, June 30)
- The trial operation was temporarily suspended in order to exchange

vessels in the Adsorption Tower of the Water Treatment Facility. (From 13:00 till 14:44 June 23, from 10:00 till 12:50 June 24, from 10:00 till 15:00 June 25, from 10:00 till 18:10 June 26, from 10:46 till 13:35 June 30)

- The desalination device of the Water Treatment Facility was temporarily suspended due to the works to install and connect a concentrated water storage tank. (9:00 June 30)
- Since an alarm of water level low was raised and the Water Treatment Facility automatically shut down (9:00 June 30). The operation was resumed (18:50, the same day)

2. Actions taken by NISA, etc.

On June 30, the Government Nuclear Emergency Response Headquarters revised Regarding Lifestyle in "Deliberate Evacuation Areas" and "Evacuation-Prepared Areas in Case of Emergency", which had published on April 28, and informed it to the public.

On June 30, the Government Nuclear Emergency Response Headquarters summarized and published Regarding Lifestyle in "Specific Spots Recommended for Evacuation."

<Possibility of Radiation Exposure>

On June 30, TEPCO summarized the assessment of external exposure dose of the workers who were engaged in the emergency works from this April, and assessment results of internal exposure dose of these workers were surveyed by the whole body counter (WBC) until June 25. As an aside, no workers were identified to exceed 250mSV.

<Situation of Resident Evacuation>

The Government Nuclear Emergency Response Headquarters designated 104 spots (113 households) as "Specific Spots Recommended for Evacuation" base on the discussion with Fukushima Prefecture and Date City, and conveyed this instruction to Date City.

<Temporary Access into Restricted Areas>

On July 1, residents were allowed temporary access into Namie Town, Futaba Town and Okuma Town.

<Instructions Regarding Foodstuff>

○Additional shipping restrictions

- Tea produced in Kiryu City and Shibukawa City of Gunma Prefecture.

For more information: NISA English Home Page
http://www.nisa.meti.co.jp/english/index.html

News Release

Extract

July 2, 2011
Nuclear and Industrial Safety Agency

Seismic Damage Information (the 187th Release)
(As of 15:30 July 2, 2011)

This is the current status of Fukushima Dai-Ichi and Dai-Ni NPS (TEPCO), Onagawa NPS (Tohoku Electric Power Co.) and Tokai Dai-Ni NPS (Japan Atomic Power Inc.) as confirmed by Nuclear and Industrial Safety Agency.

Major updates are as follows:

1. Nuclear Power Stations (NPSs)

○Fukushima Dai-Ichi NPS (TEPCO)

- Supply of treated water into the reactors of Units 1 to 3 was temporarily suspended because of the works to install and connect a Buffer Tank. (From 07:27 July 1 till 14:22 July 2)
- Full-fledged operation of the alternative cooling system for the Spent Fuel Pool of Unit 3 was started. (11:00 July 1)
- Cleaning work in the reactor building (the south west side on the ground level) of Unit 3 was carried out with a robot. (From 11:43 till 16:36 July 1)
- Dose survey in the reactor building (the south west side on the ground level) of Unit 3 was carried out with a robot. (From 10:59 till 12:14 July 2)
- Rubble (an amount equivalent to 8 containers) was removed with remote-controlled heavy machinery. (From 08:45 till 16:45 July 1)
- The Circulating Seawater Decontamination System was temporarily suspended for a maintenance. (From 10:00 June 18 till around 10:00 June 20, from 10:00 June 25 till around 10:00 June 28, around 10:00 July 2)
- The trial operation was temporarily suspended in order to exchange vessels in the Adsorption Tower of the Water Treatment Facility. (From 13:00 till 14:44 June 23, from 10:00 till 12:50 June 24, from 10:00 till 15:00 June 25, from 10:00 till 18:10 June 26, from 10:46 till 13:35 June 30 and from 10:30 till 13:45 July 2)
- The desalination device of the Water Treatment Facility was temporarily suspended because of the works to install and connect a concentrated water storage tank. (From 9:00 June 30 till 15:52 July 1)

・Temporary tide embankment was installed. (From May 18 till June 30)

2. Actions Taken by NISA, etc.

・Nuclear Emergency Response Headquarters announced results of the Monitoring for Basic Data Collection in the restricted area and the Deliberate Evacuation Area.

<Temporary Access into Restricted Areas>

On July 2, residents were allowed temporary access into Namie Town, Futaba Town and Okuma Town.

For more information: NISA English Home Page
http://www.nisa.meti.co.jp/english/index.html

News Release

Extract

July 3, 2011
Nuclear and Industrial Safety Agency

Seismic Damage Information (the 188th Release)
(As of 15:30 July 3, 2011)

This is the current status of Fukushima Dai-Ichi and Dai-Ni NPS (TEPCO), Onagawa NPS (Tohoku Electric Power Co.) and Tokai Dai-Ni NPS (Japan Atomic Power Inc.) as confirmed by Nuclear and Industrial Safety Agency.

Major updates are as follows:

1. Nuclear Power Stations (NPSs)

○Fukushima Dai-Ichi NPS (TEPCO)

・Supply of treated water into the reactors of Units 1 to 3 was temporarily suspended because of the works to install and connect a Buffer Tank. (From 07:27 July 1 till 14:22 July 2) (Trial injection into the Reactor Pressure Vessel (RPV) from a Buffer Tank due to leakage check, from 14:22 till 18:00 July 2. Full-fledged operation was started at 18:00)

・Due to the work for exchanging the outlet piping of temporary pump (C) of Residual Heat Removal Cooling Sea Water System (RHRS) for Unit 5, the pump was temporarily suspended (From 10:00 till 13:36 July 3). The pump of RHR was temporarily suspended (From 10:15 till 13:40, the same day). The temporay pump (B) of RHRS was temporarily suspended (From 10:20 till 13:22, the same day).

・Rubble (not put into containers) was removed with remote-controlled heavy machinery. (From 08:45 till 16:45 July 2)

・The trial operation was temporarily suspended in order to exchange vessels in the Adsorption Tower of the Water Treatment Facility. (From 10:46 till 13:35 June 30 and from 10:30 till 13:45 July 2, from 10:39 till 12:50 July 3)

2. Actions Taken by NISA, etc.

・NISA directed TEPCO orally to consider enhancement of the reliability of the temporary pump of RHRS taking into account some troubles in the past regarding the said pump.

<Temporary Access into Restricted Areas>

On July 3, vehicles were retrieved from Minamisoma City and Namie Town.

For more information: NISA English Home Page
http://www.nisa.meti.co.jp/english/index.html

News Release

Extract

July 4, 2011
Nuclear and Industrial Safety Agency

Seismic Damage Information (the 189th Release)

(As of 12:00 July 4, 2011)

This is the current status of Fukushima Dai-Ichi and Dai-Ni NPS (TEPCO), Onagawa NPS (Tohoku Electric Power Co.) and Tokai Dai-Ni NPS (Japan Atomic Power Inc.) as confirmed by Nuclear and Industrial Safety Agency.

Major updates are as follows:

1. Nuclear Power Stations (NPSs)

○Fukushima Dai-Ichi NPS (TEPCO)

- The water injection rate into the reactor of Unit 1 was adjusted at 3.8m^3/h (08:50 July 4) after temporarily being increased at 7.5m^3/h for flashing (from 08:40 till 08:50 of the same day), due to decrease at 3.0m^3/h.
- Steel plates were installed near the large object delivery entrance of the reactor building of Unit 3 in order to decrease exposure dose for workers. (From 08:30 till 16:00 July 3)
- Water was injected into the Steam-Dryer Storage Pool (DSP) of Unit 4. (From 09:14 till 11:57 June 19, from 09:49 till 09:52, June 20, from 10:06 June 20 till 11:29 June 21, from 11:45 till 12:52, June 21, from 08:32 till 14:31, June 22, and from 09:32 till 15:29, June 23, from 09:40 till 15:29, June 28 and from 09:13, July 4)
- The accumulated water in the basement of the turbine building of Unit 6 was transferred to a temporary tank. (From 10:00, July 1 till 16:00, July 3 and from 10:00, July 4)
- Transfer of the accumulated water, which was transferred from the basement of the turbine building of Unit 6 and was stored in a temporary tank, form the tank to the Mega Float was started. (From 10:00, July1 till 16:00, July 3)
- Rubble (not put into a container) was removed with remote-controlled heavy machinery. (From 08:45 till 16:45, July 3)
- Regarding the Water Treatment Facility, transfer of the treated water to the buffer tank was suspended because the tank was full (20:17, July 3). Treatment of the waste water and water injection into the reactor cores are

continued.

<Temporary Access into Restricted Areas>

On July 4, vehicles were retrieved from Futaba Town, Tomioka Town and Okuma Town.

For more information: NISA English Home Page
http://www.nisa.meti.co.jp/english/index.html

News Release

Extract

July 5, 2011
Nuclear and Industrial Safety Agency

Seismic Damage Information (the 190th Release)

(As of 12:00 July 5, 2011)

This is the current status of Fukushima Dai-Ichi and Dai-Ni NPS (TEPCO), Onagawa NPS (Tohoku Electric Power Co.) and Tokai Dai-Ni NPS (Japan Atomic Power Inc.) as confirmed by Nuclear and Industrial Safety Agency.

Major updates are as follows:

1. Nuclear Power Stations (NPSs)

○Fukushima Dai-Ichi NPS (TEPCO)

- Water was injected into the Steam-Dryer Storage Pool (DSP) of Unit 4. (From 09:13 till 18:18 July 4)
- The accumulated water in the basement of the turbine building of Unit 6 was transferred to a temporary tank. (From 10:00 till 16:00, July 4 and from 10:30, July 5)
- The accumulated water, which was transferred from the basement of the turbine building of Unit 6 and was stored in a temporary tank, was transferred from the tank to the Mega Float. (From 13:30 till 17:00, July 4 and from 10:00 July 5)
- Rubble (an amount equivalent to 4 containers) was removed with remote-controlled heavy machinery. (From 08:45 till 16:45 July 4)
- Transfer of the treated water to the buffer tank was resumed. (17:18, July 4)
- The operation was temporarily suspended in order to exchange vessels in the Adsorption Tower of the Water Treatment Facility. (From 10:30, July 5)

<Instructions Regarding Foodstuff>

○An additional item for suspension of shipment

- Tea produced in Katsuura City of Chiba Prefecture

For more information: NISA English Home Page
http://www.nisa.meti.co.jp/english/index.html

News Release

Extract

July 6, 2011
Nuclear and Industrial Safety Agency

Seismic Damage Information (the 191st Release)

(As of 12:00 July 6, 2011)

This is the current status of Fukushima Dai-Ichi and Dai-Ni NPS (TEPCO), Onagawa NPS (Tohoku Electric Power Co.) and Tokai Dai-Ni NPS (Japan Atomic Power Inc.) as confirmed by Nuclear and Industrial Safety Agency.

Major updates are as follows:

1. Nuclear Power Stations (NPSs)

○Fukushima Dai-Ichi NPS (TEPCO)

- Fresh water (about 75t) was injected into the Spent Fuel Pool of Unit 1 via the Fuel Pool Cooling and Clean-Up Line. (From 15:10 till 17:30, July 5)
- Preparation for installation works of the alternative cooling system of the Spent Fuel Pool of Unit 4 was carried out. (From 10:20 till 10:33, July 6)
- The accumulated water in the basement of the turbine building of Unit 6 was transferred to a temporary tank. (From 10:30 till 16:30, July 5, from 10:00 July 6)
- The accumulated water, which was transferred from the basement of the turbine building of Unit 6 and was stored in a temporary tank, was transferred from the tank to the Mega Float. (From 10:00 till 17:00, July 5)
- The installation works of stop logs in the Intake Channels of Units 1 to 4 was completed in order to prevent the outflow of contaminated water. (June 29)
- Rubble (an amount equivalent to 4 containers) was removed with remote-controlled heavy machinery. (From 08:45 till 16:15, July 5)
- The operation was temporarily suspended in order to exchange vessels in the Adsorption Tower of the Water Treatment Facility. (From 10:30 till 13:20, July 5)
- Transfer of the treated water to the buffer tank was suspended because water level of the tank reached near the upper limit. (06:53 July 6) Treatment of the contaminated water and water injection into the reactor cores are continued.

<Temporary Access into Restricted Areas>

On July 6, residents were allowed temporary access into Minamisoma City, Tomioka Town and Naraha Town.

For more information: NISA English Home Page
http://www.nisa.meti.co.jp/english/index.html

Conditions of Fukushima Dai-ichi Nuclear Power Station Unit 1
（As of 6:00 July 6, 2011）

Spraying freshwater by temporary motor driven pump through existing cooling system

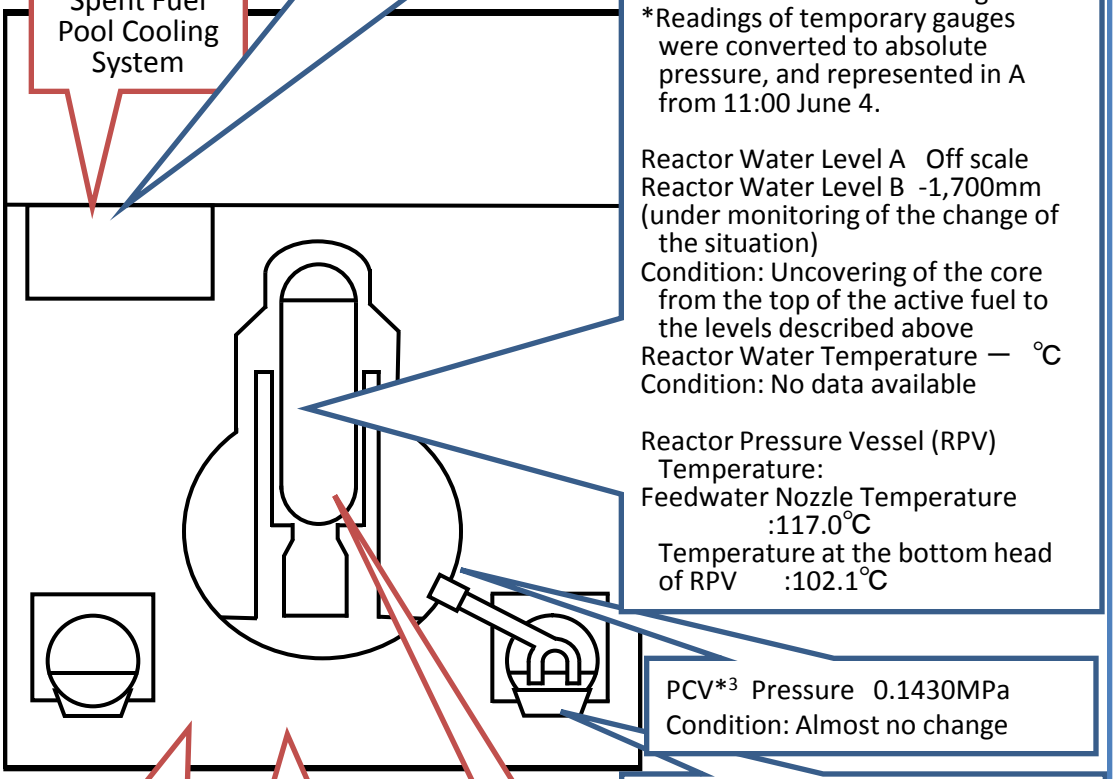
Spent Fuel Pool Water Temperature — ℃
Condition: Indicator failure

Spent Fuel Pool Cooling System

Reactor Pressure A 0.138MPa*
Reactor Pressure B - MPa *
Condition : Almost no change
*Readings of temporary gauges were converted to absolute pressure, and represented in A from 11:00 June 4.

Reactor Water Level A Off scale
Reactor Water Level B -1,700mm
(under monitoring of the change of the situation)
Condition: Uncovering of the core from the top of the active fuel to the levels described above
Reactor Water Temperature — ℃
Condition: No data available

Reactor Pressure Vessel (RPV) Temperature:
Feedwater Nozzle Temperature :117.0℃
Temperature at the bottom head of RPV :102.1℃



PCV*3 Pressure 0.1430MPa
Condition: Almost no change

S/P*4 Water Temperature A 48.7℃
S/P*4 Water Temperature B 48.5℃
Condition : Almost no change
S/P*4 Pressure 0.125MPa
Condition : Almost no change

External Power
Two lines secured

EDG*2
Power supply vehicle, Temporary DGs

RHRS*1
Injecting freshwater by temporary motor-driven pump

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

Major Events after the Earthquake 1/3

March 11 14:46 Under operation, Automatic shutdown by the earthquake
March 11 15:42 Report based on the Article 10 (Total loss of A/C power)
March 11 16:36 Occurrence of the Article 15 event (Inability of water injection of the Emergency Core Cooling System)
March 12 01:20 Occurrence of the Article 15 event (Unusual rise of the pressure in PCV)
March 12 10:17 Started to vent.
March 12 15:36 Sound of explosion
March 12 20:20 Started to inject seawater and borated water to the Reactor Core.
March 23 02:33 The amount of injected water to the Reactor Core was increased utilizing the Feedwater Line in addition to the Fire Extinguish Line. ($2m^3/h \rightarrow 18m^3/h$)
09:00 Switched to the Feedwater Line only.($18m^3/h \rightarrow 11m^3/h$)
March 24 11:30 Lighting in the main Control Room was recovered.
March 25 15:37 Started to inject fresh water.
March 29 08:32 Switched to the water injection to the Reactor Core using the temporary motor-driven pump.
March 31 12:00～2nd 15:26 Started to transfer the accumulated water from the Condensate Storage Tank (CST) to the Surge Tank of Suppression Pool Water (SPT)
April 3 12:02 The power supply to the temporary motor-driven pump was switched from the temporary power supply to the external power supply.
April 3 13:55 Started to transfer the water from the Condenser to CST.
April 6 22:30 Started the operation for the injection of nitrogen to PCV.
April 7 01:31 Confirmed starting the injection of nitrogen to PCV.
April 9 04:10 Started using highly pure nitrogen generator in the injection of nitrogen to PCV.
April 10 09:30 Completed transferring the water from the Condenser to CST.
April 11 around 17:16 Loss of external power supply due to an earthquake occurred (at Hamadori in Fukushima Prefecture) and water injection to the Reactor Core and nitrogen injection to PCV were suspended.
April 11 17:56 External power supply was recovered.
April 11 18:04 Resumed injecting water to the Reactor Core.
April 11 23:19 Restarted operation for injecting nitrogen to PCV.
April 11 23:34 Confirmed starting injection of nitrogen to PCV.
April 17 16:00～17:30 Confirmed the situation in the reactor building using an unmanned robot.
April 18 11:50～12:12 Stopped the water injection into the reactor core to replace the current hose with a new one.
April 19 10:23 Completed the work of strengthening connection of the power supplies between Units 1-2 and Units 3-4.
April 25 10:57～18:25 For reinforcement work of the power supply, the power supply to the pump injecting water into the reactor core was temporarily switched from the external power supply to the temporary diesel generator.
April 25 14:10～19:10 Suspended nitrogen injection due to reinforcement work of the power supply.
April 25 14:44～17:38 Implemented reinforcement work of the power supply (connection of the power supplies between Units 1-2 and Units 5-6).
April 26 11:35～13:24(approx.) Confirmed the situation in the reactor building using an unmanned robot.

Current Conditions : Fresh water is being injected to the Spent Fuel Pool and the Reactor Core

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

Major Events after the Earthquake 2/3

April 27 10:02 Started the operation of gradually changing the amount of water for injection to the Reactor Pressure Vessel, (RPV) from about 6m^3/h to the maximum of about 14m^3/h. After carrying out the injection at 10m^3/h, the injection rate was changed back to 6m^3/h. (April 29 10:14)

April 29 11:36～14:05 Confirmed the situation in the reactor building using an unmanned robot.

May 2 12:58 ～15:03 The pump for the injection of water into the reactor core was temporarily replaced with the Fire Extinguishing Pump in order to install an alarm device in the pump.

May 5 16:36～May 8 20:02 Operated all ambient filtration systems (a total of 6 units) in order to improve the working environment in the reactor building.

May 6 10:01 Changed the rate of water injection into the Reactor Core from 6m^3/h to 8m^3/h.

May 8 20:08 Ventilation by cutting of the exhaust air duct

May 9 04:17 Opening the double-entry doors of the Reactor Building

May 9 05:10 Disassembly of positive pressure house

May10 10:55(approx.) Calibrated the reactor water level gauge

May 11 08:47～15:55 Due to the restoration of the Okuma No.2 transmission line, the power supply for the water injection pump into the reactor was temporarily switched to the temporary diesel generator.

May 11 08:50～15:58 Due to the restoration of the Okuma No.2 transmission line, the nitrogen injection was temporarily suspended.

May 11 08:50～11:14 Confirmed the reactor water level of RPV, calibrated reactor pressure gauge of primary containment vessel.

May 13 16:01 ～17:39 Observed the situation in the Reactor Building using a remote-control robot

May 14 15:07 ～15:18 Water spray over the Spent Fuel Pool by Concrete Pump Truck (stopped due to strong winds)

May 15 13:28 Changed the rate of water injection into the Reactor Core from 8m^3/h to 10m^3/h.

May 17 11:50 Changed the rate of water injection into the Reactor Core from 10m^3/h to 6 m^3/h.

May 20 9:30 ～12:15 Entered in the reactor building, confirmed reactor water level and radioactivity.

May 25 9:14 ～9:18 Nitrogen injection to PCV were suspended for changing power supply.

May 25 15:16 ～15:18 Nitrogen injection to PCV were suspended for changing power supply.

May 25 15:45 Confirmed that the compressor for nitrogen supplying was stopped. 19:44 Restart the nitrogen injection after changing to the reserve compressor.

May 27 10:30～around 12:00 and around 15:00 Entered in the reactor building, Installed the level gauge of reactor building accumulated water , Sampled basement accumulated water , and Installed hoses for SFP.

May 28 16:47 ～17:00 Leak test in order to inject fresh water to SFP via FPC

May 31 20:30 Changed the rate of water injection into the Reactor Core from 6m^3/h to 5m^3/h.

June 3 10:38～12:21 Installed temporary pressure gauges for the reactor.

June 3 around 15:00～ around 17:00 Confirmed the situation in the reactor building using an unmanned robot.

June 4 9:57～13:56 Suspended the injection of coolant water due to the work for changing the route of water supply line to the reactor core. (10:02～13:43 Injected water into the reactor core by the fire engine pump.)

June 8 14:57～17:54 Suspended the nitrogen injection due to the stop of the power center 2C.

June 13 14:58～17:43 Transfer the accumulated water from the Condenser to the basement of turbine building.

June 14 14:09 Replaced the pump for the injection of water into the reactor core with the Fire Extinguishing Pump.

June 14 15:35～15:50 Suspended water injection to replace the hose of water injection into the reactor.

June 15 10:06 The amount of water injection into the reactor was changed from about 5m^3/h to about 4.5m^3/h.

June 15 10:33 ～June 16 9:52 Transferred the accumulated water from the Condenser to the CST.

Major Events after the Earthquake 3/3

June 19 10:35～ 15:47 Due to preparation for the suspension works of the Okuma No.2 transmission line, the power supply for the water injection pump into the reactor core was temporarily switched to the diesel generator.

June 19 11:48～ 16:05 Due to preparation for the suspension works of the Okuma No.2 transmission line, the nitrogen injection was temporarily suspended.

June 21 10:02 The amount of water injection into the reactor was changed from about 4.5m^3/h to about 4.0m^3/h.

June 21 11:55～ 18:03 The nitrogen injection was temporarily suspended due to the installation work of a temporary transformer.

June 22 10:02 The amount of water injection into the reactor was changed from about 4.0m^3/h to about 3.5m^3/h.

June 23 18:27 Water injection into the reactor core of Units 1 and 2 was begun, using the water injection pump into the reactor core for Unit 1.

June 27 08:08～14:38 The nitrogen injection was temporarily suspended due to preparation for the restoration works of the Okuma No.2 transmission line to the diesel generator.

June 27 08:51～15:07 Due to preparation for the restoration works of the Okuma No.2 transmission line, the nitrogen injection was temporarily suspended.

June 27 16:20 Started use of water treated in the water treatment facilities for injection into the reactor, in addition to water injection from the filtered water tank. Suspended supply of treated water because of a leakage from the pipe (17:55). Started the treated water transfer pump (June 28 14:36). Resumed supply of treated water (June 28 15:55).

June 29 10:59～13:33 Regarding the Circulating Injection Cooling of the reactor cores, supply of treated water was temporarily suspended due to leakage from a pipe for injection cooling.

July 1 7:27～July 2 14:22 Temporarily suspended supply of treated water into the reactor due to works to install and connect a buffer tank. (July 2 14:22 ～ 18:00 Trial injected into the reactor core from a Buffer Tank due to leakage check. 18:00 ～ Full-fledged operated)

July 4 08:50 The amount of water injection into the reactor was adjusted to 3.8 m^3/h, due to decrease to 3.0 m^3/h.

<Water spray over the Spent Fuel Pool by Concrete Pump Truck (Fresh water)>

March 31 13:03～16:04, May 20 15:06~16:15, May 22 15:33～17:09

<Fresh water injection to SFP via FPC (using the temporary motor-driven pump) >

May 29 11:10～15:35, June 5 10:16～10:48, July 5 15:10～17:30

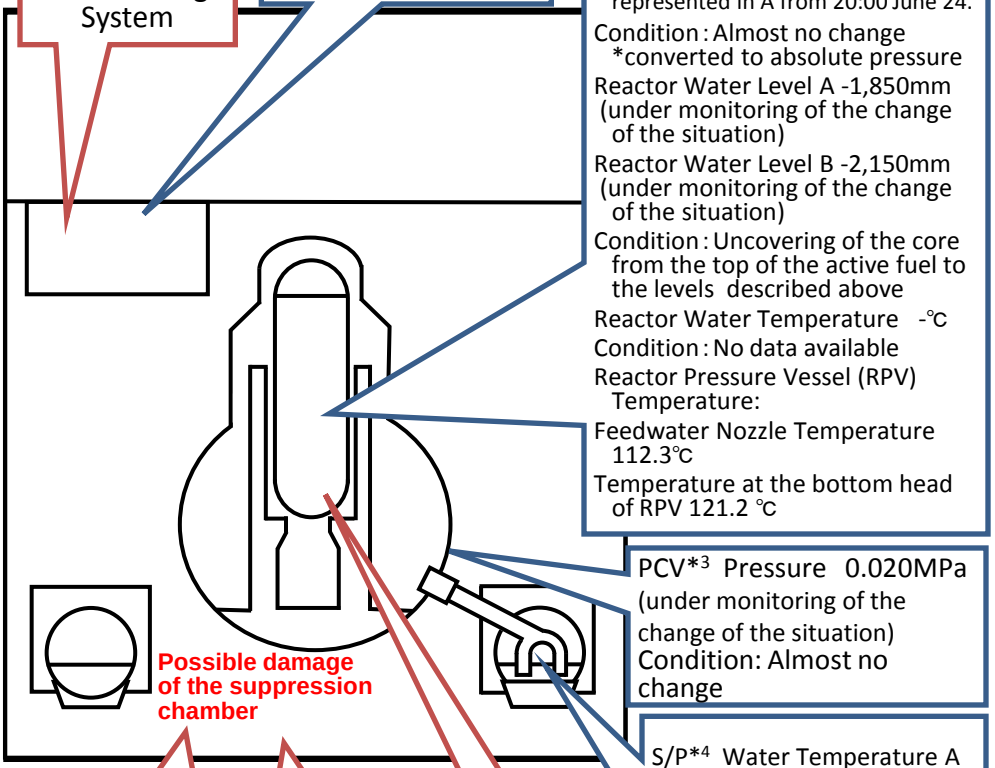
Conditions of Fukushima Dai-ichi Nuclear Power Station Unit 2

（As of 6:00 July 6, 2011）

Spraying freshwater by temporary motor-driven pump through existing cooling system

Spent Fuel Pool Cooling System

Spent Fuel Pool Water Temperature 35.0℃



Reactor Pressure A 0.129MPa*
Reactor Pressure B －MPa*
*Readings of temporary gauges were converted to absolute pressure, and represented in A from 20:00 June 24.
Condition：Almost no change *converted to absolute pressure
Reactor Water Level A -1,850mm (under monitoring of the change of the situation)
Reactor Water Level B -2,150mm (under monitoring of the change of the situation)
Condition：Uncovering of the core from the top of the active fuel to the levels described above
Reactor Water Temperature -℃
Condition：No data available
Reactor Pressure Vessel (RPV) Temperature:
Feedwater Nozzle Temperature 112.3℃
Temperature at the bottom head of RPV 121.2 ℃

PCV*3 Pressure 0.020MPa (under monitoring of the change of the situation)
Condition: Almost no change

S/P*4 Water Temperature A 55.7℃
S/P*4 Water Temperature B 55.6℃
Condition: Almost no change
S/P*4 Pressure Off scale (indicator failure)

External Power
Two lines secured

EDG*2
Power supply vehicle, Temporary DGs

RHRS *1
Injecting freshwater by temporary motor-driven pump

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

Current Conditions：Fresh water is being injected to the Spent Fuel Pool and the Reactor Core

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

Major Events after the Earthquake 1/3

March 11 14:46 Under operation, Automatic shutdown by the earthquake
March 11 15:42 Report based on the Article 10 (Total loss of A/C power)
March 11 16:36 Occurrence of the Article 15 event (Inability of water injection of the Emergency Core Cooling System）
March 13 11:00 Started to vent.
March 14 13:25 Occurrence of the Article 15 event (Loss of reactor cooling functions）
March 14 16:34 Started to inject seawater to the Reactor Core.
March 14 22:50 Occurrence of the Article 15 event (Unusual rise of the pressure in PCV)
March 15 00:02 Started to vent.
March 15 06:10 Sound of explosion
March 15 around 06:20 Possible damage of the suppression chamber
March 20 15:46 Power Center received electricity.
March 21 18:22 White smoke generated. The smoke died down and almost invisible at 07:11 March 22
March 26 10:10 Started to inject fresh water to the Reactor Core.
March 26 16:46 Lighting in the Central Control Room was recovered.
March 27 18:31 Switched to the water injection to the core using the temporary motor-driven pump.
March 29 16:45～April 1 11:50 Transferred the water from the Condensate Storage Tank (CST) to the Surge Tank of Suppression Pool Water (SPT)
April 2 around 9:30 The water, of which the dose rate was at the level of more than 1,000mSv/h, was confirmed to be collected in the pit located near the Intake Channel of Unit 2. The outflow from the lateral surface of the pit into the sea was also confirmed.
April 2 17:10 Started to transfer the water from the Condenser to the CST.
April 3 12:12 The power supply to the temporary motor-driven pump was switched from the temporary power supply to the external power supply.
April 3 13:47～14:30 20 bags of sawdust, 80 bags of high polymer absorbent and 3 bags of cutting-processed newspaper were put into the Pit for the Conduit.
April 4 7:08～7:11 Approximately 13kg of tracer (bath agent) was put in from the Pit for the Duct for Seawater Pipe.
April 5 14:15 Tracer is confirmed to outflow through the permeable layer around the pit into the sea. 15:07 Started to inject coagulant.
April 6 around 5:38 The water outflow from the lateral surface of the pit was confirmed to stopped.
April 9 13:10 Completed transferring the water from the Condenser to CST.
April 11 around 17:16 Loss of external power supply due to an earthquake occurred (at Hamadori in Fukushima Prefecture). Water injection to the Reactor Core was suspended.
April 11 17:56 External power supply was recovered.
April 11 18:04 Resumed injecting water to the Reactor Core.
April 12 19:35～April 13 17:04 Transfer accumulated water from the trench of the turbine building to the Condenser.
April 13 11:00 Suspended the transfer for checking leaks, etc.
April 16 around 11:19 An earthquake occurred (in the southern part of Ibaraki Prefecture).
April 18 13:42～ Confirmed the situation in the reactor building using an unmanned robot.
April 18 12:13～12:37 Stopped the water injection into the reactor core to replace the current hose with a new one.
April 18 09:30～17:40 Injected coagulant (soluble glass) into the power cable trench.
April 19 08:00～15:30 Injected coagulant (soluble glass) into the power cable trench.
April 19 10:08～ Started to transfer the accumulated water from the trench of the turbine building to the Radioactive Waste Treatment Facility.
April 19 10:23 Completed the work of strengthening connection of the power supplies between Units 1-2 and Units 3-4.

Major Events after the Earthquake 2/3

April 25 10:57～18:25 For reinforcement work of the power supply, the power supply to the pump injecting water into the reactor core was temporarily switched from the external power supply to the temporary diesel generator.

April 25 14:44～17:38 Implemented reinforcement work of the power supply (connection of the power supplies between Units 1-2 and Units 5-6).

April 29 9:16 Suspended the transfer of accumulated water from the turbine building Trench of Unit 2 (accumulated water with high-level radioactivity) to the Radioactive Waste Treatment Facility in order to carry out inspections, etc. of the transfer facilities. The transfer was resumed. (From 14:05 April 30th)

May 1 13:35～ Started blocking the vertical shafts of Trench pit.

May 2 12:58～15:03 The pump for the injection of water into the reactor core was temporarily replaced with the Fire Extinguishing Pump in order to install an alarm device in the pump.

May 7 9:22 Suspended the transfer of accumulated water from the turbine building Trench of Unit 2 (accumulated water with high-level radioactivity) to the Radioactive Waste Treatment Facility in order to carry out piping work of Reactor Feedwater System for Unit3. The transfer was resumed. (From 16:02 May 7th)

May 10 9:01 ～May 12 15:20 Suspended the transfer of accumulated water from the turbine building Trench of Unit 2 (accumulated water with high-level radioactivity) to the Radioactive Waste Treatment Facility in order to lay the water transfer pipes from the turbine building of Unit 3 to the Radioactive Waste Treatment Facility.

May 11 8:47～15:55 Due to the restoration of the Okuma No.2 transmission line, the power supply for the water injection pump into the reactor was temporarily switched to the temporary diesel generator. (After the restoration, the power supply is partially received from this line.)

May 18 9:24～9:38 Conducted preliminary survey in the Reactor Building.

May 25 9:05～15:30 Suspended the transfer of accumulated from the turbine building Trench to the Radioactive Waste Treatment Facility in order to change power supply.

May 26 14:45～ May 27 14:30 Transferred the water from the Condenser to the basement of the turbine building in order to carry out piping work of Reactor Feedwater System.

May 26 15:19～15:32 Conducted preliminary survey in the Reactor Building.

May 26 16:01 Suspended the transfer of accumulated from the turbine building Trench to the Radioactive Waste Treatment Facility. (Because the water level of the concerned facility was close to the first basement level.)

May 29 11:33 Started to inject water to the Reactor Core via Feedwater line in addition to Fire Extinguish line

May 30 11:15 Conducted a leakage test on the secondary system of the alternative cooling system for the Spent Fuel Pool. A trial run of the secondary system was started at 15:02.

May 30 18:05 Stopped injecting water to the Reactor Core via Fire Extinguish line.

May 31 11:40 Conducted a leakage test on the primary system of the alternative cooling system for the Spent Fuel Pool.

May 31 17:21 Started full-fledged operation of the alternative cooling system for the Spent Fuel Pool.

June 3 13:49～14:09 Suspended the injection of coolant water due to the work for changing the route of water supply line to the reactor core.

June 3 18:39～June 4 12:28 Transferred the accumulated water from the trench of the turbine building to the condenser.

June 4 18:39～June 16 8:40 Transferred the accumulated water from the turbine building trench to the Radioactive Waste Treatment Facility.

June 8 15:40 ～18:03 Suspended the transfer of accumulated water from the turbine building trench to the Radioactive Waste Treatment Facility due to the stop of the power center 2C.

June 11 11:45 ～12:19 Conducted a test run of the ambient air filtration system of the reactor building.

June 11 12:42～Started full-scale operation of the ambient air filtration system of the reactor building.

June 14 12:14～12:37 Suspended water injection to replace the hose of water injection into the reactor.

June 17 14:20～14:59 Transferred accumulated water from the turbine building trench to the condenser of Unit 1 (suspended due to a malfunction of the pump).

Major Events after the Earthquake 3/3

June 19 10:49～15:35 Due to preparation for the suspension works of the Okuma No.2 transmission line, the power supply for the water injection pump into the reactor core was temporarily switched to the diesel generator.

June 19 11:03～16:00 Due to preparation for the suspension works of the Okuma No.2 transmission line, the alternative cooling system for the Spent Fuel Pool was temporarily suspended.

June 19 12:12～16:022 Due to preparation for the suspension works of the Okuma No.2 transmission line, the local exhauster was temporarily suspended.

June 19 20:51～ The double door of the reactor building was slightly opened. June 20th The double door was fully opened from 5:00.

June 20 13:37～ Started to transfer accumulated water from the turbine building trench to the condenser of Unit 1.

June 20 14:30 Opened the truck bay door of the reactor building.

June 21 10:04 The amount of water injection into the reactor was changed from about 5.0m^3/h to about 4.5m^3/h.

June 21 13:15～13:25 Preliminary survey was conducted inside of the reactor building.

June 22 9:56 Started to transfer accumulated water from the turbine building trench to the Radioactive Waste Treatment Facility.

June 22 10:04 The amount of water injection into the reactor was changed from about 4.5m^3/h to about 4.0m^3/h.

June 23 10:36～12:36 Installation works of temporary pressure gauges for the reactor was conducted.

June 23 18:27 Water injection into the reactor core of Units 1 and 2 was begun, using the water injection pump into the reactor core for Unit 1.

June 24 around 6:58 An unmanned helicopter that was collecting dust coming out of the opening of the reactor building made an emergency landing on the rooftop of the building.

June 27 08:08～14:38 Due to preparation for the restoration works of the Okuma No.2 transmission line, the power supply for the water injection pump into the reactor core was temporarily switched to the diesel generator.

June 27 08:23～16:53 Due to preparation for the restoration works of the Okuma No.2 transmission line, the alternative cooling system for the Spent Fuel Pool was temporarily suspended.

June 27 09:02～17:07 Due to preparation for the restoration works of the Okuma No.2 transmission line, transfer of accumulated water in the turbine building trench to the Radioactive Waste Treatment Facility was temporarily suspended.

June 27 16:20 Started use of water treated in the water treatment facilities for injection into the reactor, in addition to water injection from the filtered water tank. Suspended supply of treated water because of a leakage from the pipe (17:55). Started the treated water transfer pump (June 28 14:36). Resumed supply of treated water (June 28 15:55).

June 28 20:08 Started nitrogen Injection into the PCV.

June 29 10:59～13:33 Regarding the Circulating Injection Cooling of the reactor cores, supply of treated water was temporarily suspended due to leakage from a pipe for injection cooling.

July 1 7:27～July 2 14:22 Temporarily suspended supply of treated water into the reactor due to works to install and connect a buffer tank. (July 2 14:22 ～ 18:00 Trial injected into the reactor core from a Buffer Tank due to leakage check. 18:00 ～ Full-fledged operated)

<Sea water injection to SFP via FPC (using the fire engine pump)>

March 20 around 15:05～ around 17:20, March 22nd 16:07～17:01, March 25 10:30～12:19 Started injection

<Fresh water injection to SFP via FPC (using the temporary motor-driven pump) >

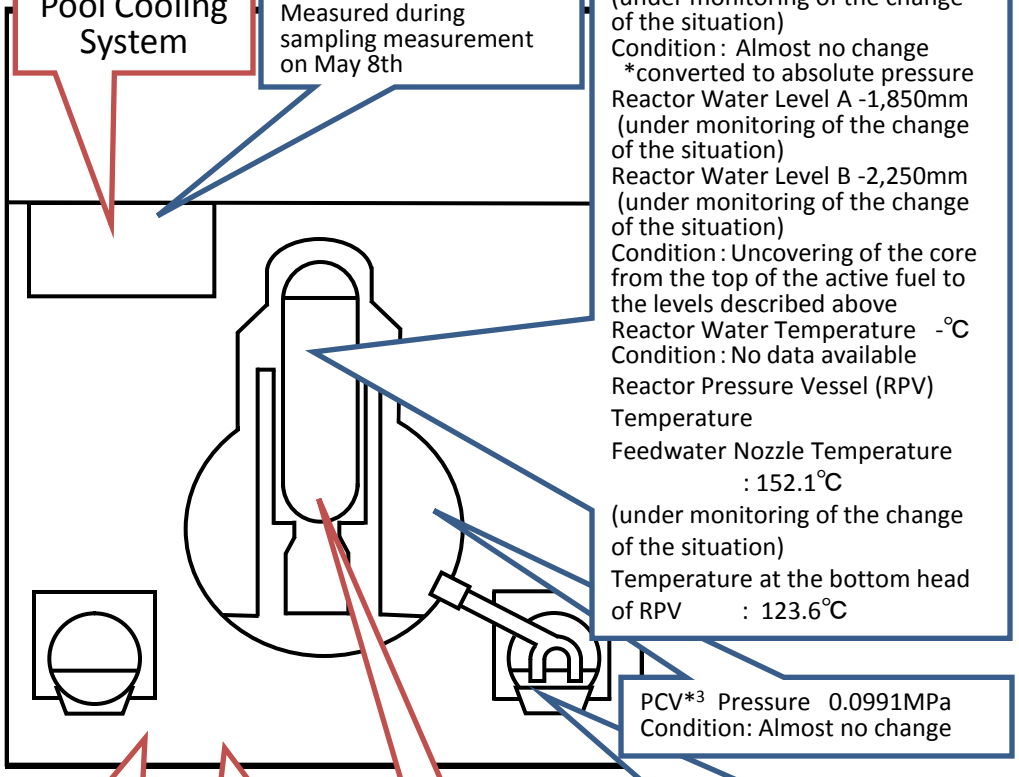
March 29 16:30～18:25, March 30 09:25～23:50 *Including interruption by pump malfunction and damage to the hose, April 1 14:56～17:05, April 4 11:05～13:37, April 7 13:29 ～ 14:34, April0 10:37～12:38, April 13 13:15～14:55, April 16 10:13～11:54, April 19 16:08～17:28, April 22 15:55～17:40, April 25 10:12～11:18, April 28 10:15～11:28, May 2 10:05～11:40, May 6 09:36～11:16, May 10 13:09～14:45(13:19 ～14:35 Hydrazine was also injected), May 14 13:00～14:37(13:08 ～14:02 Hydrazine was also injected), May 18 13:10～14:40(13:15 ～14:30 Hydrazine was also injected), May 22 13:02～14:40(13:04～14:03 Hydrazine was also injected), May 26 10:06～11:36(10:10～11:10 Hydrazine was also injected), May 30 12:06～13:52

Conditions of Fukushima Dai-ichi Nuclear Power Station Unit 3
（As of 6:00 July 6, 2011）

Spraying freshwater by temporary motor driven pump through existing cooling system

Spent Fuel Pool Cooling System

Spent Fuel Pool Water Temperature 31.7 ℃
Measured during sampling measurement on May 8th



Reactor Pressure A -0.065MPa*
(under monitoring of the change of the situation)
Reactor Pressure C -0.001MPa*
(under monitoring of the change of the situation)
Condition : Almost no change
*converted to absolute pressure
Reactor Water Level A -1,850mm
(under monitoring of the change of the situation)
Reactor Water Level B -2,250mm
(under monitoring of the change of the situation)
Condition : Uncovering of the core from the top of the active fuel to the levels described above
Reactor Water Temperature -℃
Condition : No data available
Reactor Pressure Vessel (RPV) Temperature
Feedwater Nozzle Temperature : 152.1℃
(under monitoring of the change of the situation)
Temperature at the bottom head of RPV : 123.6℃

PCV*3 Pressure 0.0991MPa
Condition: Almost no change

External Power
Two lines secured

EDG *2
Power supply vehicle, Temporary DGs

RHRS*1
Injecting freshwater by temporary motor-driven pump

S/P*4 Water Temperature A 46.9℃
S/P*4 Water Temperature B 47.1℃
Condition : Almost no change
S/P*4 Pressure 0.1822MPa
Condition: Almost no change

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

Current Conditions : Fresh water is being injected to the Spent Fuel Pool and the Reactor Core

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

Major Events after the Earthquake 1/3

March 11 14:46 Under operation, Automatic shutdown by the earthquake
March 11 15:42 Report based on the Article 10 (Total loss of A/C power)
March 13 05:10 Occurrence of the Article 15 event (Inability of water injection of the Emergency Core Cooling System)
March 13 08:41 Started to vent.
March 13 13:12 Started to inject seawater and borated water to the Reactor Core.
March 14 05:20 Started to vent.
March 14 07:44 Occurrence of the Article 15 event (Unusual rise of the pressure in PCV)
March 14 11:01 Sound of explosion
March 16 around 08:30 White smoke generated.
March 17 09:48～10:01 Water discharge by the helicopters of Self-Defense Force
March 17 19:05～19:15 Water spray from the ground by High pressure water-cannon trucks of Police
March 17 19:35～20:09 Water spray from the ground by fire engines of Self-Defense Force
March 18 before 14:00～14:38 Water spray from the ground by 6 fire engines of Self-Defense Force
March 18 ～14:45 Water spray from the ground by a fire engine of the US Military
March 19 00:30 ～01:10 Water spray by Hyper Rescue Unit of Tokyo Fire Department
March 19 14:10 ～ 20th 03:40 Water spray by Hyper Rescue Unit of Tokyo Fire Department
March 20 11:00 Pressure of PCV rose(320kPa).Afterward fell.
March 20 21:36 ～ 21st 03:58 Water spray by Hyper Rescue Unit of Tokyo Fire Department
March 21 around 15:55 Grayish smoke generated and was confirmed to be died down at 17:55.
March 22 15:10 ～16:00 Water spray by Hyper Rescue Unit of Tokyo Fire Department and Osaka City Fire Bureau.
March 22 22:46 Lighting in the Central Control Room was recovered.
March 23 11:03 ～13:20 Injection of about 35 ton of sea water to the Spent Fuel Pool (SFP) via the Fuel Pool Cooling Line (FPC)
March 23 around 16:20 Black smoke generated and was confirmed to died down at around 23:30 and 24 04:50.
March 24 05:35～16:05 Injection of around 120 ton of sea water to SFP via FPC
March 25 13:28～16:00 Water spray by Kawasaki City Fire Bureau supported by Tokyo Fire Department
March 25 18:02 Started fresh water injection to the core.
March 27 12:34～14:36 Water spray by Concrete Pump Truck
March 28 17:40～31st around 8:40 Transferring the water from the Condensate Storage Tank (CST) to the Surge Tank of Suppression Pool Water (SPT)
March 28 20:30 Switched to the water injection to the core using a temporary motor-driven pump.
April 3 12:18 The power supply to the temporary motor-driven pump was switched from the temporary power supply to the external power supply.
April 11 around 17:16 Loss of external power supply of Unit 1 and 2 due to an earthquake occurred (at Hamadori in Fukushima Prefecture) and water injection to the Reactor Core was suspended.
April 11 18:04 External power supply of Units 1 and 2 recovered (April 11th 17:56). Resumed injecting water to the Reactor Core.
April 17 11:30～14:00 Confirmed the situation in the reactor building using unmanned robot.
April 18 12:38～13:05 Stopped the water injection into the reactor core to replace the current hose with a new one
April 19 10:23 Completed the work of strengthening connection of the power supplies between Units 1-2 and Units 3-4.
April 22 13:40～14:00 Tentatively Injected freshwater to SFP via the Fuel Pool Coolant Purification Line.
April 25 10:57～18:25 For reinforcement work of the power supply, the power supply to the pump injecting water into the reactor core was temporarily switched from the external power supply to the temporary diesel generator.
April 30 11:34 Completed reinforcement work of the power supply both Units 3, 4). (Increasing the voltage from 6.6kv to 66kv)

Major Events after the Earthquake 2/3

May 2 12:58 〜15:03 The pump for the injection of water into the reactor core was temporarily replaced with the Fire Extinguishing Pump in order to install an alarm device in the pump.

May 8 16:18 〜 May 10 5:41 Transferred the water in the Condenser to the underground of the turbine building in order to carry out piping work of Reactor Feedwater System.

May 11 8:47〜15:55 Due to the restoration of the Okuma No.2 transmission line, the power supply for the water injection pump into the reactor was temporarily switched to the temporary diesel generator.

May 11 around 12:30 Confirmed the water flow into the pit around intake of sea water through conduit pipe of electric power cables → 16:05 Confirmed the water leakage from the pit to the sea → 18:45 Stopped the water leakage by casting concrete into the pit.

May 12 16:53 In addition to the plumbing pro-fire extinguishing, started core flooding from the plumbing pro-water supply.

May 15 14:33〜17:00 Injected borated water to the Reactor Core.

May 17 18:04〜 Started transfer of accumulated water in the basement of the turbine building to the Radioactive Waste Treatment Facilities

May 18 from around 16:30 Conducted preliminary survey in the Reactor Building for about 10 minutes.

May 25 9:10 Suspended transfer of accumulated water in the basement of the turbine building to the Radioactive Waste Treatment Facilities in order to check the transfer line and in the turbine building.

May 28 20:54 Terminated to inject water to the Reactor Core via Fire Extinguishing line.

May 31 9:00 〜16:00 A preliminary survey using a remote-controlled robot was carried out inside the reactor building.

May 31 10:19 Changed the rate of water injection into the Reactor Core from 13.5m^3/h to 12.5m^3/h.

June 1 10:10 Changed the rate of water injection into the Reactor Core from 12.5m^3/h to 11.5m^3/h.

June 2 12:50 〜 June 4 21:56 Transferred the accumulated water from the Condenser to the CST in order to prepare transferring of accumulated water in the basement of the turbine building.

June 3 13:16 〜13:32 Suspended the injection of coolant water due to the work for changing the route of water supply line to the reactor core.

June 5 18:26 〜 June 9 10:44 Transferred the accumulated water from inside the turbine building to the Condenser.

June 9 11:47 〜12:14 Entered into the reactor building and monitored radiation dose etc.

June 11 15:30〜June 12 17:01 Transferred the accumulated water from the basement of the turbine building to the Radioactive Waste Treatment Facilities.

June 14 10:05〜 June 16 8:46 Started transfer of accumulated water in the basement of the turbine building to the Radioactive Waste Treatment Facilities.

June 14 13:02 〜 13:31 Suspended water injection to replace the hose of water injection into the reactor.

June 18 13:31 〜June 20 0:02 Transfered of accumulated water in the basement of the turbine building to the Radioactive Waste Treatment Facilities.

June 19 11:03 〜 15:22 Due to preparation for the suspension works of the Okuma No.2 transmission line, the power supply for the water injection pump into the reactor core was temporarily switched to the diesel generator.

June 21 10:06 The amount of water injection into the reactor was changed from about 11.0m^3/h to about 10.0m^3/h.

June 21 15:32 Transferred accumulated water in the basement of the turbine building to the Radioactive Waste Treatment Facilities.

June 23 10:13 The amount of water injection into the reactor was changed from about 10.0m^3/h to about 9.5m^3/h.

June 24 10:07 The amount of water injection into the reactor was changed from about 9.5m^3/h to about 9.0m^3/h.

June 24 10:31〜12:42 A radiation dose survey was carried out by a robot in the reactor building.

June 27 08:08〜14:38 Due to preparation for the restoration works of the Okuma No.2 transmission line, the power supply for the water injection pump into the reactor core was temporarily switched to the diesel generator.

June 27 16:20 Started use of water treated in the water treatment facilities for injection into the reactor, in addition to water injection from the filtered water tank. Suspended supply of treated water because of a leakage from the pipe (17:55). Started the treated water transfer pump (June 28 14:36). Resumed of treated water (June 28 14:36).

June 27 17:00〜June 28 9:58 Started to transfer of accumulated water in the basement of the turbine building to the Radioactive Waste Treatment Facilities.

Major Events after the Earthquake 3/3

June 29 10:59～13:33 Regarding the Circulating Injection Cooling of the reactor cores, supply of treated water was temporarily suspended due to leakage from a pipe for injection cooling.

June 30 8:56 ～ Started transfer of the accumulated water in the basement of the turbine building to the Radioactive Waste Treatment Facility.

June 30 10:43 Implemented leakage test for primary line of the alternative cooling system for the Spent Fuel Pool. Trial operation was started. (18:33)

July 1 7:27 ～ Temporarily suspended supply of treated water into the reactor due to works to install and connect a buffer tank.

July 1 11:00 Started full-fledged operation of the alternative cooling system for the Spent Fuel Pool .

July 1 11:43 ～ 16:36 Carried out cleaning work in the reactor with a robot.

July 2 10:59 ～12:14 Carried out dose survey in the reactor building with a robot.

July 3 8:30 ～16:00 Installed 51 steel plates near the large object delivery entrance of the reactor building.

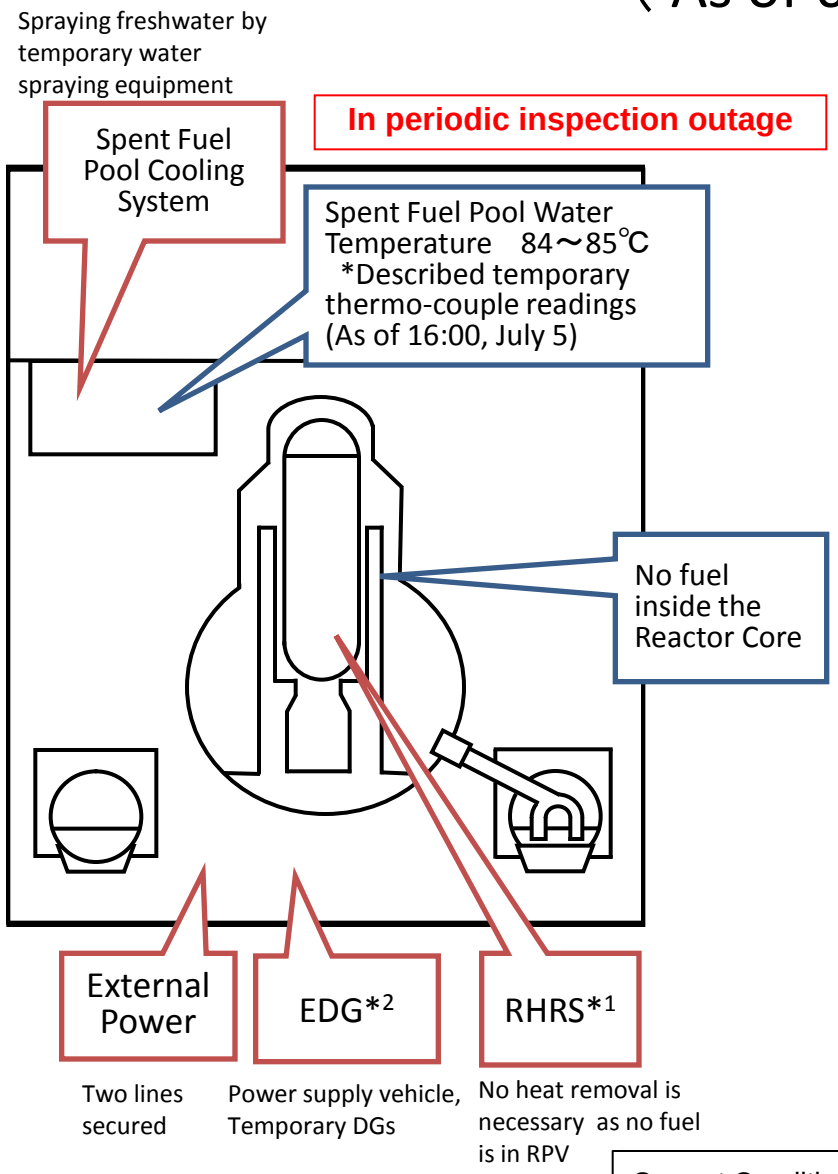
<Water spray over the Spent Fuel Pool by Concrete Pump Truck (Fresh water)>

March 29 14:17～18:18, March 31 16:30～19:33, April 2 09:52～12:54, April 4 17:03～19:19, April 7 06:53 ～08:53, April 8 17:06～20:00, April 10 17:15～19:15, April 12 16:26～17:16, April 14 15:56～16:32, April 18 14:17～15:02, April 22 14:19～15:40, April 26 12:25～14:02

<Fresh water injection to SFP via FPC (using the temporary motor-driven pump)

May 8 12:10 ～14:10, May 9 12:14 ～15:00 (12:39 ～14:36 Hydrazine was also injected), May 16 15:00～18:32 (15:10 ～17:30 Hydrazine was also injected), May 24 10:15～13:35 (10:20 ～12:56 Hydrazine was also injected), May 28 13:28～15:08(13:42 ～14:40 Hydrazine was also injected), June 1 14:34～15:54(14:41 ～15:26 Hydrazine was also injected), June 5 13:08～15:14(13:14～14:16 Hydrazine was also injected),
June 9 13:42～15:31 (13:45～14:40 Hydrazine was also injected), June 13 10:09～11:48 (10:13～11:36 Hydrazine was also injected), June 17 10:19～11:57 (10:23～11:31 Hydrazine was also injected), June 26 9:56～11:23 (Borated water was injected), June 27 15:00～17:18 (Borated water was injected), 6/29 14:45～15:53

Conditions of Fukushima Dai-ichi Nuclear Power Station Unit 4
（As of 6:00 July 6, 2011）



*1 Residual Heat Removal System
*2 Emergency Diesel Generator
*3 Reactor Pressure Vessel

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

Major Events after the Earthquake 1/2

In periodic inspection outage when the earthquake occurred
March 14 04:08 Water temperature in the Spent Fuel Pool (SFP), 84℃
March 15 06:14 Confirmed the partial damage of wall in the 4th floor.
March 15 09:38 Fire occurred in the 3rd floor. (12:25 extinguished)
March 16 05:45 Fire occurred. TEPCO couldn't confirm any fire on the ground. (06:15)
March 20 08:21～09:40 Water spray over SFP by Self-Defense Force
March 20 around 18:30～19:46 Water spray over SFP by Self-Defense Force
March 21 06:37～08:41 Water spray over SFP by Self-Defense Force
March 21 around 15:00 Work for laying cable to Power Center was completed.
March 22 10:35 Power Center received electricity.
March 25 06:05～10:20 Sea water injection to SFP via the Fuel Pool Cooling Line (FPC)
March 29 11:50 Lighting in the Central Control Room was recovered.
April 11 around 17:16 An earthquake occurred (at Hamadori in Fukushima Prefecture).
April 12 12:00～13:04 Sampled the water in SFP.
April 19 10:23 Completed the work of strengthening connection of the power supplies between Units 1-2 and Units 3-4.
April 22 Measured the water level of SFP by a gauge hung on Concrete Pump Truck (62m class).
April 30 11:34 Completed reinforcement work of the power supply both Units 3, 4. (Increasing the voltage from 6.6kv to 66kv)
May 9 Started installation work of the supporting structure for the floor of SFP
June 10 around 14:00～(about 30 minutes) Workers entered the RB and conducted a survey of working environment for the construction work on the SFP circulating cooling system.
June 29 13:28～14:21 Workers entered the RB and conducted a survey of working environment for the construction work on the SFP circulating cooling system.

Major Events after the Earthquake 2/2

<Water injection into a dryer storage pool (DSP) >
June 19 09:14～11:57, June 20 09:49～09:52, June 20 10:06～ June 21 11:29, June 21 11:45～12:52, June 22 8:23～14:31, June 23 9:32～15:29, June 28 9:40～15：29, July 4 9:13～18:18

<Water spray by Concrete Pump Truck (Seawater)>
March 22 17:17～20:32, March 23 10:00～13:02, March 24 14:36～17:30, March 25 19:05～22:07, March 27 16:55～19:25

< Water spray by Concrete Pump Truck (Fresh water)>
March 30 14:04-18:33, April 1 08:28-14:14, April 3 17:14-22:16, April 5 17:35-18:22, April 7 18:23-19:40, April 9 17:07-19:24, April 13 0:30-6:57, April 15 14:30-18:29, April 17 17:39-21:22, April 19 10:17-11:35, April 20 17:08-20:31, April 21 17:14-21:20, April 22 17:52-23:53, April 23 12:30-16:44, April 24 12:25-17:07, April 25 18:15-April 26 0:26, April 26 16:50-20:35, April 27 12:18-15:15, May 5 12:29-20:46, May 6 12:38-17:51, May 7 14:05-17:30 , May 9 16:05-19:05 (16:11-18:38 Hydrazine was also injected) ,May 11 16:07-19:38 (16:14 -19:36 Hydrazine was also injected), May 13 16:04～19:04 (16:20 -18:41 Hydrazine was also injected), May 15 16:25-20:25 (16:26-18:30 Hydrazine was also injected), May 17 16:14-20:06 (16:40-18:35 Hydrazine was also injected), May 19 16:30-19:30), May 21 16:00-19:56 (16:23 -19:00 Hydrazine was also injected), May 23 16:00-19:09 (16:08 -18:30 Hydrazine was also injected) ,May 25 16:36-20:04 (16:42-18:49 Hydrazine was also injected) , May 27 17:05-20:00 (17:24 -18:53 Hydrazine was also injected), May 28 17:56-19:45(18:02-19:45 Hydrazine was also injected), June 3 14:35-21:15 (14:44-18:58 Hydrazine was also injected), June 4 14:23-19:45(14:51-18:41 Hydrazine was also injected), June 6 15:56-18:35(16:15-17:45 Hydrazine was also injected), June 8 16:12-19:41(16:16-18:05 Hydrazine was also injected), June 13 16:36-21:00(16:38-19:15 Hydrazine was also injected), June 14 16:10～20:52(16:11～19:15 Hydrazine was also injected)

< Water spray by temporary water spraying equipment (Fresh water)>
June 16 13:14～15:44 (13:48～15:18 Hydrazine was also injected), June 18 16:05～19:23 (16:29～18:33 Hydrazine was also injected), June 22 14:31～16:38, June 30 11:30 ～11:55

<Water filling to the reactor well and temporary storage pool>
June 19 9:14～11:57, June 20 9:49～9:52, June 20 10:06～June 21 11:29, June 21 11:45～12:52,
June 22 8:23～1 14:31, June 23 9:32～15:29, June 28 9:40～15:29, July 4 9:13～18:18

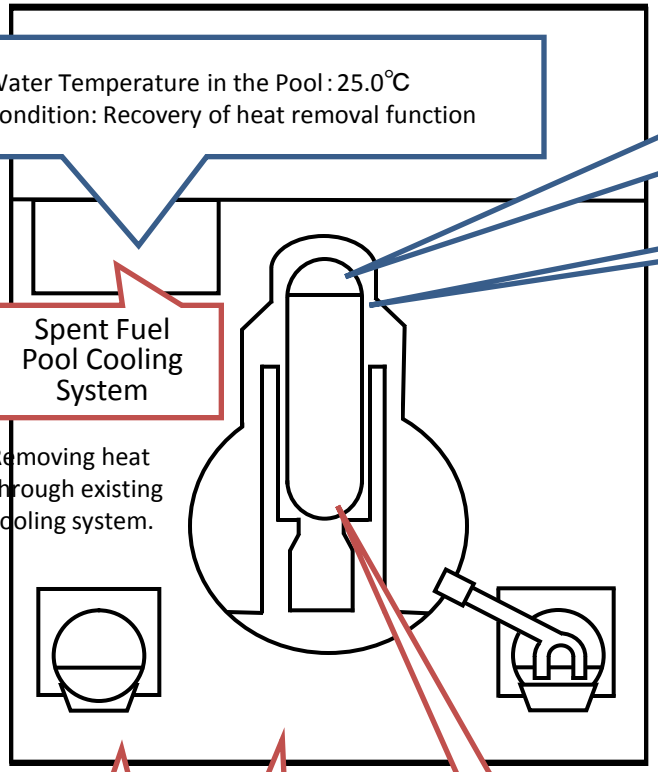
Conditions of Fukushima Dai-ichi Nuclear Power Station Unit 5
（As of 6:00 July 6, 2011）

In periodic inspection outage

Reactor Pressure：0.113MPa*
Reactor Water Level：1,771mm
Reactor Water Temperature 38.9℃
Condition：Pressure is under control.
*converted to absolute pressure

Water Temperature in the Pool：25.0℃
Condition: Recovery of heat removal function

Reactor Pressure Vessel Temperature: Monitoring by Reactor Water Temperature



Spent Fuel Pool Cooling System

Removing heat through existing cooling system.

External Power

Two lines secured

EDG*2

Share two EDGs of Unit 6
Two EDGs of Unit 5 standby mode

RHRS*1

Removing heat through Residual Heat Removal System.

*1 Residual Heat Removal System
*2 Emergency Diesel Generator

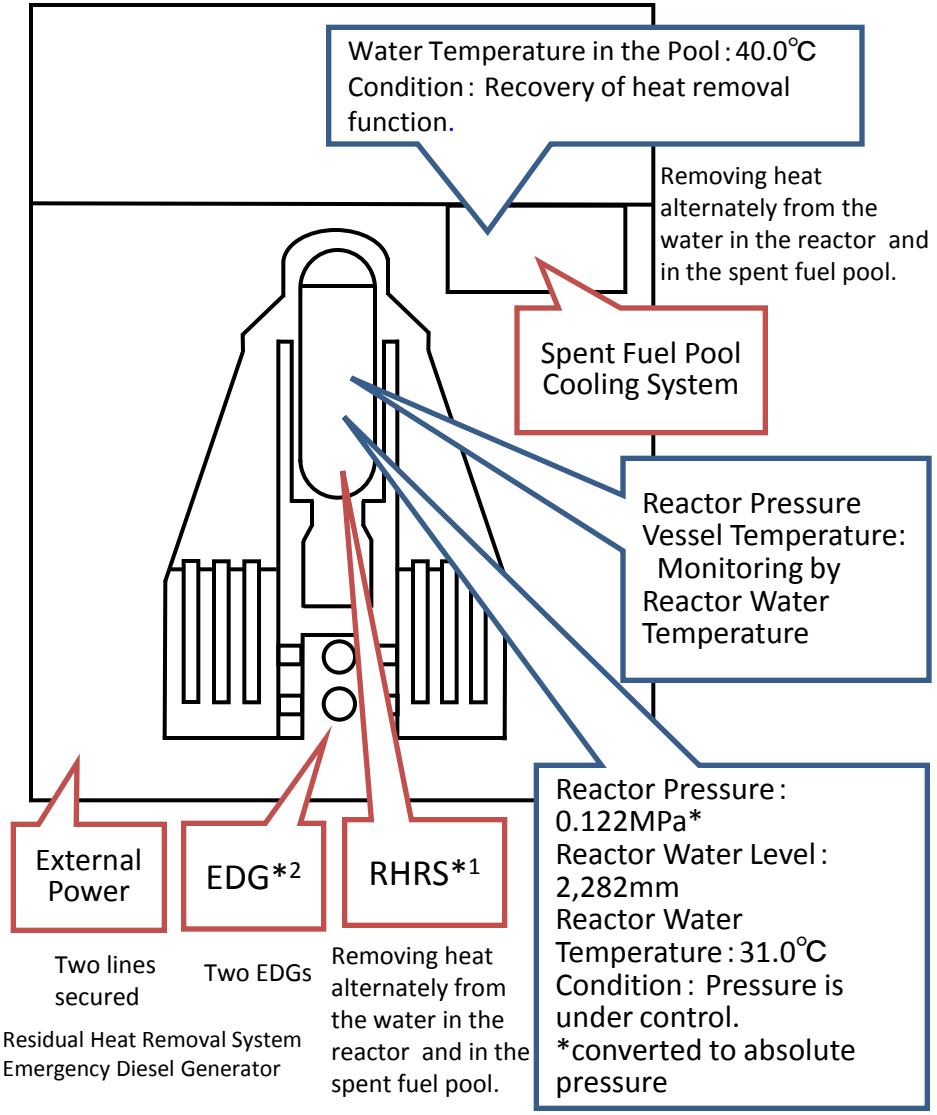
Major Events after the Earthquake

March 20 14:30 Cold shutdown
March 21 11:36 Receiving electricity from external power supply
March 23 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.
March 24 16:14 Repair of the RHRS pump was completed.
March 24 16:35 Started to cooling.
April 4 21:00 – 8 12:14 Discharged the groundwater with low-level radioactivity in the Sub Drain Pit to the sea (around 950 ton).
April 25 12:22 ～16:43 For reinforcement work of the power supply, the pump for Residual Heat Removal (RHR) was temporarily stopped.
April 25 14:44～17:38 Implemented reinforcement work of the power supply (connection of the power supplies between Units 1-2 and Units 5-6).
May 2nd 13:30 ～15:03 The pump for RHR was temporarily shut off in order to test the Start-up Transformer for power reception.
May 28 around 21:14 Confirmed shutdown of the RHRS pump
May 29 08:12 Started to replace with the temporary RHRS Spare Pump
May 29 12:31 Started the RHRS Pump
May 29 12:49 Started to cool the Reactor Core by RHR
June 8 8:46～12:35 RHRS pump etc were temporary stopped due to the installation of one more pump for RHRS.
June 24 16:35 Cooling of the Spent Fuel Pool was started using the Fuel Pool Cooling and Clean-up System.
June 27 18:03 EDG(5A) recovery to standby mode.
June 28 12:32 EDG(5B) recovery to standby mode.
June 30 10:02 ～11:48 Temporarily suspended RHR pump due to switching power supply of the ancillary equipment.
July 3 10:00 ～13:36 Temporarily suspended RHR pump due to the work for exchanging the outlet (10:20 ～ 13:22, the temporary pump of RHRS (B) was temporarily suspended)
July 3 10:15 ～13:40 The pump of RHRS was temporarily suspended

Conditions of Fukushima Dai-ichi Nuclear Power Station Unit 6

（As of 6:00 July 6, 2011）

In periodic inspection outage



*1 Residual Heat Removal System
*2 Emergency Diesel Generator

Major Events after the Earthquake

March 20 19:27 Cold shutdown
March 22 19:17 Receiving electricity from external power supply
April 4 21:00～April 9 18:52 Discharged the groundwater with low-level radioactivity in the Sub Drain Pit to the sea (around 373 ton).
April 19 11:00～15:00 Transferred accumulated water under the base of the turbine building to the condenser for measuring the amount of it.
April 20 9:51～15:56 The pump for Residual Heat Removal (RHR) was temporarily stopped in order to change the position of the hose of the temporary RHR Seawater System.
April 25 14:44～17:38 Implemented reinforcement work of the power supply (connection of the power supplies between Units 1-2 and Units 5-6).
May 2 11:03 ～14:53 The pump for RHR was temporarily shut off in order to test the Start-up Transformer for power reception.
June 28 Around 12:00 Confirm a leakage of water in a low radioactive concentration from the temporally tank which stored accumulate water from the basement of the turbine building.
〈Transferred accumulated water on the basement floor of the turbine building to the temporary tank〉.
May 1 14:00 ～17:00 , May 2 10:00 ～ 16:00 , May 3 14:00 ～17:00 , May 6 14:00 ～ 17:00 , May 7 10:00 ～ 15:00 , May 9 14:00 ～ 17:00, May 10 10:00 ～ 16:00 , May 11 10:00 ～ 16:00 , May 12 10:00 ～16:00, May 13 10:00 ～ 15:00 , May 14 10:00 ～ 15:00 , May 15 10:00 ～15:00, May 16 10:00 ～ 14:00, May 17 10:00 ～ 14:00 , May 18 10:00 ～14:00, May 21 14:00 ～ 18:00, May 24 9:00 ～ 19:00, May 25 9:00 ～ 19:00, May 26 9:00 ～ 19:00, May 27 9:00 ～ 19:00, May 28 9:00～19:00 May 29 9:00～19:00, May 30 10:00～17:30, June 2 14:00～(June 5 14:00 ～14:45 temporally suspended)～June 8 18:00, June 9 9:00～18:00, June 11 10:00～15:00, June 12 10:00～15:00 , June 13 10:00～16:00, June 14 10:00～16:00, June 15 10:09～16:00, June 16 10:00～16:00, June 17 10:00～16:00, June 18 10:00～16:00, June 19 10:00～16:00, June 20 10:00～16:00, June 21 10:00～16:00 , June 22 10:00～16:00, July 1 10:00 ～ July 2 16:00, July 4 10:00 ～16:00, July 5 10:30～16:30
〈Transferred accumulated water on the basement floor of the reactor building to the Radioactive Waste Treatment Building〉
May 10 11:00 ～ 12:30 , May 11 11:00 ～ 12:30 , May 12 10:30～12:30, May 13 11:30 ～12:15 , May 18 10:30 ～12:30, May 28 10:20～12:10 June 8 10:05 ～12:40, June 15 11:55～14:00, June 21 11:05～ 13:30, June 28 11:00～13:20
〈Transferred accumulated water from the temporary tank to the Mega-Float 〉
June 30 13:00 ～19:00, July 1 10:00 ～ July 3 16:00 , July 4 13:30～17:00, July 5 10:00～17:00