

June 15, 2011

Nuclear and Industrial Safety Agency

Seismic Damage Information (the 170th Release)
(As of 15:00 June 15, 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); 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

- Due to the replacement of a hose for water injection into the reactor of Unit 1, the water injection into the reactor began temporarily by a fire extinguishing pump. (14:09 June 14) Water injection was suspended by shut-down of the fire extinguishing pump.. (15:35 of the same day) The injection of fresh water was resumed using a temporary motor-driven pump (15:50 of the same day)
- The rate of water injection into the reactor of Unit 1 was changed from about 5m³/h to about 4.5m³/h. (10:06 June 15)
- The transfer of water from the Condenser of Unit 1 to the Condensate Storage Tank was started. (10:33 June 15)
- Fresh water (about 150t) was sprayed over the Spent Fuel Pool of Unit 4 using a concrete pump truck (58m class). (From 16:10 till 20:52 June 14) (About 0.6m³ of hydrazine was also injected from 16:11 till 19:15.)
- 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 June 14)
- The transfer of the accumulated water from the basement of the turbine building of Unit 6 to a temporary tank was started. (10:09 June 15)
- Full scale implementation of spraying an anti-scattering agent was carried out by workers in an area of about 8,750m² around the Ultra High Voltage Switching Yard for Units 5 and 6, the sports ground, the

Ultra High Voltage Switching Yard for Units 1 and 2, and on a flat area around the Seismic Isolation Building. (From 09:00 till 13:00 June 14)

- Removal of rubble (an amount equivalent to 1 container) was carried out using remote-controlled heavy machinery. (From 09:00 till 16:00 June 14)

<Temporary Access into Restricted Areas>

On June 15, residents were allowed temporary access into Minamisoma City, Tomioka Town and Naraha Town.

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

June 16, 2011

Nuclear and Industrial Safety Agency

Seismic Damage Information (the 171st Release)
(As of 12:00 June 16, 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); 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

- The water in the Condenser of Unit 1 was transferred to the Condensate Storage Tank. (From 10:33 June 15 till 09:52 June 16)
- The accumulated water (accumulated water from which high radiation dose was measured above the surface) in the trench of the turbine building of Unit 2 was transferred to the Process Main Building of the Radioactive Waste Treatment Facilities. (From 18:39 June 4 till 08:40 June 16)
- The accumulated water in the basement of the turbine building of Unit 3 was transferred to the Radioactive Waste Treatment Facilities. (From 10:05 June 14 till 08:46 June 16)
- 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 June 15)
- The accumulated water in the basement of the reactor building of Unit 6 was transferred to the Radioactive Waste Treatment Facilities of the same Unit. (From 11:55 till 14:00 June 15)
- The transfer of the accumulated water from the basement of the turbine building of Unit 6 to a temporary tank was started. (10:00 June 16)
- Full scale implementation of spraying an anti-scattering agent was carried out by workers in an area of about 7,000^m² around the Ultra High Voltage Switching Yard for Units 1 and 2, the flat area around

the Seismic Isolation Building, and the slope behind the Scrap Storage Area (A). (From 09:00 till 13:00 June 15)

- A trial operation of the Decontamination Unit in the Water Treatment Facility was conducted. (From 13:10 till around 20:35 June 15)
- A combined operation of the Cesium Absorption Unit and the Decontamination Unit was conducted. (From around 22:40 June 15 till around 0:20 June 16) Continuous operation was resumed thereafter. (Around 0:20 June 16)

2. Actions Taken by NISA

(June 15)

On May 1, NISA directed reprocessing companies in writing to implement emergency safety measures for their reprocessing facilities, taking into account the 2011 accidents at Fukushima Dai-ichi and Dai-ni NPS, etc. On June 15, as a result of vigorous examination of the reports received from these companies on their implementation status, NISA confirmed that the emergency safety measures were adequately implemented. NISA also directed these companies to implement the following items as measures to be taken immediately for their reprocessing facilities, taking into account the measures to respond to severe accidents in NPSs:

- securing a working environment in the Main Control Room,
- securing means of communication inside the NPS premises in case of emergency,
- securing supplies and equipment such as high-level radiation protective gear, and develop a system for radiation dose management, and
- deploy heavy machinery for removing rubble.

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

At around 11:05 June 15, it was confirmed that a worker from a subcontractor, who was engaging in crane assembly work at the Shallow Draft Quay in preparation of an installation of a cover over the Unit 1 reactor building, smoked with his full mask taken off. As a result of examination with a whole body counter, it was confirmed that the internal exposure dose was minimal and there was no effect on his body.

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

June 17, 2011

Nuclear and Industrial Safety Agency

Seismic Damage Information (the 172nd Release)
(As of 12:00 June 17, 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); 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
- Fresh water (about 49t) was injected into the Spent Fuel Pool of Unit 3 via the Fuel Pool Cooling and Clean-up Line. (From 10:19 till 11:57 June 17) (About 0.19m³ of hydrazine was also injected from 10:23 till 11:31)
- The spraying of water over the Spent Fuel Pool of Unit 4 was changed from the concrete pump truck to a temporary spraying facility, and fresh water (about 75t) was sprayed thereafter. (From 13:14 till 15:44 June 16) (About 0.2m² of hydrazine was also injected from 13:48 till 15:18)
- The transfer of the accumulated water from the basement of the turbine building of Unit 6 to a temporary tank was started. (10:00 June 17)
- Full scale implementation of spraying an anti-scattering agent was carried out by workers in an area of about 6,660m² around the road in front of the former Main Office Building and around the Filtrate Tank. (From 09:00 till 13:00 June 16)
- Removal of rubble (an amount equivalent to 1 container) was carried out using remote-controlled heavy machinery. (From 09:00 till 16:00 June 16)
- Due to water leakage from the Cesium Absorption Unit, continuous test operation of the Water Treatment Facility was temporarily suspended. (Around 19:20 June 16)

2. Actions Taken by NISA, etc.

- The Nuclear Emergency Response Headquarters established a guideline, “Regarding Response to Specific Spots Estimated to Exceed an Integral Dose of 20mSv Over a One Year Period After the Accident”, taking into account the opinions from the Nuclear Safety Commission (NSC). Based on this guideline, spots where decontamination was not easy and were estimated to exceed 20mSv per year were designated as “Specific Spots Recommended for Evacuation”, taking into account the results of environmental monitoring conducted by the national government and Fukushima Prefecture. The headquarters will call the attention of residents living in these spots, and assist and promote their evacuation.
- NISA requested TEPCO to submit a report on installation of the Alternative Cooling and Clean-up System for the Spent Fuel Pool of Unit 3, Fukushima Dai-ichi NPS, pursuant to Article 67, paragraph 1 of the Nuclear Regulation Act. This was requested with the purpose of verifying the validity of the system as an emergency measure pursuant to Article 64, paragraph 1 of the Nuclear Regulation Act. On June 15, NISA received a report and determined that the measure was imperative as an emergency measure.

<Temporary Access into Restricted Areas>

On June 17, vehicles were retrieved from Minamisoma City, Namie Town and Tomioka Town.

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

June 18, 2011

Nuclear and Industrial Safety Agency

Seismic Damage Information (the 173rd Release)
(As of 15:30 June 18, 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); 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

- The transfer of accumulated water (accumulated water from which high radiation dose was measured on the surface) from the trench of the turbine building of Unit 2 to the Condenser Hotwell in the turbine building was started. (14:20 June 17) Due to a malfunction of a transfer pump, the transfer was suspended. (14:59 June 17)
- The transfer of the accumulated water from the basement of the turbine building of Unit 3 to the Radioactive Waste Treatment Facilities was started. (13:31 June 18)
- 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 June 17)
- The transfer of the accumulated water from the basement of the turbine building of Unit 6 to a temporary tank was started. (10:00 June 18)
- Full-fledged operation of the Water Treatment Facility commenced. (20:00 June 17) Due to the surface radiation dose on the filter of the Cesium Absorption Unit reaching the replacement standard, the Water Treatment Facility was shut down for now. (0:54 June 18)
- Full scale implementation of spraying an anti-scattering agent was carried out by workers in an area of about 7,000m² around the sports ground. (From 09:00 till 13:00 June 17)
- Removal of rubble (an amount equivalent to 3 containers) was carried

out using remote-controlled heavy machinery. (From 08:45 till 16:15
June 17)

2. Actions Taken by NISA, etc.

(June 17)

- The Nuclear Emergency Response Headquarters published the progress status of the “Roadmap for Immediate Actions for the Verification of and Restoration from the Accident at TEPCO Fukushima Dai-ichi NPS” and the “Roadmap for Immediate Actions for the Assistance of Nuclear Sufferers” which were summarized on May 17.
- On June 8, NISA requested TEPCO to submit a report on the impact, etc. related to the improvement of the working environment inside the reactor building of Unit 2, Fukushima Dai-ichi NPS, pursuant to Article 67, paragraph 1 of the Nuclear Regulation Act. On June 15, NISA received the report and determined that there should be no adverse impact on the environment due to opening the double doors of the reactor building of Unit 2 and ventilating the inside of the building, after measures are implemented to reduce the concentration of radioactive materials. Furthermore, NISA determined that the impact to the environment of the ventilation after opening the double doors would be lower this time, after implementing the measures, than what is assumed in the current assessment. On June 17, NISA reported the assessment result to the Nuclear Safety Commission (NSC) and received an advice from NSC.
- NISA received a report from TEPCO about restarting the transfer of wastewater with high concentration of radioactive materials, which had accumulated in Fukushima Dai-ichi NPS, to the High Temperature Incinerator Building. After reviewing the content, NISA determined that there should be no problem in implementing the transfer as an emergency measure, pursuant to Article 64, paragraph 1 of the Nuclear Regulation Act.

(June 18)

- On June 7, NISA requested each Electricity Utility and other organizations to respond to severe accidents. On June 14, reports were

received from each Electricity Utility and as a result of on-the-spot inspections, etc. by on-site Nuclear Safety Inspectors, NISA determined that the measures for responding to severe accidents that were reported by each Electricity Utility were adequately implemented.

<Temporary Access into Restricted Areas>

On June 18, residents were allowed temporary access into Minamisoma City, Tomioka Town, and Naraha Town.

<Instruction Regarding Foods and Drinks>

- Additional item for suspension of shipment
 - Seema (*yamame*) (excluding farm-raised seema) and Japanese dace (*ugui*) caught in Manogawa River (including subsidiary streams) of Fukushima Prefecture. (June 17)

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

June 19, 2011

Nuclear and Industrial Safety Agency

Seismic Damage Information (the 174th Release)
(As of 15:30 June 19, 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); 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

- In order to prepare for the termination of the Okuma No.2 Line due to repairs to the Switching Yard building for Units 1 and 2, the following works were conducted.
 - The power supply for water injection pump into the reactor core of Unit 1 was changed to a diesel generator (10:35 June 19) and the nitrogen injection was temporarily suspended. (11:48 June 19)
 - The power supply for water injection pump into the reactor core of Unit 2 was changed to a diesel generator (10:49 June 19). The Alternative Cooling and Clean-up System for the Spent Fuel Pool was temporarily suspended. (11:03 June 19) The local exhausters were temporarily suspended. (12:12 June 19)
 - The power supply for water injection pump into the reactor core of Unit 3 was temporarily changed to a diesel generator. (From 11:03 till 15:22 June 19)
 - The temporary distribution board (M/C) (A) and (B) for Units 1 and 2, and the Power Center 2C were temporarily suspended. (From 13:09 till 15:09 June 19) During the period, power was supplied from the Okuma No. 3 Line.
- Fresh water (about 99t) was sprayed over the Spent Fuel Pool of Unit 4 using a temporary spraying facility. (From 16:05 till 19:23 June 18) (About 0.8m³ of hydrazine was also injected from 16:29 till 18:33.)
- The transfer of the accumulated water from the basement of the

- turbine building of Unit 6 to a temporary tank was started. (10:00 June 19)
- Full scale implementation of spraying an anti-scattering agent was carried out by workers in an area of about 7,000m² around the gymnasium, the main gate, the sports ground and the scrap storage area (A). (From 09:00 till 13:00 June 18)
 - Full scale implementation of spraying an anti-scattering agent was carried out using a concrete pump truck (52m class) in an area of about 3,200m² on the roof and exterior wall of the reactor building of Unit 4. (From 13:00 till 15:00 June 18)
 - Removal of rubble (an amount equivalent to 3 containers) was carried out using remote-controlled heavy machinery. (From 08:45 till 16:15 June 18)
 - Water leakage was confirmed while making preparations to exchange the Cesium Absorption Unit of the Water Treatment Facility (Around 21:00 June 18)

<Temporary Access into Restricted Areas>

On June 19, residents were allowed temporary access into Minamisoma City, Tomioka Town and Naraha Town

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

June 20, 2011

Nuclear and Industrial Safety Agency

Seismic Damage Information (the 175th Release)
(As of 12:00 June 20, 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); 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

- In order to prepare for the termination of the Okuma No.2 Line due to repairs to the Switching Yard building for Units 1 and 2, the following works were conducted.

→The power supply for water injection pump into the reactor core of Unit 1 was temporarily changed to a diesel generator (From 10:35 till 15:47 June 19) and the nitrogen injection was temporarily suspended. (From 11:48 till 16:05 June 19)

→The power supply for water injection pump into the reactor core of Unit 2 was temporarily changed to a diesel generator (From 10:49 till 15:35 June 19). The Alternative Cooling and Clean-up System for the Spent Fuel Pool was temporarily suspended. (From 11:03 till 16:00 June 19) The local exhausters were temporarily suspended. (From 12:12 till 16:22 June 19)

- Workers entered the reactor building of Unit 2. (20:46 June 19)
- The double doors of the reactor building of Unit 2 were slightly opened (20:51 June 19), and fully opened. (05:00 June 20)
- The accumulated water in the basement of the turbine building of Unit 3 was transferred to the Radioactive Waste Treatment Facilities. (From 13:31 June 18 till 0:02 June 20)
- Water was injected into the Steam-Dryer Storage Pool (DSP) of Unit 4. (From 09:14 till 11:57 June 19 (about 80t), and from 09:49 June 20)
- 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 June 19)
- Full scale implementation of spraying an anti-scattering agent was carried out by workers in an area of about 6,810m² around the slope on the west side of the reactor buildings of Units 2 and 3, the slope behind the Total Information Building, the sports ground, the Controlled-Type Landfill Site for Industrial Waste, and between the observation deck and the baseball field. (From 09:00 till 13:00 June 19)
 - Removal of rubble (an amount equivalent to 5 containers) was carried out using remote-controlled heavy machinery. (From 08:45 till 16:15 June 19)
 - The Circulating Seawater Decontamination System was temporarily suspended forfor maintenance. (From 10:00 June 18 till around 10:00 June 20)
 - A water flow test was conducted for the Cesium Absorption Unit using contaminated water with high radioactive concentration. (From 19:30 till 23:45 June 19, and from 10:25 June 20)

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

June 21, 2011

Nuclear and Industrial Safety Agency

Seismic Damage Information (the 176th Release)
(As of 12:00 June 21, 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); 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

- The water injection rate into the reactor of Unit 1 was changed from about 4.5m³/h to about 4.0m³/h. (10:02 June 21)
- The nitrogen injection at Unit 1 was temporarily suspended due to the installation work of a temporary transformer. (11:55 June 21)
- The transfer of the accumulated water from the trench of the turbine building of Unit 2 to the Condenser of Unit 1 was started. (13:37 June 20)
- The interior and external doors of the truck bay door to the reactor building of Unit 2 were opened. (14:30 June 20)
- The water injection rate into the reactor of Unit 2 was changed from about 5m³/h to about 4.5m³/h. (10:04 June 21)
- The water injection rate into the reactor of Unit 3 was changed from about 11.0m³/h to about 10.0m³/h. (10:06 June 21)
- Water was injected into the Steam-Dryer Storage Pool (DSP) of Unit 4. (From 09:49 June 20 till 11:29 June 21 and from 11:45 June 21)
- 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 June 20)
- The transfer of the accumulated water in the basement of the turbine building of Unit 6 to a temporary tank was started. (10:00 June 21)
- Full scale implementation of spraying an anti-scattering agent was carried out by workers in an area of about 5,250m² on the north side of

the Materials Yard, on the north side of the road in front of the former Main Office Building, and around the drainage canal of the Wild Birds' Forest. (From 09:00 till 13:00 June 20)

- Full scale implementation of spraying an anti-scattering agent was carried out using an unmanned crawler dump in an area of about 5,900m² on the east side of the turbine building of Unit 5. (From 10:00 till 13:30 June 20)
- Removal of rubble was carried out using remote-controlled heavy machinery. (The rubble was not stored in containers.) (From 08:45 till 16:15 June 20)
- A water flow test was conducted for the Cesium Absorption Unit using contaminated water with high radioactive concentration. (From 19:30 till 23:45 June 19, and from 10:25 till 14:50 June 20)
- A trial operation of the Water Treatment Facility was started. (0:45 June 21) The trial operation of the Water Treatment Facility was stopped because the chemical solution injection equipment of the coagulation settling equipment stopped working. (07:20 of the same day)

<Instructions Regarding Foods and Drinks>

- Lifting of the suspension of shipment.
 - Bamboo shoots produced in Kunimi Town and Tenei Village of Fukushima Prefecture.

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

On June 20, TEPCO published the evaluation status of a worker who was confirmed to have an elevated internal radioactivity (Iodine 131) in the thyroid gland, as announced on June 10. According to the evaluation, the exposure dose of the employee was 352.08mSv (not including the exposure dose during the month of May while staying inside the Main Anti-Earthquake Building or the exposure dose while travelling), which is above the dose limit for emergency cases (250mSv). As a result of a health examination, it was confirmed that there was no impact on his health. In addition, another male employee was newly identified to have slightly elevated internal radioactivity (Iodine 131) in the thyroid gland during the period of his work. A detailed evaluation of the internal exposure dose will be

conducted for this employee, followed by confirmation works of his exposure dose.

<Temporary Access into Restricted Areas>

On June 21, residents were allowed temporary access into Namie Town, Futaba Town and Okuma Town.

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

June 22, 2011

Nuclear and Industrial Safety Agency

Seismic Damage Information (the 177th Release)
(As of 12:00 June 22, 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); 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

- The nitrogen injection at Unit 1 was temporarily suspended due to the installation work of a temporary transformer. (From 11:55 till 18:03 June 21)
- The water injection rate into the reactor of Unit 1 was changed from about 4.0m³/h to about 3.5m³/h. (10:02 June 22)
- The transfer of the accumulated water from the trench of the turbine building of Unit 2 to the Condenser of Unit 1 was started. (From 13:37 June 20 till 17:09 June 21)
- Workers entered the reactor building of Unit 2, calibrated the instruments and conducted a preliminary survey of locations for nitrogen injection. (From 13:15 till 13:25 June 21)
- The transfer of the accumulated water in the trench of the turbine building of Unit 2 to the Radioactive Waste Treatment Facilities was started. (09:56 June 22)
- The water injection rate into the reactor of Unit 2 was changed from about 4.5m³/h to about 4.0m³/h. (10:04 June 22)
- The transfer of the accumulated water in the basement of the turbine building of Unit 3 to the Radioactive Waste Treatment Facilities was started. (15:32 June 21)
- 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, and

from 08:32 June 22)

- 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 June 21)
- The accumulated water in the basement of the reactor building of Unit 6 was transferred to the Waste Treatment Building of the same Unit. (From 11:05 till 13:30 June 21)
- The transfer of the accumulated water in the basement of the turbine building of Unit 6 to a temporary tank was started. (10:00 June 21)
- Full scale implementation of spraying an anti-scattering agent was carried out by workers in an area of about 5,250m² on the north side of the Materials Yard, around the Filtrate Tank and the parking lot for the Main Office Building. (From 09:00 till 13:00 June 21)
- Full scale implementation of spraying an anti-scattering agent was carried out using an unmanned crawler dump in an area of about 5,900m² on the east side of the turbine building of Unit 5. (From 10:00 till 13:30 June 21)
- A trial operation of the Water Treatment Facility was started. (12:16 June 21)
- The operation of the Water Treatment Facility was suspended in order to carry out flushing (10:00 June 22)

<Temporary Access into Restricted Areas>

On June 22, residents were allowed temporary access into Namie Town, Futaba Town and Okuma Town.

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

June 23, 2011

Nuclear and Industrial Safety Agency

Seismic Damage Information (the 178th Release)
(As of 12:00 June 23, 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); 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
- Installation works of temporary pressure gauges for the reactor of Unit 2 was started. (From 10:36 June 23)
- The water injection rate into the reactor of Unit 3 was changed from about 10.0m³/h to about 9.5m³/h. (10:13 June 23)
- 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 June 23)
- Fresh water was injected into the Spent Fuel Pool of Unit 4 using a temporary spraying facility. (From 14:31 till 16:38 June 22)
- 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 June 22)
- Full scale implementation of spraying an anti-scattering agent was carried out by workers in an area of about 5,250m² around the South Seawall. (From 09:00 till 13:00 June 22)
- Full scale implementation of spraying an anti-scattering agent was carried out using an unmanned crawler dump in an area of about 8,300m² on the east side of the turbine building of Unit 6. (From 10:00 till 13:30 June 22)

2. Actions Taken by NISA, etc.

NISA received a report from TEPCO on their examination result about the further changes to the storage level of water with high concentration of radioactive materials to be transferred to the Process Main Building of Fukushima Dai-ichi NPS. NISA determined that the proposed change (which would expand the storage area to above the floor level of B1) was valid, as a result of re-evaluating the items that would be affected (anti-leakage measures, anti-exposure measures), out of the items evaluated in the past.

NISA issued a written instruction to TEPCO for the collection of a report on the installation of a reactor building cover and ancillary facilities for Unit 1, Fukushima Dai-ichi NPS, pursuant to Article 67, paragraph 1 of the Nuclear Regulation Act.

NISA issued a written instruction to TEPCO for the collection of a report on nitrogen injection into the PCV of Unit 2, Fukushima Dai-ichi NPS, pursuant to Article 67, paragraph 1 of the Nuclear Regulation Act.

On June 15, 2011 NISA directed reprocessing companies (Japan Nuclear Fuel Limited and Independent Administrative Corporation Japan Atomic Energy Agency) to implement measures in their reprocessing facilities, taking into account measures taken at NPSs to respond to severe accidents. On June 22, NISA received reports from each reprocessing company about the status of implementing measures based on the abovementioned direction in the reprocessing facilities.

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

June 24, 2011

Nuclear and Industrial Safety Agency

Seismic Damage Information (the 179th Release)
(As of 12:00 June 24, 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); 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
 - Water injection into the reactors of Units 1 and 2 was started using the water injection pump for the Unit 1 reactor. (18:27 June 23)
 - Installation works of temporary pressure gauges for the reactor of Unit 2 was carried out. (From 10:36 till 12:26 June 23)
 - The water injection rate into the reactor of Unit 3 was changed from about 9.5m³/h to about 9.0m³/h. (10:07 June 24)
 - 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)
 - Full scale implementation of spraying an anti-scattering agent was carried out by workers in an area of about 5,160m² on the mountain side of Unit 4, on the north side of the Ultra High Voltage Switching Yard for Units 5 and 6, and on the mountain side of the reactor building of Unit 5. (From 09:00 till 13:00 June 23)
 - Removal of rubble (an amount equivalent to 2 containers) was carried out using remote-controlled heavy machinery. (From 08:45 till 16:15 June 19)
 - The operation of the Water Treatment Facility was suspended in order to carry out flushing. (From 10:20 June 22 till 0:13 June 23)
 - A trial operation of the Water Treatment Facility was started. (0:43 June 23)

- The trial operation was temporarily suspended in order to exchange the Cesium Absorption Unit of the Water Treatment Facility. (From 13:00 till 14:44 June 23 and from 10:00 June 24)

<Situation of Injuries, etc.>

Around 14:25 June 23, a security guard who was attending the work of carrying out materials, injured his little finger of right foot with a fire extinguisher hanging on the wall that he dropped by catching his clothing at a check point of the Service Building of Units 1 and 2 of Fukushima Dai-ni NPS. The security guard was taken to J-Village and arrived at 15:58 of the same day. At 16:30 he was transferred to Sogo Iwaki Kyoritsu Hospital by ambulance after a doctor's examination at J-Village. It was confirmed by a whole body survey that there was no contamination on his body.

<Temporary Access into Restricted Areas>

On June 24, vehicles were retrieved from Okuma Town, Futaba Town, Tomioka Town and Naraha Town.

<Instructions Regarding Foods and Drinks>

- Additional items for suspension of shipment
 - Tea produced in Sagami-hara City, Matsuda Town and Yamakita Town of Kanagawa Prefecture.
- Lifting of the suspension of shipment and restriction of intake
 - Non-head type leafy vegetables produced in Kenhoku District*¹ of Fukushima Prefecture.
- Lifting of the suspension of shipment and restriction of intake
 - Turnips produced in the Soso District*² of Fukushima Prefecture.

*1: Fukushima City, Nihonmatsu City, Date City, Motomiya City, Koori Town, Kunimi Town, Kawamata Town (excluding the Yamakiya Area), and Otama Village

*2: Soma City, Minamisoma City, (excluding the area within the 20km radius from Fukushima Dai-ichi NPS and the following areas of Haramachi-ku: Suketsune, Fukiyatoge, Nanamagari, Mori, and Karekimori of Takanokura area; Godaisan, Yokokawa and Yakushitoge of Baba area; Namezu of Karakura area and Wadajo of Ohara area), and Shinchi Town.

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

June 25, 2011

Nuclear and Industrial Safety Agency

Seismic Damage Information (the 180th Release)
(As of 15:30 June 25, 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); 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

- An unmanned helicopter that was collecting dust coming out of the opening of the reactor building of Unit 2 made an emergency landing on the rooftop of the reactor building. (Around 06:58 June 24)
- The installation of a water level gauge for the accumulated water in the basement of Unit 2 by a robot was suspended. (June 24)
- A radiation dose survey was carried out by a robot in the reactor building of Unit 3. (From 10:31 till 12:42 June 24)
- Cooling of the Spent Fuel Pool of Unit 5 was started using the Fuel Pool Cooling and Clean-up System. (16:35 June 24)
- Full scale implementation of spraying an anti-scattering agent was carried out by workers in an area of about 4,659m² on the flat area around the Seismic Isolation Building, the Filtrate Tank, the Nonflammable Waste Treatment Facility, the Futaba Line No. 2 Transmission Tower, and the Ultra High Voltage Switching Yard for Units 1 and 2. (From 09:00 till 13:00 June 24)
- Full scale implementation of spraying an anti-scattering agent was carried out using a crawler dump in an area of about 5,400m² on the north side of the turbine building and the reactor building of Unit 6. (From 10:00 till 13:30 June 24)
- Removal of rubble (an amount equivalent to 5 containers) was carried out using remote-controlled heavy machinery. (From 09:00 till 16:00 June 24)

- The trial operation was temporarily suspended in order to exchange the Cesium Absorption Unit of the Water Treatment Facility. (From 13:00 till 14:44 June 23, from 10:00 till 12:50 June 24 and from 10:00 June 25)
- Treatment by the desalination facility was started. (Around 12:50 June 24)

2. Actions Taken by NISA, etc.

NISA requested TEPCO to submit a report on the installation of the reactor building cover and ancillary facilities at Unit 1, Fukushima Dai-ichi NPS, pursuant to the provisions of Article 67, paragraph 1 of the Nuclear Regulation Act, in order to verify the validity of the installation as an emergency measure pursuant to Article 64, paragraph 1 of the same Act. NISA received the report on June 23 and made the evaluation that the contents of the measure were inevitable as an emergency measure on June 24.

<Situation of Injuries, etc.>

Around 14:25 June 23, a security guard who was attending the work of carrying out materials, injured his little finger of right foot with a fire extinguisher hanging on the wall that he dropped by catching his clothing at a check point of the Service Building of Units 1 and 2 of Fukushima Dai-ichi NPS. The security guard was taken to J-Village and arrived at 15:58 of the same day. At 16:30 he was transferred to Sogo Iwaki Kyoritsu Hospital by ambulance after a doctor's examination at J-Village. He went home after receiving treatment. It was confirmed by a whole body survey that there was no contamination on his body. On June 24, as a result of a re-examination, he was diagnosed as having a laceration of the fifth finger of right foot, fracture of distal phalanx and as needing about four weeks of outpatient treatment.

Around 13:30 June 24, a subcontractor's worker who was installing a temporary tank outdoors in the premises of the Fukushima Dai-ichi NPS, complained of sickness and was taken to J-Village by a service car at 14:26. On 15:14 of the same day, he was taken from J-Village to Sogo Iwaki Kyoritsu Hospital by ambulance. There was no contamination on his body. As a result of an examination, he was diagnosed with "heatstroke".

<Temporary Access into Restricted Areas>

On June 25, residents were allowed temporary access into Namie Town, Futaba Town and Okuma Town.

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

June 26, 2011

Nuclear and Industrial Safety Agency

Seismic Damage Information (the 181st Release)
(As of 15:30 June 26, 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); 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
 - Borated water (about 45t) was injected into the Spent Fuel Pool of Unit 3 via the Fuel Pool Cooling and Clean-up Line. (9:56 June 26)
 - Full-scale implementation of spraying an anti-scattering agent was carried out using a crawler dump in an area of about 2,400 m² on the Yard of the Radioactive Waste Treatment Facilities. (From 10:00 till 13:30 June 25)
 - Removal of rubble (an amount equivalent to 3 containers) was carried out using remote-controlled heavy machinery. (From 8:45 till 15:00 June 25)
 - The Circulating Seawater Decontamination System was temporarily suspended for maintenance. (From 10:00 June 18 till around 10:00 June 20, from 10:00 June 25)
 - The trial operation was temporarily suspended in order to exchange the Cesium Absorption Unit 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 and from 10:00 June 26)
 - The water Treatment Facility was automatically shut down due to drawdown alarm of the oil separators. (15:24 and 16:10 June 25)
 - The trial operation of the Water Treatment Facility was restarted. (16:35 June 25)

<Temporary Access into Restricted Areas>

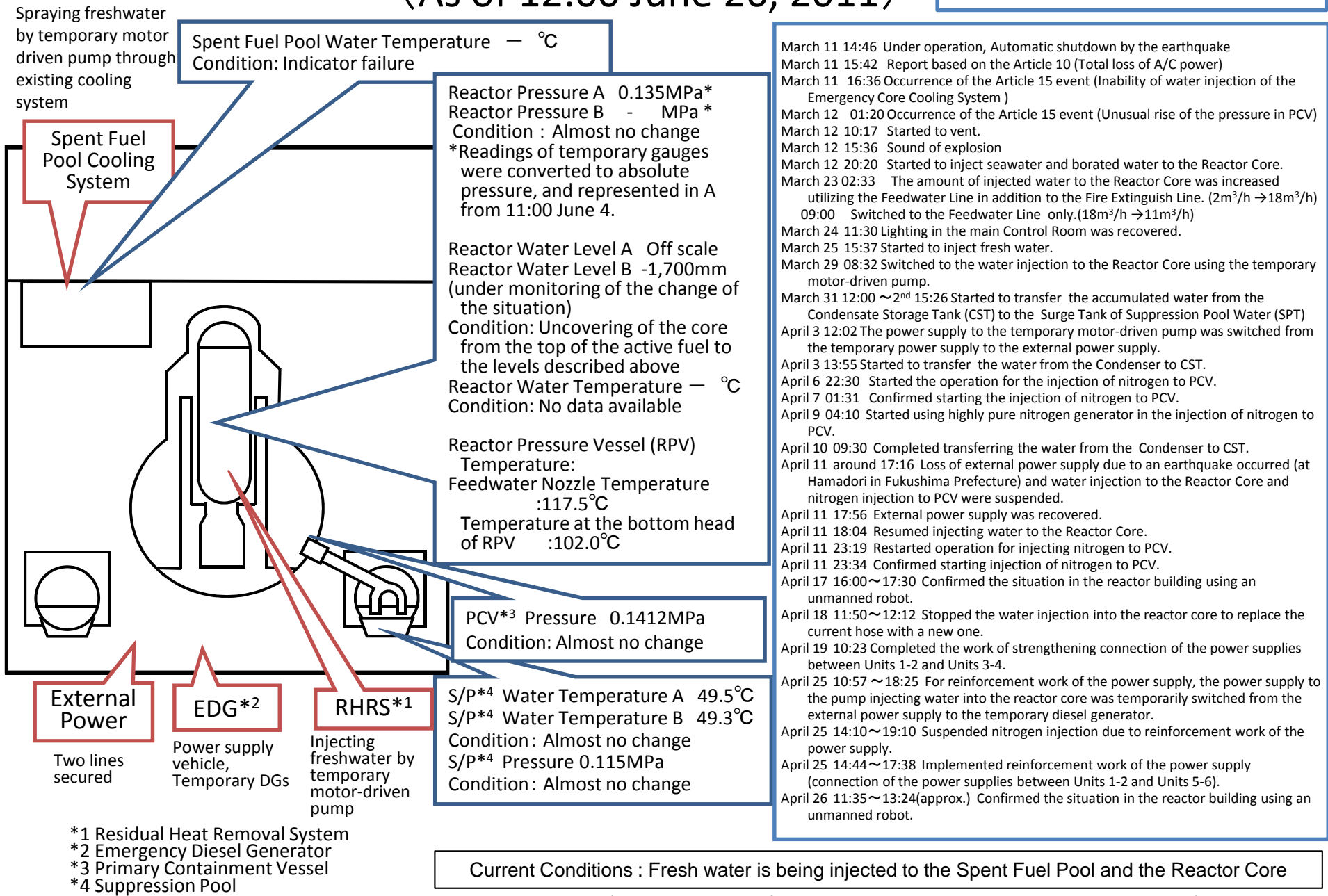
On June 26, residents were allowed temporary access into Namie Town, Futaba Town and Okuma Town.

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

Conditions of Fukushima Dai-ichi Nuclear Power Station **Unit 1**

(As of 12:00 June 26, 2011)

Major Events after the Earthquake 1/3



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

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 6m³/h to the maximum of about 14m³/h. After carrying out the injection at 10m³/h, the injection rate was changed back to 6m³/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 6m³/h to 8m³/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
- May 10 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 8m³/h to 10m³/h.
- May 17 11:50 Changed the rate of water injection into the Reactor Core from 10m³/h to 6 m³/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 6m³/h to 5m³/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 5m³/h to about 4.5m³/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 4.5m³/h to about 4.0m³/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 4.0m³/h to about 3.5m³/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.

<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

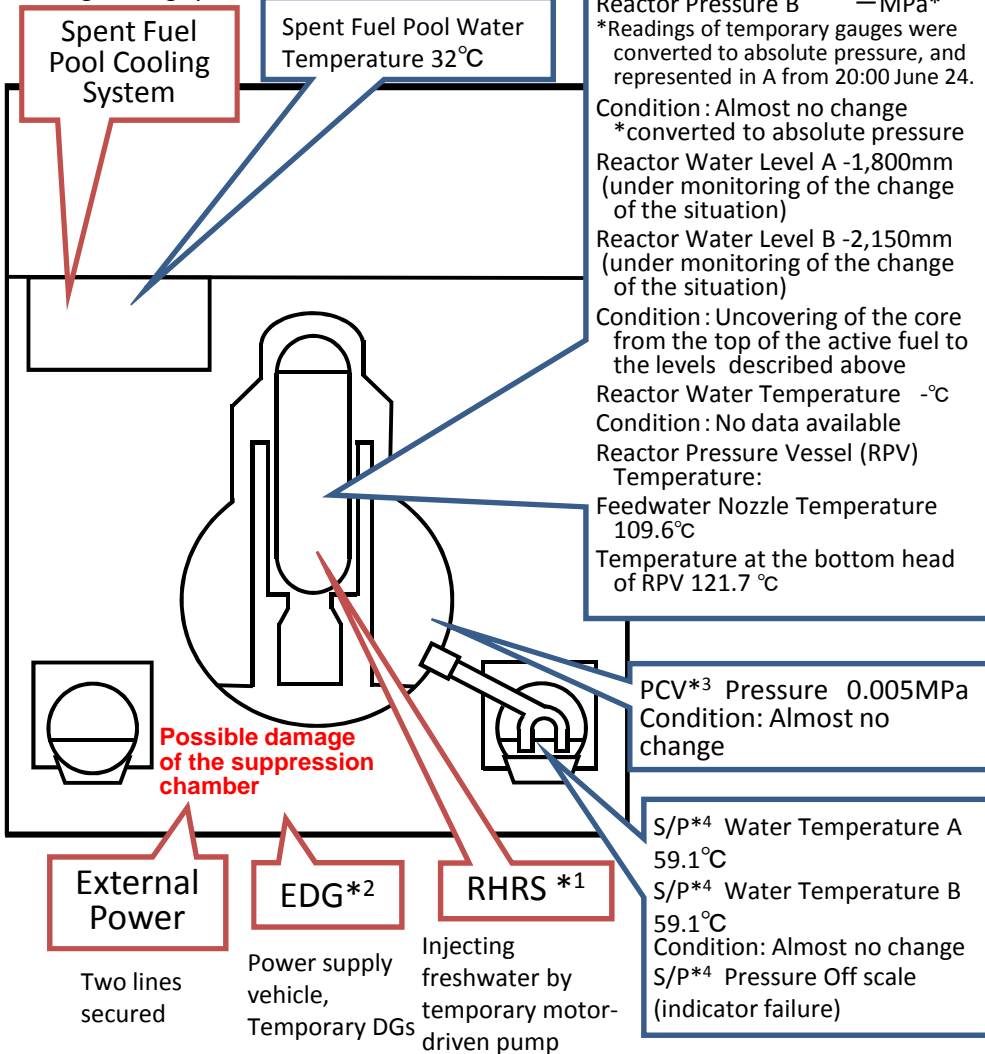
<Fresh water injection to SFP via FPC (using the temporary motor-driven pump) >

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

Conditions of Fukushima Dai-ichi Nuclear Power Station **Unit 2**

(As of 12:00 June 26, 2011)

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



Reactor Pressure A 0.110MPa*
 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 -1,800mm (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 -°C
 Condition : No data available
 Reactor Pressure Vessel (RPV) Temperature:
 Feedwater Nozzle Temperature 109.6°C
 Temperature at the bottom head of RPV 121.7 °C

PCV*3 Pressure 0.005MPa
 Condition: Almost no change

S/P*4 Water Temperature A 59.1°C
 S/P*4 Water Temperature B 59.1°C
 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

Possible damage of the suppression chamber

*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

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 12:12~16:02 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 5.0m³/h to about 4.5m³/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 4.5m³/h to about 4.0m³/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.

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

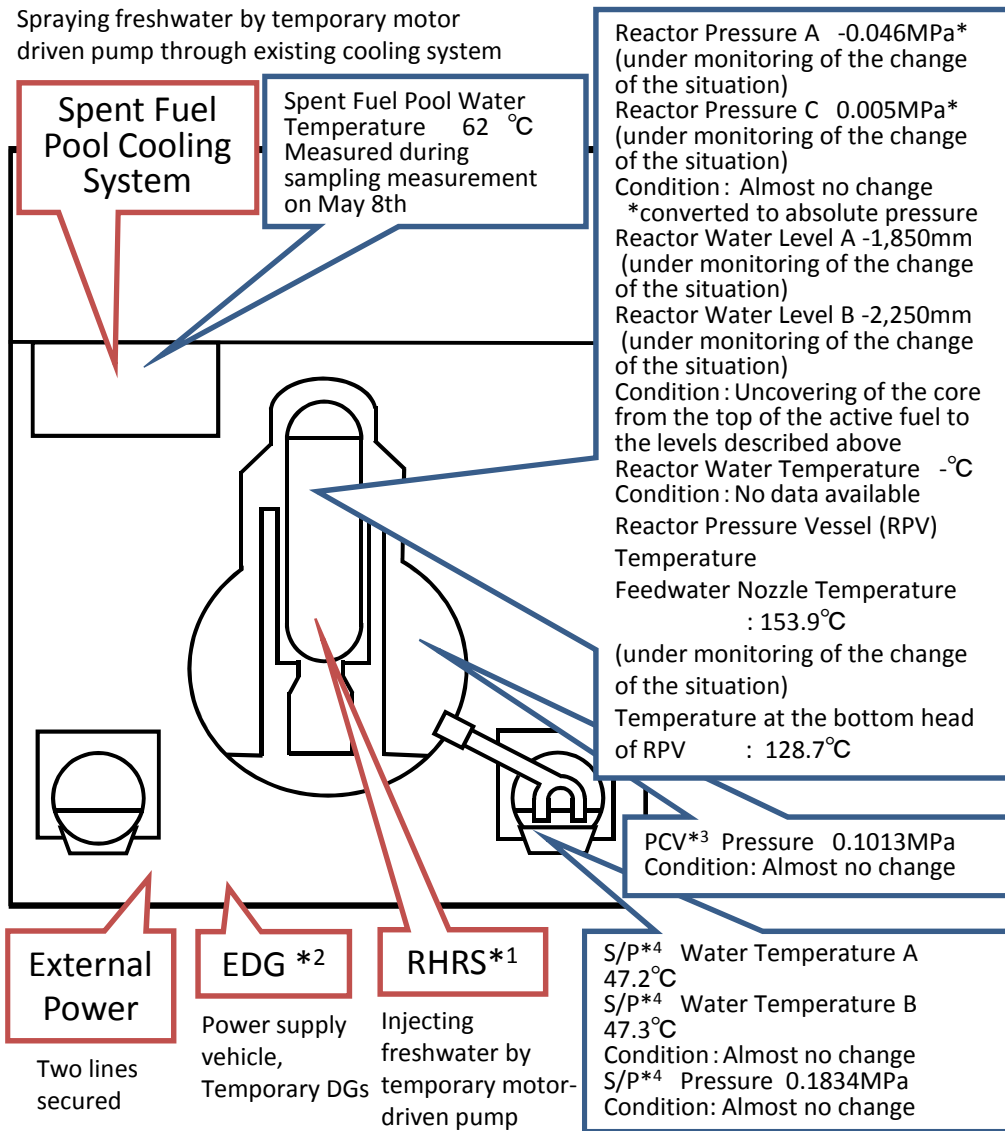
March 20 around 15:05~ around 17:20, March 22nd 16:07~17:01, March 25 10:30~12:19 Started injection

<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, April 10 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 12:00 June 26, 2011)

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)

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

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

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 13.5m³/h to 12.5m³/h.
- June 1 10:10 Changed the rate of water injection into the Reactor Core from 12.5m³/h to 11.5m³/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 Transferred 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 11.0m³/h to about 10.0m³/h.
- June 21 15:32 Started transfer of 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 10.0m³/h to about 9.5m³/h.
- June 24 10:07 The amount of water injection into the reactor was changed from about 9.5m³/h to about 9.0m³/h.
- June 24 10:31~12:42 A radiation dose survey was carried out by a robot in the reactor building.

Major Events after the Earthquake 3/3

<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

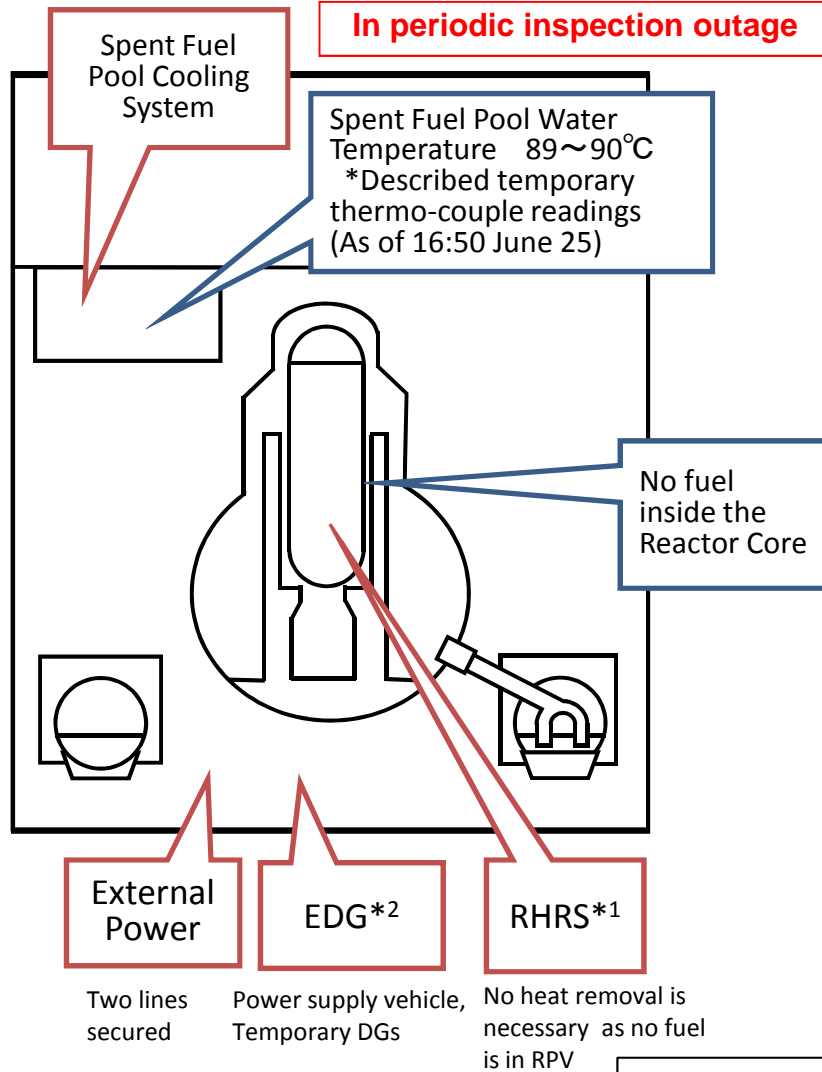
<Fresh water injection to SFP via FPC (using the temporary motor-driven pump)>

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.

Conditions of Fukushima Dai-ichi Nuclear Power Station **Unit 4** (As of 12:00 June 26, 2011)

Spraying freshwater by
Concrete Pump Truck

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°C
- 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.

*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 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

<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)>

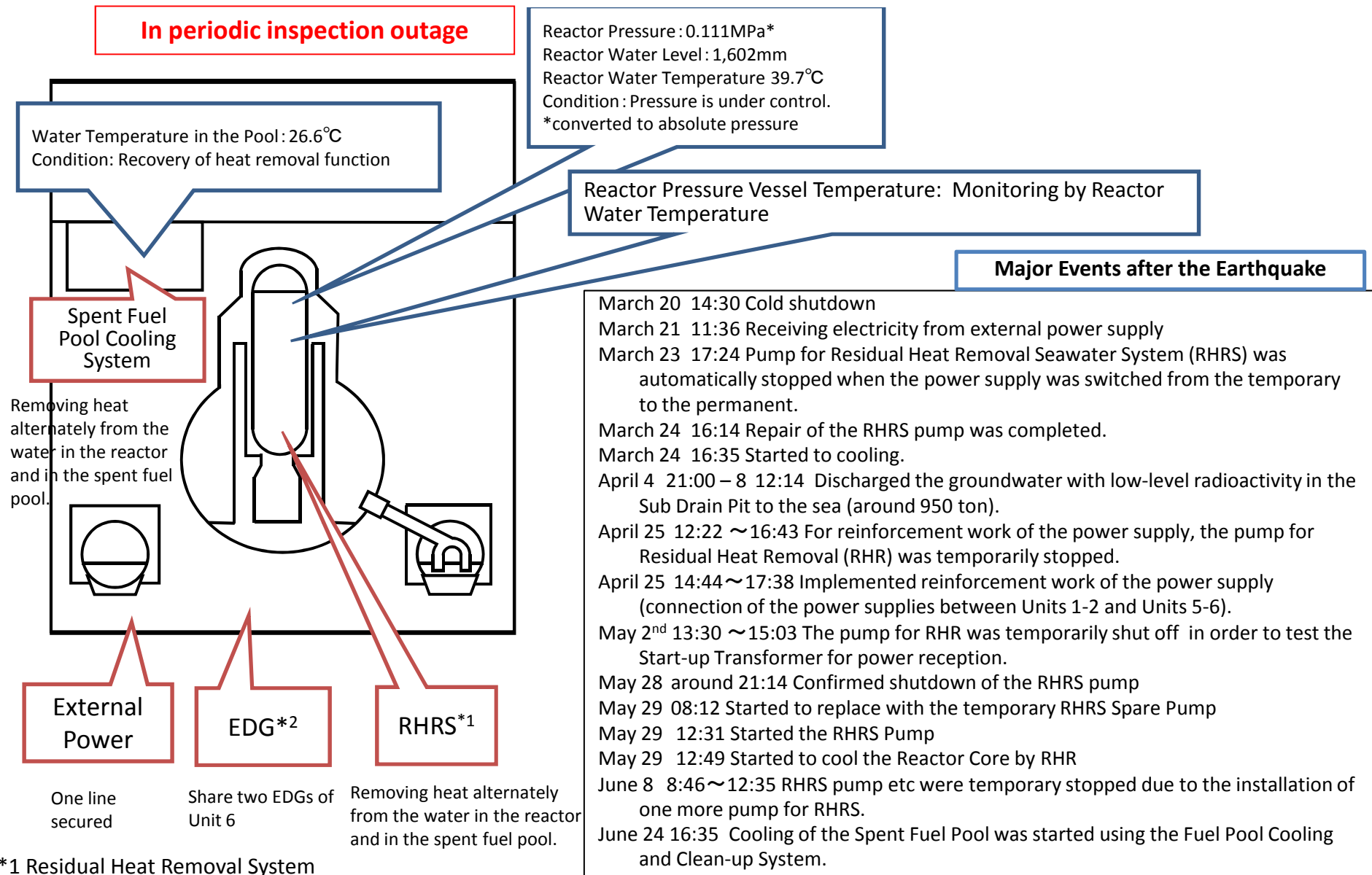
March 30 14:04-18:33, April 1 08:28-14:14, April 3 17:14-22:16, April 5 17:35-18:22, April 7 18:23-19:40, April 9 17:07-19:24, April 13 0:30-6:57, April 15 14:30-18:29, April 17 17:39-21:22, April 19 10:17-11:35, April 20 17:08-20:31, April 21 17:14-21:20, April 22 17:52-23:53, April 23 12:30-16:44, 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

Conditions of Fukushima Dai-ichi Nuclear Power Station **Unit 5**

(As of 12:00 June 26, 2011)



*1 Residual Heat Removal System

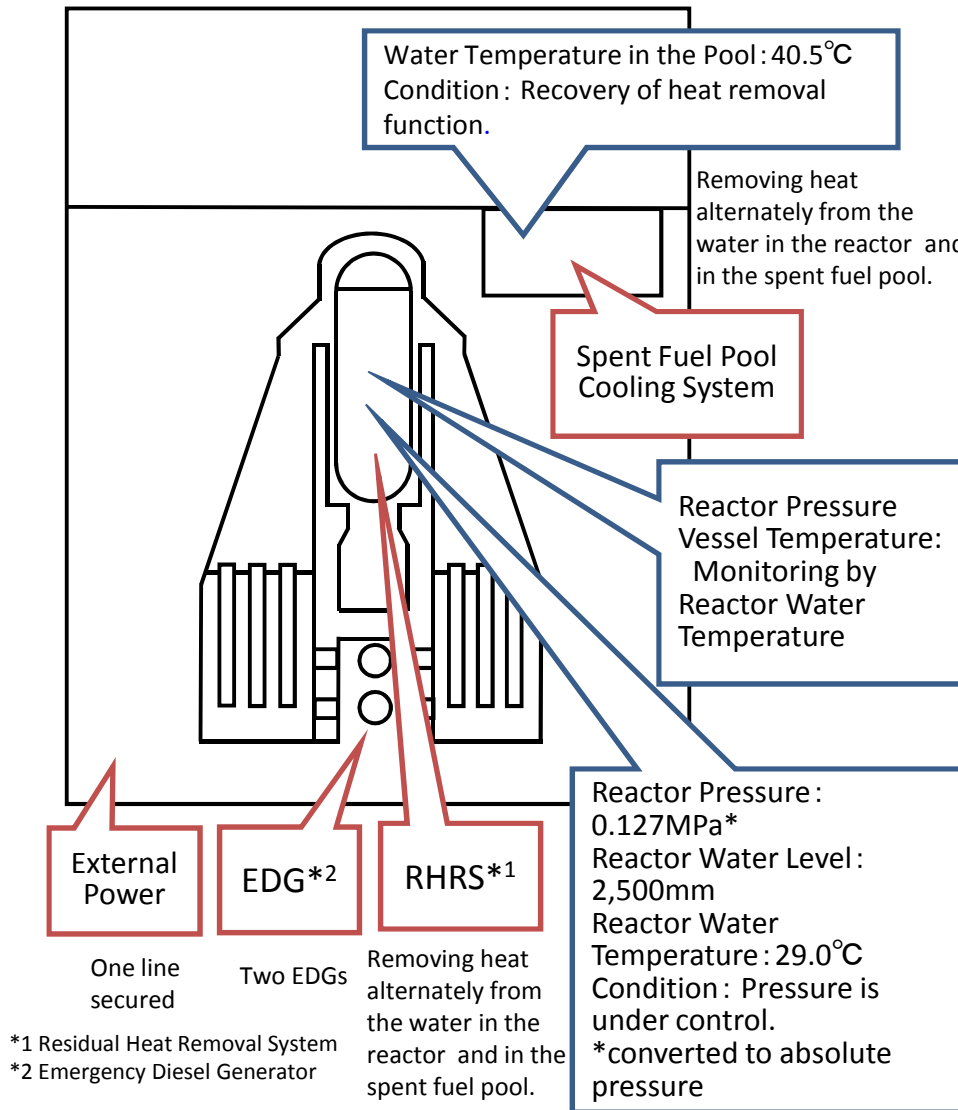
*2 Emergency Diesel Generator

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

Conditions of Fukushima Dai-ichi Nuclear Power Station Unit 6 (As of 12:00 June26, 2011)

In periodic inspection outage

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.

〈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 temporarily 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

〈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