

June 5, 2011

Nuclear and Industrial Safety Agency

Seismic Damage Information (the 160th Release)

(As of 15:30 June 5, 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 15t) was injected into the Spent Fuel Pool of Unit 1 via the Fuel Pool Cooling and Clean-up Line. (From 10:16 till 10:48 June 5)
- The transfer of 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 to the Process Main Building of the Radioactive Waste Treatment Facilities was started.(18:39 June 4)
- In order to prepare for the transfer of the accumulated water from the basement floor of the turbine building of Unit 3 to the Condenser, water in the Condenser was transferred to the Condensate Storage Tank. (From 12:50 Jun 2 till 21:56 June 4)
- Fresh water was injected into the Spent Fuel Pool of Unit 3 via the Fuel Pool Cooling and Clean-up Line. (From 13:08 June 5) (Hydrazine was also injected from 13:14 till 14:16)
- Fresh water (about 180t) was sprayed over the Spent Fuel Pool of Unit 4 using a concrete pump truck (58m class). (From 14:23 till 19:45 June 4) (About 0.4m³ of hydrazine was also injected from 14:51 till 18:41)
- Full-scale implementation of spraying an anti-scattering agent to prevent the spread of radioactive materials was carried out by workers in an area of about 10,500m² on the west-side of the shallow draft quay, the observation deck, the South Seawall, and on the

mountain-side of the common pool. (From 9:00 till 13:00 June 4)

- Full-scale implementation of spraying an anti-scattering agent to prevent the spread of radioactive materials was carried out using a Water Spray Vehicle with Bending Arm (an overhead spraying truck) in an area of about 7,200m² on the roof and the exterior wall of the turbine building of Unit 4. (From 10:00 till 12:00 June 4)
- Removal of rubble (an amount equivalent to 8 containers) was carried out using remote-controlled heavy machinery. (From 09:00 till 16:00 June 4)

< Temporary Access into Restricted Areas >

- Temporary access was allowed as follows:
June 4, to Namie Town and Okuma Town

< Situation of Injuries, etc. >

- Around 10:00 and 10:15 on June 5, 2 workers who were laying electric cables in a pump system got sick and were transported to J-Village. Thereafter one worker was taken to the Iwaki City Kyouritsu Hospital by ambulance and doctor helicopter. The other worker was taken to the Fukushima Rosai Hospital. It was confirmed they were free from radioactive contamination.

(Attached sheet)

1. Situation of Operations at NPS (Number of Units Under Automatic Shutdown : 10)

● Fukushima Dai-ichi NPS, TEPCO

(Okuma Town and Futaba Town, Futaba County, Fukushima Prefecture)

(1) Operating Status

Unit 1 (460MWe):	automatic shutdown
Unit 2 (784MWe):	automatic shutdown
Unit 3 (784MWe):	automatic shutdown
Unit 4 (784MWe):	in periodic inspection outage
Unit 5 (784MWe):	in periodic inspection outage, cold shutdown at 14:30 March 20
Unit 6 (1,100MWe):	in periodic inspection outage, cold shutdown at 19:27 March 20

(2) Major Plant Parameters (As of 12:00 June 5)

	Unit 1	Unit 2	Unit 3	Unit 4	Unit 5 (cold shutdown)	Unit 6 (cold shutdown)
Reactor Pressure*1 [MPa]	0.126(A)*6 - (B)*6	0.090(A)*3 0.092(D)*3	-0.031(A)*3 -0.007(C)*3	—	0.109	0.124
Primary Containment Vessel Pressure (D/W) [kPa]	130.1	25	98.9	—	—	—
Reactor Water Temperature [°C]	-	-	-	-	42.0	41.4
Reactor Water Level*2 [mm]	Downscale (A) -1,600(B)	-1,500(A) -2,100(B)	-1,850(A) -2,100(B)	—	1,921	2,504
Suppression Pool Water Temperature (S/C) [°C]	51.1(A) 51.0(B)	61.6(A) 61.7(B)	46.3(A) 46.4(B)	—	—	—
Suppression Pool Pressure (S/C) [kPa]	110	Downscale*5	180.3	—	—	—

Spent Fuel Pool Water Temperature [°C]	*5	32	62* ⁴ (May 8)	84* ⁴ (May 7)	41.4	31.5
Time of Measurement	11:00 June 5	11:00 June 5	11:00 June 5	June 5	12:00 June 5	12:00 June 5

*1: Converted from the indicated value to absolute pressure

*2: Distance from the top of fuel

*3: The trends and conditions are being confirmed on a continuing basis.

*4: Measured when sampling the water of the Spent Fuel Pool.

*5: Indicator failure

*6: From 11:00 June 4 the values of the temporary indicator will be represented by (A)

(3) Situation of Each Unit

<Unit 1>

- TEPCO reported to NISA the event (inability of water injection of the emergency Core Cooling System), as falling under Article 15 of the Act on Special Measures Concerning Nuclear Emergency Preparedness. (16:36 March 11)
- Started to vent (10:17 March 12)
- Seawater injection into the Reactor Pressure Vessel (RPV) via the Fire Extinguishing Line was started. (20:20 March 12)
→Temporary interruption of the injection (01:10 March 14)
- The sound of explosion in Unit 1 was heard. (15:36 March 12)
- The amount of injected water into the Reactor Core was increased by utilizing the Feedwater Line in addition to the Fire Extinguishing Line. (2m³/h→18m³/h). (02:33 March 23) Later, it was switched to the Feedwater Line only (about 11m³/h). (09:00 March 23)
- Lighting in the Main Control Room was recovered. (11:30 March 24)
- Fresh water injection into the RPV was started. (15:37 March 25)
- As a result of measuring the concentration at the surface of the stagnant water on the basement floor of the turbine building, $2.1 \times 10^5 \text{Bq/cm}^3$ of ¹³¹I (Iodine) and $1.8 \times 10^6 \text{Bq/cm}^3$ of ¹³⁷Cs (Cesium) were detected as major radioactive nuclides.
- The pump for the fresh water injection into the RPV was switched from a fire engine pump to a temporary motor-driven pump. (08:32 March 29.)

- Accumulated water in the basement of the turbine building was transferred to the Condenser starting from around 17:00 March 24. As it was confirmed that the Condenser was almost filled with water, pumping the water out to the Condenser was stopped. (07:30 March 29)
In order to prepare for the transfer of the accumulated water from the basement of the turbine building to the Condenser, the water in the Condensate Storage Tank was transferred to the Surge Tank (A) of the Suppression Pool Water (from 12:00 March 31), and after switching the target to the Surge Tank (B) of the Suppression Pool Water (15:25 March 31), the transfer was resumed and completed. (15:26 April 2)
- About 90t (of fresh water) was sprayed over the Spent Fuel Pool using a concrete pump truck (62m class). (From 13:03 till 16:04 March 31)
Using a concrete pump truck (62m class), water was sprayed on a trial basis in order to confirm the appropriate position for spraying water. (From 17:16 till 17:19 April 2)
- The lighting in the turbine building was partially recovered. (April 2)
- In order to switch the power supply for the motor-driven pump used for injecting fresh water into the RPV - from a temporary power supply to an external power supply - injection of fresh water into the reactor was temporarily carried out using a fire engine pump. (From 10:42 to 11:52 April 3)
- The power supply for injecting fresh water into the RPV was switched to external power. (12:02 April 3)
- In order to prepare for the transfer of the accumulated water from the basement of the turbine building to the Condenser, the transfer of the water in the Condenser to the Condensate Storage Tank was started. (13:55 April 3)
- Aiming at reducing the possibility of hydrogen combustion in the Primary Containment Vessel (PCV), the operation of injecting nitrogen into the PCV was started. (22:30 April 6)
- It was confirmed that the nitrogen injection into the PCV began. (01:31 April 7)
- The nitrogen injection into the PCV was replaced by a High Purity Nitrogen Generator. (04:10 April 9)
- The transfer of water in the Condenser to the Condensate Storage Tank was completed. (09:30 April 10)

- Due to the occurrence of an earthquake (around 17:16 April 11, near Hamadori, Fukushima Prefecture), the external power supply was lost and fresh water injection into the RPV as well as nitrogen injection into the PCV were suspended. (Around 17:16 April 11)
- The external power supply was restored. (17:56 April 11)
- Fresh water injection into the RPV was resumed. (18:04 April 11)
- Nitrogen injection into the PCV was resumed. (23:34 April 11)
- Confirmation of the situation, etc., using an unmanned robot at the reactor building was carried out. (From 16:00 till 17:30 April 17)
- In order to replace a hose used for injecting water into the Reactor Core with a new hose, the pump for water injection was shut off. (From 11:50 till 12:12 April 18)
- The power supply to the motor-driven pumps injecting fresh water into the Reactor Pressure Vessel was temporarily switched from external power to temporary diesel generator in order to carry out reinforcement works on the external power supply. (From 10:57 to 18:25 April 25)
- In order to carry out reinforcement works on the external power supply, nitrogen injection into the PCV was temporarily suspended. (From 14:10 till 19:10 April 25)
- Confirmation of the situation, etc., at the reactor building using an unmanned robot was carried out. (From 11:35 till about 13:24 April 26)
- The operation of gradually changing the water injection rate into the Reactor Pressure Vessel, from about 6m³/h to a maximum of about 14m³/h, was started. (10:02 April 27) After carrying out the injection at 10m³/h, the injection rate was changed back to 6m³/h. (10:14 April 29)
- An investigation of the situation inside the reactor building using an unmanned robot was carried out. (From 11:36 till 14:05 April 29)
- In order to install an alarm system to the pump used for injecting water into the Reactor Core, the injection of water into the Reactor Core was temporarily switched to a fire engine pump. (From 12:58 to 15:03 May 2)
- In order to improve the working environment of the reactor building, the work to install the ambient air filtration system commenced. (May 2) All (6) units of the ambient air filtration system were operational. (From 16:36 May 5 till 20:02 May 8)
- The rate of water injection into the Reactor Core was changed from

6m³/h to 8m³/h. (10:01 May 6)

- The duct penetrating the double-entry doors in the reactor building was cut off and the doors were partially opened. (20:08 May 8)
- The double-entry doors of the reactor building were opened. (04:17 May 9)
- The positive-pressure housing was dismantled. (05:10 May 9)
- The water level gauge for the RPV was calibrated. (From 09:40 till 10:55 May 10)
- Due to the restoration of the Okuma No.2 power transmission line, the nitrogen injection was temporarily suspended. (From 08:50 till 15:58 May 11)
- The water level condition of the RPV was confirmed and the pressure gauge of the PCV was calibrated. (From 09:50 till 11:14 May 11)
- The situation inside the reactor building was confirmed using a remote-controlled robot. (From 16:01 till 17:39 May 13)
- Fresh water was sprayed over the Spent Fuel Pool using a concrete pump truck (62m class). (Discontinued from 15:07 till 15:18 due to strong winds.)
- The rate of water injection into the Reactor Core was changed from 8 m³/h to 10 m³/h (13:28 May 15)
- The rate of water injection into the Reactor Core was changed from about 10m³/h to about 6m³/h. (11:50 May 17)
- Workers entered the reactor building where they observed the water level and measured the radiation dose. (From 09:30 till 12:15 May 20)
- About 50t of fresh water was sprayed over the Spent Fuel Pool using a concrete pump truck (62m class). (From 15:06 till 16:15 May 20)
- The nitrogen injection was temporarily interrupted after the compressor stopped due to “high temperature”. (Around 14:00 May 21.) The nitrogen injection was resumed by using a back-up device. (17:11 May 21) The nitrogen injection device so far used on Unit 1 was replaced by another one that was intended for usage on Units 2 and 3. (11:23 May 22)
- The work of sampling airborne radioactive materials was conducted at the opening of the reactor building. (From 12:30 till 13:50 May 22)
- Fresh water (about 90t) was sprayed over the Spent Fuel Pool using a concrete pump truck (62m class). (From 15:33 till 17:09 May 22)

- The nitrogen injection to the PCV was temporarily suspended in order to switch the power supply. (From 09:14 till 09:18, and from 15:16 till 15:18 May 25)
- It was confirmed that the compressor for supplying nitrogen had stopped. (15:45 May 25) The injection was restarted after switching to a reserve compressor. (19:44 May 25)
- Workers entered the reactor building, installed the water level gauge for the accumulated water in the reactor building, sampled the accumulated water in the basement, and laid down the hose to the Spent Fuel Pool. (From 10:30 till 12:00 and around 15:00 May 27)
- A leakage test was carried out in order to inject fresh water into the Spent Fuel Pool via the Fuel Pool Cooling and Clean-up Line. (From 16:47 till 17:00 May 28)
- Fresh water (about 168t) was injected into the Spent Fuel Pool via the Fuel Pool Cooling and Clean-up Line. (From 11:10 till 15:35 May 29)
- The rate of water injection to the RPV was changed from about 6m³/h to about 5m³/h. (20:30 May 31)
- A temporary pressure gauge was installed in the reactor. (From 10:38 till 12:21 June 3)
- The situation inside the reactor building was confirmed using an unmanned robot. (From around 15:00 till around 17:00 June 3)
- Injection of coolant water was temporarily suspended due to work to change the routes of the water supply lines for injecting water into the reactors. (From 09:57 till 13:56 June 4.) (Water injection to the reactor was conducted using a fire extinguishing pump from 10:02 till 13:43.)
- Fresh water (about 15t) was injected into the Spent Fuel Pool via the Fuel Pool Cooling and Clean-up Line. (From 10:16 till 10:48 June 5)
- Fresh water injection into the RPV is ongoing. (As of 15:30 June 5)

<Unit 2>

- TEPCO reported to NISA the event (inability of water injection of the emergency Core Cooling System) as falling under Article 15 of the Act on Special Measures Concerning Nuclear Emergency Preparedness. (16:36 March 11)
- Started to vent (11:00 March 13)
- The Blow-out Panel of the reactor building was opened due to the

- explosion in the reactor building of Unit 3. (After 11:00 March 14)
- The reactor water level tended to decrease. (13:18 March 14) TEPCO reported to NISA the event (loss of reactor cooling functions) as falling under Article 15 of the Act on Special Measures Concerning Nuclear Emergency Preparedness. (13:49 March 14)
 - Seawater injection into the RPV via a Fire Extinguishing Line was started. (16:34 March 14)
 - The water level in the RPV tended to decrease. (22:50 March 14)
 - Started to vent (0:02 March 15)
 - A sound of explosion was heard in Unit 2 and the pressure in the Suppression Pool (Suppression Chamber) declined. (06:10 March 15) There was a possibility that an incident occurred in the Chamber. (About 06:20 March 15)
 - Electric power reception at the emergency power source transformer from an external power transmission line was completed. The work for laying an electric cable from there to the load side was carried out. (13:30 March 19)
 - 40t of seawater was injected into the Spent Fuel Pool. (A fire engine pump was joined to a Cooling System pipe.) (From 15:05 till 17:20 March 20)
 - The Power Center received electricity (15:46 March 20)
 - White smoke was emitted. (18:22 March 21)
 - The white smoke died down and became almost invisible. (As of 07:11 March 22)
 - 18t of seawater was injected into the Spent Fuel Pool. (From 16:07 till 17:01 March 22)
 - Seawater was injected into the Spent Fuel Pool via the Fuel Pool Cooling and Clean-up Line. (From 10:30 till 12:19 March 25)
 - Injection of fresh water into the RPV was started. (10:10 March 26)
 - The lighting in the Main Control Room was recovered (16:46 March 26)
 - The pump for injecting fresh water into the RPV was switched from a fire engine pump to a temporary motor-driven pump. (18:31 March 27)
 - Regarding the result announced by TEPCO on 27 March on the concentration measurement of the surface of the accumulated water on the basement level of the turbine building of Unit 2, Fukushima Dai-ichi NPS, TEPCO reported to NISA that the measured value of ^{134}I

(Iodine) was judged to be wrong, and also reported that analysis and evaluation results through re-sampling indicated that, the concentrations of gamma nuclides, including that of ^{134}I (Iodine), were less than the detection limit. (00:07 March 28).

- Seawater injection into the Spent Fuel Pool using a fire engine pump was switched to fresh water injection using a temporary motor-driven pump. (From 16:30 till 18:25 March 29)
- A malfunction was identified at 09:45 March 30 in the temporary motor-driven pump which had been in use for injection into the Spent Fuel Pool from 09:25 of the same day. Therefore, the injection pump was replaced by a fire engine pump. However, because cracks were found in the hose (12:47 and 13:10 March 30), the injection was suspended. Fresh water injection was resumed. (From 19:05 till 23:50 March 30)
- Injection of about 70t of fresh water into the Spent Fuel Pool via the Fuel Pool Cooling and Clean-up Line using a temporary motor-driven pump was carried out. (From 14:56 till 17:05 April 1)
- In order to prepare for the transfer of the accumulated water from the basement of the turbine building to the Condenser, the water in the Condensate Storage Tank was transferred to the Surge Tank of the Suppression Pool Water. (From 16:45 March 29 till 11:50 April 1)
- Accumulated water with a dose rate at the surface exceeding 1,000mSv/h was identified in a pit for a conduit holding electric cables, in a location near the Intake Channel. In addition, there was a crack about 20cm long in a concrete lateral near the pit, from which outflow of water into the sea was confirmed. (Around 09:30 April 2) In order to stop the outflow, concrete was poured into the pit. (16:25 and 19:02 April 2)
- In order to prepare for the transfer of the accumulated water from the basement of the turbine building to the Condenser, the transfer of the water in the Condenser to the Condensate Storage Tank was started. (17:10 April 2)
- Cameras were installed for monitoring water levels in the vertical shaft of the trench and on the 1st basement level of the turbine building. (April 2)
- The lighting in the turbine building was partially recovered. (April 2)
- In order to switch the power supply for the motor-driven pump injecting

fresh water into the RPV - from a temporary power supply to an external power supply - fresh water injection into the reactor was temporarily carried out using a fire engine pump. (From 10:22 till 12:06 April 3)

- The power supply for the fresh water injection into the RPV was switched to external power. (12:12 April 3)
- As a measure to prevent the outflow of water accumulated in the pit near the Inlet Bar Screen of Unit 2, the top of the power cable conduit near the Intake Channel was crushed open and 20 bags of sawdust (3kg/bag), 80 bags of high polymer absorbent (100g/bag) and 3 bags (large garbage bags) of shredded newspaper were poured in. (From 13:47 till 14:30 April 3)
- About 13kg of tracer (milk white bath agent) was poured into the vertical shaft of the Seawater Pipe Duct. (From 07:08 till 07:11 April 4)
- Fresh water injection (about 70t) into the Spent Fuel Pool via the Fuel Pool Cooling and Clean-up Line using a temporary motor-driven pump was carried out. (From 11:05 till 13:37 April 4)
- The tracer solution was poured into the two holes made around the pit of the conduit near the Inlet Bar Screen of Unit 2, and it was confirmed that the solution flowed out from the crack into the sea. (14:15 April 5) A coagulant (soluble glass) was injected into the holes made near the pit in order to prevent the outflow of water. (From 15:07 April 5) It was confirmed that the outflow of water stopped. (Around 05:38 April 6) In addition, it was confirmed that the water level in the turbine building did not rise. Furthermore, a measure to stop the water by means of a rubber board and jig (prop) were implemented at the location of the outflow. (Finished at 13:15 April 6)
- One more pump was installed for the transfer of water in the Condenser to the Condensate Storage Tank. (Total of 2 pumps: 30m³/h) (Around 15:40 April 5)
- Fresh water injection (about 36t) into the Spent Fuel Pool via the Fuel Pool Cooling and Clean-up Line was carried out. (From 13:39 till 14:34 April 7)
- The transfer of water in the Condenser to the Condensate Storage Tank was completed. (13:10 April 9)
- Fresh water injection (about 60t) into the Spent Fuel Pool via the Fuel

Pool Cooling and Clean-up Line was carried out. (From 10:37 till 12:38 April 10)

- Due to the occurrence of an earthquake, the external power supply was lost, and the fresh water injection into the RPV was suspended. (Around 17:16 April 11)
- The external power supply was restored. (17:56 April 11)
- Fresh water injection into the RPV was resumed. (18:04 April 11)
- The accumulated water in the trench of the turbine building was transferred to the Hot Well of the Condenser using a submersible pump (From 19:35 April 12) This was temporarily suspended in order to confirm any leakages, etc. (11:00 April 13) After confirming that there were no leakages, the transfer of the accumulated water resumed from 15:02 April 13 and was stopped at 17:04 April 13. The amount that was transferred was about 660t.
- Fresh water injection (about 60t) into the Spent Fuel Pool via the Fuel Pool Cooling and Clean-up Line was carried out. (From 13:15 till 14:55 April 13)
- Fresh water injection (about 45t) into the Spent Fuel Pool via the Fuel Pool Cooling and Clean-up Line was carried out. (From 10:13 till 11:54 April 16.) Due to the occurrence of an earthquake at around 11:19, the temporary motor-driven pump was shut off at 11:39. The Spent Fuel Pool was confirmed to be filled with water based on the rise of the Skimmer Level at 11:54.)
- In order to replace the hose used for water injection into the Reactor Core to a new hose, the pump for water injection was shut off. (From 12:13 till 12:37 April 18)
- Confirmation of the situation at the reactor building, etc., using an unmanned robot was carried out. (From 13:42 till 14:33 April 18)
- Injection of about 17,000L of coagulant (soluble glass) into the conduit for power cables was carried out. (From 09:30 till 17:40 April 18)
- The sampling of water that flowed out into the Skimmer Surge Tank from the Spent Fuel Pool was carried out in order to grasp the condition of the water in the Pool. (April 16) As a result of a nuclide analysis of radioactive materials from the sampled pool water, $4.1 \times 10^3 \text{Bq/cm}^3$ of ^{131}I (Iodine), $1.6 \times 10^5 \text{Bq/cm}^3$ of ^{134}Cs (Cesium), and $1.5 \times 10^5 \text{Bq/cm}^3$ of ^{137}Cs (Cesium) were detected. (April 17)

- The transfer of the accumulated water (accumulated water from which high radiation dose was measured above the surface) from the trench of the turbine building to the Radioactive Waste Treatment Facilities was started. (From 10:08 April 19)
- Injection of about 7,000L of coagulant (soluble glass) into the conduit for power cables was carried out. (From 08:00 till 15:30 April 19)
- Fresh water injection (about 47t) into the Spent Fuel Pool via the Fuel Pool Cooling and Clean-up Line was carried out. (From 16:08 till 17:28 April 19)
- Fresh water injection (about 50t) into the Spent Fuel Pool via the Fuel Pool Cooling and Clean-up Line was carried out. (From 15:55 till 17:40 April 22)
- About 38t of fresh water was injected into the Spent Fuel Pool via the Fuel Pool Cooling and Clean-up Line. (From 10:12 till 11:18 April 25).
- The power supply to the motor-driven pumps injecting fresh water into the Reactor Pressure Vessel was temporarily switched from external power to temporary diesel generator in order to carry out reinforcement work on the external power supply. (From 10:57 till 18:25 April 25)
- About 43t of fresh water was injected into the Spent Fuel Pool via the Fuel Pool Cooling and Clean-up Line. (From 10:15 till 11:28 April 28)
- In order to carry out inspections, etc. of the transfer facilities, the transfer of accumulated water (accumulated water from which high radiation dose was measured above the surface) from the turbine building trench to the Radioactive Waste Treatment Facilities was temporarily suspended. (09:16 April 29) The transfer was resumed. (14:05 April 30)
- The work to block the trench pit was started. (From 13:35 May 1)
- Fresh water injection (about 55t) into the Spent Fuel Pool using the Fuel Pool Coolant and Clean-up System was carried out. (From 10:05 till 11:40 May 2)
- In order to install an alarm system to the pump used for injecting water into the Reactor Core, the injection of water into the Reactor Core was temporarily switched to a fire engine pump. (From 12:58 to 15:03 May 2)
- About 58t of fresh water was injected into the Spent Fuel Pool via a Fuel Pool Cooling and Clean-up Line. (09:36 till 11:16 May 6)

- The transfer of the accumulated water (accumulated water from which high radiation dose was measured above the surface) from the trench of the turbine building to the Radioactive Waste Treatment Facilities was temporarily suspended due to the construction of the pipes (the Reactor Feedwater System Piping) used for water injection into the reactor of Unit 3. (09:22 May 7) The transfer was resumed. (16:02 May 7)
- The transfer of the accumulated water (accumulated water from which high radiation dose was measured above the surface) from the trench of the turbine building to the Radioactive Waste Treatment Facilities was temporarily suspended in order to lay the water transfer pipes from inside the turbine building of Unit 3 to the Radioactive Waste Treatment Facilities. (From 09:01 May 10 till 15:20 May 11)
- About 56t of fresh water was injected into the Spent Fuel Pool via the Fuel Pool Cooling and Clean-up Line. (From 13:09 till 14:45 May 10) (About 1.2m³ of hydrazine was also injected from 13:19 till 14:35 May 10.)
- Fresh water (about 56t) was injected into the Spent Fuel Pool via a Fuel Pool Cooling and Clean-up Line. (From 13:00 till 14:37 May 14) (About 1.0m³ of hydrazine was also injected from 13:08 till 14:02.)
- A preliminary survey was conducted inside the reactor building. (From 09:24 till 09:38 May 18)
- About 53t of fresh water was injected into the Spent Fuel Pool via the Fuel Pool Cooling and Clean-up Line. (From 13:10 till 14:40 May 18) (About 1.1m³ of hydrazine was also injected from 13:15 till 14:30)
- About 56t of fresh water was injected into the Spent Fuel Pool via the Fuel Pool Cooling and Clean-up Line. (From 13:02 till 14:40 May 22) (About 1.0m³ of hydrazine was also injected from 13:04 till 14:03)
- The transfer of accumulated water (accumulated water from which high radiation dose was measured above the surface) from the trench of the turbine building to the Radioactive Waste Treatment Facilities was temporarily suspended due to the work of switching the power supply. (From 09:05 till 15:30 May 25)
- Fresh water (about 53t) was injected into the Spent Fuel Pool via the Fuel Pool Cooling and Clean-up Line. (From 10:06 till 11:36 May 26) (About 1.0m³ of hydrazine was also injected from 10:10 till 11:10)
- The water in the condenser was transferred to the basement of the

turbine building, in order to carry out work on the pipe to inject water into the RPV (Reactor Feedwater System Pipe). (From 14:45 May 26 till 14:30 May 27)

- A preliminary survey was conducted inside the reactor building. (From 15:19 till 15:32 May 26)
- The transfer of the accumulated water (accumulated water from which high radiation dose was measured above the surface) from the trench of the turbine building to the Radioactive Waste Treatment Facilities was suspended because the water amount in the said facilities came close to the floor surface of the first basement level. (16:01 May 26)
- In addition to injecting water (7m³/hr) into the Reactor Core via the Fire Extinguishing Line, water injection (about 5m³/hr) via the Feedwater Line was started. (11:33 May 29)
- A leakage test was conducted on the secondary system of the alternative cooling system for the Spent Fuel Pool. (11:15 May 30) A trial run of the secondary system was started. (15:02 May 30)
- Fresh water (about 53t) was injected into the Spent Fuel Pool via the Fuel Pool Cooling and Clean-up Line. (From 12:06 till 13:52 May 30)
- Injection of water into the reactor via a pump of the Fire Extinguishing Line was suspended (and injection of water was continued using the Feedwater System (about 5m³/h)). (18:05 May 30)
- A leakage test was conducted on the primary system of the alternative cooling system for the Spent Fuel Pool. (11:40 May 31) Full-fledged operation of the system was started. (17:21 May 31)
- Injection of coolant water was temporarily suspended due to work to change the routes of the water supply lines for injecting water into the reactors. (From 13:49 till 14:09 June 3)
- The accumulated water (accumulated water from which high radiation dose was measured above the surface) in the trench of the turbine building was transferred to the Condenser Hotwell in the turbine building. (From 18:39 June 3 till 12:28 June 4)
- The transfer of the accumulated water (accumulated water from which high radiation dose was measured above the surface) in the trench of the turbine building to the Process Main Building of the Radioactive Waste Treatment Facilities was started.(18:39 June 4)
- Fresh water injection into the RPV is ongoing. (As of 15:30 June 5)

<Unit 3>

- TEPCO reported to NISA the event (inability of water injection of the emergency Core Cooling System) as falling under Article 15 of the Act on Special Measures Concerning Nuclear Emergency Preparedness. (05:10 March 13)
- Started to vent (08:41 March 13)
- Fresh water injection into the RPV via the Fire Extinguishing Line was started. (11:55 March 13)
- Seawater injection into the RPV via the Fire Extinguishing Line was started. (13:12 March 13)
- Seawater injection for Units 1 and 3 was suspended due to the lack of seawater in the pit. (01:10 March 14)
- Seawater injection into the RPV of Unit 3 was resumed. (03:20 March 14)
- Started to vent. (05:20 March 14)
- The PCV pressure rose unusually. (07:44 March 14) TEPCO reported to NISA the event as falling under Article 15 of the Act on Special Measures Concerning Nuclear Emergency Preparedness. (07:52 March 14)
- An explosion similar to that of Unit 1 occurred around the reactor building. (11:01 March 14)
- Smoke resembling white steam was emitted. (Around 08:30 March 16)
- Because of a possibility of the PCV being damaged, the workers evacuated from the Main Control Room (common operation room). (10:45 March 16) Thereafter, the workers returned to the room and resumed the operation of injecting water. (11:30 March 16)
- Seawater was discharged 4 times onto Unit 3 by helicopters of the Self-Defence Force. (9:48, 9:52, 9:58 and 10:01 March 17)
- The riot police of the National Police Agency arrived at the site in order to spray water from the ground. (16:10 March 17)
- The Self-Defence Force started spraying water using a fire engine. (19:35 March 17)
- Water spraying was carried out by the riot police of the National Police Agency. (From 19:05 till 19:13 March 17)
- Water spraying was carried out by the Self-Defense Force using 5 fire

engines. (19:35, 19:45, 19:53, 20:00 and 20:07 March 17)

- Water spraying using 6 fire engines (6 tons of water spray per engine) was carried out by the Self-Defence Force. (From before 14:00 till 14:38 March 18)
- Water spraying was carried out using a fire engine provided by the U.S. Forces Japan (USFJ). (Finished at 14:45 March 18)
- The Hyper Rescue Unit of the Tokyo Fire Department carried out the water spraying work. (Finished at 03:40 March 20)
- The pressure in the PCV rose (320kPa at 11:00 March 20). Preparation to lower the pressure was carried out. However, judging from the situation, immediate pressure relief was not required, so monitoring of the pressure was continued. (120kPa at 12:15 March 21)
- On-site survey for pulling in electric cables was carried out. (From 11:00 till 16:00 March 20)
- Water spraying over the Spent Fuel Pool of Unit 3 was carried out by the Hyper Rescue Unit of the Tokyo Fire Department. (From 21:30 March 20 till 03:58 March 21)
- Grayish smoke was emitted. (Around 15:55 March 21)
- The smoke was confirmed to have died down. (17:55 March 21)
- Grayish smoke changed to whitish smoke and appeared to be ceasing. (As of 07:11 March 22)
- Water spraying (about 180t) by the Tokyo Fire Department and the Osaka City Fire Bureau was carried out. (From 15:10 till 16:00 March 22)
- The lighting was recovered in the Main Control Room. (22:43 March 22)
- Seawater injection (35t) into the Spent Fuel Pool via the Fuel Pool Cooling and Clean-up Line was carried out. (From 11:03 till 13:20 March 23) About 120t of seawater was injected. (From around 5:35 till around 16:05 March 24)
- Slightly blackish smoke was emitted from the reactor building. (Around 16:20 March 23) When checking the smoke at around 23:30 March 23 and around 04:50 March 24, it appeared that the smoke had died down.
- A result of an analysis of the accumulated water, to which workers who were laying electric cables on the ground level and on the basement level of the turbine building stepped in, indicated that the dose rate on the water surface was approximately 400mSv/h, and a result of a

gamma-ray analysis of the sampled water indicated that the total concentration of each nuclide of the sampled water was approximately 3.9×10^6 Bq/cm³.

- Water spraying was carried out by the Kawasaki City Fire Bureau supported by the Tokyo Fire Department. (From 13:28 till 16:00 March 25)
- Fresh water injection into the RPV was started. (18:02 March 25)
- About 100t of seawater was sprayed using a concrete pump truck (52m class). (From 12:34 till 14:36 March 27)
- In order to prepare for the transfer of the stagnant water from the basement of the turbine building to the Condenser, the water in the Condensate Storage Tank was transferred to the Surge Tank of the Suppression Pool Water. (From 17:40 March 28 till around 8:40 March 31)
- The pump for injecting fresh water into the RPV was switched from a fire engine pump to a temporary motor-driven pump. (20:30 March 28)
- About 100t of fresh water was sprayed using a concrete pump truck (52m class). (From 14:17 till 18:18 March 29)
- About 105t of fresh water was sprayed using a concrete pump truck (52m class). (From 16:30 till 19:33 March 31)
- About 75t of fresh water was sprayed using a concrete pump truck (52m class). (From 09:52 till 12:54 April 2)
- The lighting in the turbine building was partially recovered. (April 2)
- The camera for monitoring the water level in the vertical shaft of the trench was installed. (April 2)
- In order to switch the power supply for the motor-driven pump which was being used to inject fresh water into the RPV - from a temporary power supply to an external power supply - the injection into the reactor was temporarily carried out using a fire engine pump. (From 10:03 till 12:16 April 3)
- The power supply for fresh water injection into the RPV was switched to external power. (12:18 April 3)
- About 70t of fresh water was sprayed using a concrete pump truck (52m class). (From 17:03 till 19:19 April 4)
- About 70t of fresh water was sprayed using a concrete pump truck (52m class). (From 06:53 till 08:53 April 7)

- About 75t of fresh water was sprayed using a concrete pump truck (52m class). (From 17:06 till 20:00 April 8)
- About 80t of fresh water was sprayed using a concrete pump truck (52m class). (From 17:15 till 19:15 April 10)
- Due to the occurrence of an earthquake (around 17:16 April 11, near Hamadori, Fukushima Prefecture), the external power supply for Units 1 and 2 was lost, and fresh water injection into the RPV was suspended. (Around 17:16 April 11)
- Because the external power supply for Units 1 and 2 was restored (17:56 April 11), fresh water injection into the RPV was resumed. (18:04 April 11)
- About 35t of fresh water was sprayed using a concrete pump truck (62m class). (From 16:26 till 17:16 April 12)
- About 25t of fresh water was sprayed using a concrete pump truck (62m class). (From 15:56 till 16:32 April 14)
- Confirmation of the situation at the reactor building, etc., using an unmanned robot was carried out. (From 11:30 till 14:00 April 17)
- In order to replace the hose used for injecting water into the reactor with a new hose, the pump for water injection was shut off. (12:38 till 13:05 April 18)
- About 30t of fresh water was sprayed using a concrete pump truck (62m class). (From 14:17 till 15:02 April 18)
- Fresh water was injected on a trial basis into the Spent Fuel Pool via the Fuel Pool Cooling and Clean-up Line. (From 13:40 till 14:00 April 22)
- About 50t of fresh water was sprayed using a concrete pump truck (62m class). (From 14:19 till 15:40 April 22)
- The power supply to the motor-driven pumps injecting fresh water into the Reactor Pressure Vessel was temporarily switched from external power to temporary diesel generator in order to carry out reinforcement work on the external power supply. (From 10:57 till 18:25 April 25)
- About 47.5t of fresh water was injected into the Spent Fuel Pool using the Fuel Pool Cooling and Clean-up System. (From 12:25 till 14:02 April 26)
- In order to install an alarm system to the pump used for injecting water into the Reactor Core, the injection of water into the Reactor Core was

temporarily switched to a fire engine pump. (From 12:58 to 15:03 May 2)

- About 60t of fresh water was injected into the Spent Fuel Pool via the Fuel Pool Cooling and Clean-up System. (From 12:10 till 14:10 May 8)
- The water in the Condenser was transferred to the basement of the turbine building due to the construction of the pipes (the Reactor Feedwater System Piping) used for water injection into the RPV. (From 16:18 May 8 to 05:41 May 10)
- About 80t of fresh water was injected into the Spent Fuel Pool via the Fuel Pool Cooling and Clean-up Line. (From 12:14 till 15:00 May 9) (About 0.5m³ of hydrazine was also injected from 12:39 till 14:36)
- It was confirmed that there was an inflow of water in a pit near the Intake Channel via a conduit that holds the power cables. (Around 12:30 May 11) It was confirmed that there was an outflow of water from the pit into the sea. (Around 16:05 May 11) The outflow was stopped by casting concrete, etc., inside the pit. (18:45 May 11)
- In addition to injecting water (about 9m³/h) into the Reactor Core using the pipe of the Fire Extinguishing Line, injection of water into the Reactor Core was also started using the pipe of the Feedwater System (about 3m³/h). (16:53 May 12)
- Borated water was injected to the RPV. (From 14:33 till 17:00 May 15)
- About 106t of fresh water was injected into the Spent Fuel Pool via the Fuel Pool Cooling and Clean-up Line. (From 15:00 till 18:32 May 16) (About 0.88m³ of hydrazine was also injected from 15:10 till 17:30)
- The transfer of accumulated water in the basement of the turbine building to the Radioactive Waste Treatment Facilities was started. (18:04 May 17)
- A preliminary survey was conducted inside the reactor building. (For about 10 minutes from around 16:30 May 18)
- Fresh water (about 100t) was injected into the Spent Fuel Pool via the Fuel Pool Cooling and Clean-up Line. (From 10:15 till 13:35 May 24) (About 0.8m³ of hydrazine was also injected from 10:20 till 12:56)
- The transfer of the accumulated water in the basement of the turbine building to the Radioactive Waste Treatment Facilities was temporarily suspended in order to inspect the transfer lines and buildings. (09:10 May 25)

- Fresh water (about 50t) was injected into the Spent Fuel Pool via the Fuel Pool Cooling and Clean-up Line. (From 13:28 till 15:08 May 28) (About 0.38m³ of hydrazine was also injected from 13:42 till 14:40)
- Fresh water injection into the RPV is ongoing. (As of 15:30 May 29)
- Water injection into the Reactor Core via the Fire Extinguishing Line was stopped. (water was injected (13.5m³/hr) into the Reactor Core via the Feedwater Line) (20:54 May 28)
- A preliminary survey using a remote-controlled robot was carried out inside the reactor building. (Around 09:00 till around 16:00 May 31)
- The rate of water injection to the RPV was changed from about 13.5m³/h to about 12.5m³/h (10:19 May 31).
- The rate of water injection to the RPV was changed from about 12.5m³/h to about 11.5m³/h. (10:10 June 1)
- Fresh water (about 40t) was injected into the Spent Fuel Pool via the Fuel Pool Cooling and Clean-up Line. (From 14:34 till 15:54 June 1) (About 0.14m³ of hydrazine was also injected from 14:41 till 15:26)
- In order to prepare for the transfer of the accumulated water from the basement floor of the turbine building to the Condenser, water in the Condenser was transferred to the Condensate Storage Tank. (From 12:50 June 2 till 21:56 June 4)
- Injection of coolant water was temporarily suspended due to work to change the routes of the water supply lines for injecting water into the reactors. (From 13:16 till 13:32 June 3)
- The emission of white smoke could not be confirmed. (As of 06:30 June 5)
- Fresh water was injected into the Spent Fuel Pool via the Fuel Pool Cooling and Clean-up Line. (From 13:08 June 5) (Hydrazine was also injected from 13:14 till 14:16)
- The injection of fresh water into the RPV is ongoing. (As of 15:30 June 5)

<Unit 4>

- Due to the ongoing replacement work of the Shroud of the RPV, no fuel was inside the RPV.
- The water temperature of the Spent Fuel Pool rose. (84°C as of 04:08 March 14)

- It was confirmed that a part of the wall in the operations area was damaged. (06:14 March 15)
- A fire broke out. (09:38 March 15) TEPCO confirmed that the fire had died down spontaneously. (Around 11:00 March 15)
- A fire broke out. (05:45 March 16) TEPCO could not confirm the fire on the ground. (Around 06:15 March 16)
- The Self-Defence Force started to spray water over the Spent Fuel Pool. (09:43 March 20)
- An on-site survey for pulling in electric cables was carried out. (From 11:00 till 16:00 March 20)
- The Self-Defense Force sprayed water over the Spent Fuel Pool. (From around 18:30 till 19:46 March 20).
- The Self-Defence Force sprayed water over the Spent Fuel Pool using 13 fire engines. (From 06:37 till 08:41 March 21)
- The work of laying electric cables to the Power Center was completed. (Around 15:00 March 21)
- The Power Center received electricity. (10:35 March 22)
- About 150t of seawater was sprayed using a concrete pump truck (58m class). (From 17:17 till 20:32 March 22)
- About 130t of seawater was sprayed using a concrete pump truck (58m class). (From 10:00 till 13:02 March 23)
- About 150t of seawater was sprayed using a concrete pump truck (58m class). (From 14:36 till 17:30 March 24)
- About 150t of seawater was sprayed using a concrete pump truck (58m class). (From 19:05 till 22:07 March 25)
- Seawater injection into the Spent Fuel Pool via the Spent Fuel Pool Cooling and Clean-up Line was carried out. (From 06:05 till 10:20 March 25)
- About 125t of seawater was sprayed using a concrete pump truck (58m class). (From 16:55 till 19:25 March 27)
- The lighting in the Main Control Room was recovered. (11:50 March 29)
- About 140t of fresh water was sprayed using a concrete pump truck (58m class). (From 14:04 till 18:33 March 30)
- About 180t of fresh water was sprayed using a concrete pump truck (58m class). (From 08:28 till 14:14 April 1)
- The lighting in the turbine building was partially recovered. (April 2)

- From April 2, the accumulated water in the main building of the Radioactive Waste Treatment Facilities was being transferred to the turbine building of Unit 4. From April 3, the water level in the vertical shaft of the trench in Unit 3 started to rise. Therefore, by way of precaution, the transfer was suspended notwithstanding that the path of the water was not clear. (09:22 April 4)
- About 180t of fresh water was sprayed using a concrete pump truck (58m class). (From 17:14 till 22:16 April 3)
- About 20t of fresh water was sprayed using a concrete pump truck (58m class). (From 17:35 till 18:22 April 5)
- About 38t of fresh water was sprayed using a concrete pump truck (58m class). (From 18:23 till 19:40 April 7)
- About 90t of fresh water was sprayed using a concrete pump truck (58m class). (From 17:07 till 19:24 April 9)
- The work of sampling water in the Spent Fuel Pool was carried out in order to grasp the condition of the fuel kept in the pool. (From 12:00 till 13:04 April 12) A nuclide analysis of radioactive materials was carried out on the sampled water from the Spent Fuel Pool. (April 13) As a result of the nuclide analysis, $2.2 \times 10^2 \text{Bq/cm}^3$ of ^{131}I (Iodine), $8.8 \times 10^1 \text{Bq/cm}^3$ of ^{134}Cs (Cesium), and $9.3 \times 10^1 \text{Bq/cm}^3$ of ^{137}Cs (Cesium) were detected. (April 14)
- About 195t of fresh water was sprayed using a concrete pump truck (62m class). (From 0:30 till 6:57 April 13)
- About 140t of fresh water was sprayed using a concrete pump truck (62m class). (From 14:30 till 18:29 April 15)
- About 140t of fresh water was sprayed using a concrete pump truck (62m class). (From 17:39 till 21:22 April 17)
- About 40t of fresh water was sprayed using a concrete pump truck (62m class). (From 10:17 till 11:35 April 19)
- About 100t of fresh water was sprayed using a concrete pump truck (62m class). (From 17:08 till 20:31 April 20)
- About 140t of fresh water was sprayed using a concrete pump truck (62m class). (From 17:14 till 21:20 April 21)
- The water level of the Spent Fuel Pool, etc., was measured by hanging a measuring device using a concrete pump truck (62m class). (April 22)
- About 200t of fresh water was sprayed over the Spent Fuel Pool of Unit

4 using a concrete pump truck (62m class). (From 17:52 till 23:53 April 22)

- About 140t of fresh water was sprayed using a concrete pump truck (62m class). (From 12:30 till 16:44 April 23)
- About 165t of fresh water was sprayed using a concrete pump truck (62m class). (From 12:25 till 17:07 April 24)
- About 210t of fresh water was sprayed using a concrete pump truck (62m class). (From 18:15 April 25 till 0:26 April 26)
- About 130t of fresh water was sprayed using a concrete pump truck (62m class). (From 16:50 till 20:35 April 26)
- About 85t of fresh water was sprayed using a concrete pump truck (62m class). (From 12:18 till 14:01 and from 14:32 till 15:15 April 27)
- About 270t of fresh water was sprayed over the Spent Fuel Pool using a concrete pump truck (62m class). (From 12:19 till 20:46 May 5)
- About 180t of fresh water was sprayed over the Spent Fuel Pool using a concrete pump truck (62m class). (From 12:38 till 17:51 May 6)
- About 120t of fresh water was sprayed over the Spent Fuel Pool using a concrete pump truck (62m class). (From 14:05 till 17:30 May 7)
- About 100t of fresh water was sprayed using a concrete pump truck (62m class). (From 16:05 till 19:05 May 9) (About 0.23m³ of hydrazine was also injected from 16:11 till 18:38)
- The work to install a supporting structure for the base of the Spent Fuel Pool was started. (From May 9)
- About 120t of fresh water was sprayed over the Spent Fuel Pool using a concrete pump truck (62m class). (From 16:07 till 19:38 May 11) (Hydrazine was also injected from 16:14 till 19:36.)
- About 100t of fresh water was sprayed using a concrete pump truck (62m class). (From 16:04 till 19:04 May 13) (About 0.12m³ of hydrazine was also injected from 16:20 till 18:41.)
- About 100t of fresh water was sprayed over the Spent Fuel Pool using a concrete pump truck (62m class). (From 16:25 till 20:25 May 15) (About 0.30m³ of hydrazine was also injected from 16:26 till 18:30.)
- Fresh water (about 120t) was sprayed over the Spent Fuel Pool using a concrete pump truck (62m class). (From 16:14 till 20:06 May 17) (About 0.6m³ of hydrazine was also injected from 16:40 till 18:35.)
- Fresh water (about 100t) was sprayed over the Spent Fuel Pool using a

concrete pump truck (62m class). (From 16:30 till 19:30 May 19)

- About 130t of fresh water was sprayed using a concrete pump truck (62m class). (From 16:00 till 19:56 May 21) (About 0.4m³ of hydrazine was also injected from 16:23 till 19:00)
- The work of sampling airborne radioactive materials was conducted at the opening of the reactor building. (From 14:17 till 14:37 May 23)
- Fresh water (about 100t) was sprayed over the Spent Fuel Pool using a concrete pump truck (62m class). (From 16:00 till 19:09 May 23) (About 0.3m³ of hydrazine was also injected from 16:08 till 18:30.)
- Fresh water (about 121t) was sprayed over the Spent Fuel Pool using a concrete pump truck (62m class). (From 16:36 till 20:04 May 25) (About 0.3m³ of hydrazine was also injected from 16:42 till 18:49.)
- Fresh water (about 100t) was sprayed using a concrete pump truck (62m class). (From 17:05 till 20:00 May 25) (About 0.2m³ of hydrazine was also injected from 17:24 till 18:53)
- Fresh water (about 100t) was sprayed using a concrete pump truck (62m class). (From 17:05 till 20:00 May 27) (About 0.2m³ of hydrazine was also injected from 17:24 till 18:53)
- Fresh water (about 60t) was sprayed using a concrete pump truck (62m class). (From 17:56 till 19:45 May 28) (About 0.5m³ of hydrazine was also injected from 18:02 till 19:45)
- Fresh water (about 210t) was sprayed using a concrete pump truck (58m class). (From 14:35 till 21:15 June 3) (About 1m³ of hydrazine was also injected from 14:44 till 18:58)
- Fresh water (about 180t) was sprayed using a concrete pump truck (58m class). (From 14:23 till 19:45 June 4) (About 0.4m³ of hydrazine was also injected from 14:51 till 18:41)
- The emission of white smoke could not be confirmed. (As of 06:30 June 5)

<Units 5 and 6>

- The first unit of the Emergency Diesel Generator (D/G) (B) for Unit 6 is operating and supplying electricity. Water injection into the RPV and the Spent Fuel Pool through the Make-up Water Condensate (MUWC) System is being carried out.
- The second unit of the Emergency Diesel Generator (D/G) (A) for Unit 6

started up. (04:22 March 19)

- The pumps for the Residual Heat Removal System (RHR) (C) for Unit 5 (05:00 March 19) and the pumps for the RHR (B) for Unit 6 (22:14 March 19) started up and the heat removal function was restored. Cooling of the Spent Fuel Pool was given priority. (Power supply: the Emergency Diesel Generator for Unit 6) (05:00 March 19)
- Unit 5 was brought to cold shutdown (14:30 March 20)
- Unit 6 was brought to cold shutdown (19:27 March 20)
- Electricity reached the starting transformers of Units 5 and 6. (19:52 March 20)
- The power supply to Unit 5 was switched from the Emergency Diesel Generator to external power. (11:36 March 21)
- The power supply to Unit 6 was switched from the Emergency Diesel Generator to external power. (19:17 March 22)
- The temporary pump for the Residual Heat Removal Seawater System (RHRS) of Unit 5 automatically shut off when the power supply was switched from a temporary to a permanent supply. (17:24 March 23)
- Repair of the temporary pump for the RHRS of Unit 5 was completed (16:14 March 24) and cooling resumed. (16:35 March 24)
- The power supply for the temporary pump for the RHRS of Unit 6 was switched from a temporary to a permanent supply. (15:38 and 15:42 March 25)
- Subsurface water in the Sub-Drain Pits of Units 5 and 6 which was received and managed in the low-level radioactivity facilities were discharged through the Water Discharge Canal to the sea. (Unit 5 from 21:00 April 4 till 12:14 April 8 (about 950t), Unit 6 from 21:00 April 4 till 18:52 April 9 (about 373t))
- Accumulated water in the basement of the turbine building of Unit 6 (about 100 m³) was transferred to the Condenser. (From 11:00 till 15:00 April 19)
- The pump for the RHR was temporarily shut off in order to reposition the hose of the temporary RHRS of Unit 6. (From 09:51 April 20) After transferring the pump of the temporary RHRS, cooling was resumed (15:56 April 20).
- Due to reinforcement work on the external power supplies, the pumps for Residual Heat Removal (RHR) of Unit 5 were temporarily

suspended. (From 12:22 till 16:43 April 25)

- The accumulated water in the basement of the turbine building of Unit 6 (about 119.8m³)* was transferred to a temporary tank. (From 14:00 till 17:00 May 1)
- The accumulated water in the basement of the turbine building of Unit 6 (about 222.3m³)* was transferred to a temporary tank. (From 10:00 till 16:00 May 2)
- Due to the testing of the starter transformers (5SB) in Units 5 and 6 for power reception, the pumps for the Residual Heat Removal System (RHR) were temporarily shut off. (May 2, From 13:30 till 15:03 for Unit 5 and from 11:03 to 14:53 for Unit 6.)
- The accumulated water in the basement of the turbine building of Unit 6 (about 124.1m³)* was transferred to a temporary tank. (From 14:00 till 17:00 May 3)
- The accumulated water in the basement of the turbine building of Unit 5 (about 600m³) was transferred to the Condenser. (From March 27 till May 2)
- The accumulated water in the basement of the turbine building of Unit 6 (about 111.7m³)* was transferred to the temporary tank. (From 14:00 till 17:00 May 6)
- The accumulated water in the basement of the turbine building of Unit 6 (about 184.1m³)* was transferred to the temporary tank. (From 10:00 till 15:00 May 7)
- The accumulated water in the basement of the turbine building of Unit 6 (about 94.7m³)* was transferred to a temporary tank. (From 14:00 till 17:00 May 9)
- The accumulated water in the basement of the turbine building of Unit 6 (about 118.2m³)* was transferred to the temporary tank. (From 10:00 till 16:00 May 10)
- The accumulated water in the basement of the reactor building of Unit 6 (about 10m³) was transferred to the building of the Radioactive Waste Treatment Facilities of the same Unit. (From 11:00 till 12:30 May 10)
- The accumulated water in the basement of the turbine building of Unit 6 (about 118.9m³) was transferred to a temporary tank. (From 10:00 till 16:00 May 11)
- The accumulated water in the basement of the reactor building of Unit 6

- (about 10m³) was transferred to the building of the Radioactive Waste Treatment Facilities of the same Unit. (From 11:00 till 12:30 May 11.)
- The accumulated water in the basement of the turbine building of Unit 6 (about 116.9m³)* was transferred to a temporary tank. (From 10:00 till 16:00 May 12)
 - The accumulated water in the basement of the reactor building of Unit 6 (about 7.5m³) was transferred to a Radioactive Waste Treatment Facilities building of the same Unit. (From 10:30 till 12:30 May 12)
 - The accumulated water inside the basement of the turbine building of Unit 6 (about 102.2m³)* was transferred to a temporary tank. (From 10:00 till 15:00 May 13)
 - The accumulated water in the basement of the reactor building of Unit 6 (about 3.3m³) was transferred to a Radioactive Waste Treatment Facilities building of the same Unit. (From 11:30 till 12:15 May 13.)
 - The accumulated water inside the basement of the turbine building of Unit 6 (about 96.3m³)* was transferred to a temporary tank. (From 10:00 till 15:00 May 14)
 - The accumulated water inside the basement of the turbine building of Unit 6 (about 94.3m³)* was transferred to a temporary tank. (From 10:00 till 15:00 May 15)
 - The accumulated water inside the basement of the turbine building of Unit 6 (about 76.6m³)* was transferred to a temporary tank (From 10:00 till 14:00 May 16).
 - The accumulated water inside the basement of the turbine building of Unit 6 (about 75.3m³)* was transferred to a temporary tank (From 10:00 till 14:00 May 17).
 - The accumulated water in the basement of the turbine building of Unit 6 (about 83.6m³)* was transferred to a temporary tank. (From 10:00 till 14:00 May 18)
 - The accumulated water in the basement of the reactor building of Unit 6 (about 10.5m³) was transferred to a building of the Radioactive Waste Treatment Facilities of the same Unit. (From 10:30 till 12:30 May 18)
 - The accumulated water in the basement of the turbine building of Unit 6 (about 45.3m³)* was transferred to a temporary tank. (From 14:00 till 18:00 May 21)
 - The accumulated water in the basement of the turbine building of Unit

6 (about 201.0m³)* was transferred to the temporary tank. (From 09:00 till 19:00 May 24)

- The accumulated water in the basement of the turbine building of Unit 6 (about 378.0m³)* was transferred to the temporary tank. (From 09:00 till 19:00 May 25)
- The accumulated water in the basement of the turbine building of Unit 6 (about 378.0m³)* was transferred to the temporary tank. (From 09:00 till 19:00 May 26)
- The accumulated water in the basement of the turbine building of Unit 6 (about 381.5m³)* was transferred to the temporary tank. (From 09:00 till 19:00 May 27)

*The calculation of the amount of the transferred water has been changed from (flow rate) x (amount of time) to the variation of the water level.

- The accumulated water in the basement of the turbine building of Unit 6 (about 382.2m³) was transferred to a temporary tank. (From 09:00 till 19:00 May 28)
- The accumulated water in the basement of the reactor building of Unit 6 (about 12m³) was transferred to a building of the Radioactive Waste Treatment Facilities of the same Unit. (From 10:20 till 12:10 May 28)
- It was confirmed that the Residual Heat Removal Seawater System (RHRS) pump of Unit 5 had stopped (around 21:14 May 28). The work for replacing it with a spare pump began (08:12 May 29), and the RHRS pump started-up (12:31 May 29). The cooling of the Reactor Core was started using the Residual Heat Removal System (RHR). (12:49 May 29)
- The accumulated water (about 378.4m³) in the basement of the turbine building of Unit 6 was transferred to a temporary tank. (From 9:00 till 19:00 May 29)
- The accumulated water (about 250.7m³) in the basement of the turbine building of Unit 6 was transferred to a temporary tank. (From 10:00 till 17:30 May 30)
- The transfer of accumulated water from the basement of the turbine building of Unit 6 to a temporary tank was started. (14:00 June 2) (It was temporarily suspended from 14:00 till 14:45 June 5)

<Common Spent Fuel Pool>

- It was confirmed just after 06:00 March 18 that the water level of the Spent Fuel Pool was almost full.
- Water was injected into the Common Spent Fuel Pool. (From 10:37 till 15:30 March 21)
- Power started to be supplied (15:37 March 24) and cooling also started.(18:05 March 24)
- The power supply was stopped due to short-circuit at the terminal portion of the power supply circuit. (14:34 April 17) Thereafter the facility was inspected and the power supply was restored. (17:30 April 17)
- As of 07:10 June 5, the water temperature of the pool was about 29°C.

<Seawater and Soil Monitoring>

- As a result of a nuclide analysis of seawater from around the Southern Water Discharge Canal, $7.4 \times 10^1 \text{Bq/cm}^3$ of ^{131}I (Iodine) was detected (1,850.5 times higher than the water concentration limit for areas outside the Environmental Monitoring Area). (14:30 March 26)
- As a result of measurement on 29 March, the level was 3,355.0 times higher than the water concentration limit. (13:55 March 29). On the other hand, as a result of a nuclide analysis of seawater from the northern side of the Water Discharge Canal of the NPS, $4.6 \times 10^1 \text{Bq/cm}^3$ of ^{131}I (Iodine) was detected (1,262.5 times higher than the water concentration limit). (14:10 March 29)
- In the samples of soil collected on March 21 and 22 on the site of Fukushima Dai-ichi NPS (from 5 points), ^{238}Pu (Plutonium), ^{239}Pu (Plutonium) and ^{240}Pu (Plutonium) were detected (23:45 March 28 announcement by TEPCO). The concentration level of the detected plutonium was equivalent to the level of the fallout (radioactive fallout) observed in Japan in connection with atmospheric nuclear tests in the past, i.e., equivalent to normal environmental levels, and it did not pose any harm to human health.
- Permanent monitoring posts (No.1 to 8) installed near the Site Boundary were restored. (March 31) Measurements will be made once a day.
- In the samples of soil (7 samples in total) collected on March 25 (from 4 points) and March 28 (from 3 points) from the site of Fukushima Dai-ichi NPS, ^{238}Pu (Plutonium), ^{239}Pu (Plutonium) and ^{240}Pu (Plutonium) were

detected (announcement by TEPCO, 18:30 April 6). The concentration of the detected plutonium was, similar to the previous finding (announcement on March 28), equivalent to the level of the fallout (radioactive fallout) observed in Japan in connection with atmospheric nuclear tests in the past, i.e., equivalent to normal environmental levels, and it did not pose any harm to human health.

- As a result of a nuclide analysis of seawater from around the Southern Water Discharge Canal, $1.8 \times 10^2 \text{Bq/cm}^3$ of ^{131}I (Iodine) was detected (4,385.0 times higher than the water concentration limit outside the Environmental Monitoring Area) (13:55 March 30).
- In the 3 soil samples (of a total of 6 samples) collected on March 31 and April 4 from 3 points on the site of Fukushima Dai-ichi NPS, designated for regular sampling, ^{238}Pu (Plutonium), ^{239}Pu (Plutonium) and ^{240}Pu (Plutonium) were detected (announcement by TEPCO, 18:30 April 14). The concentration of the detected plutonium was equivalent to the level of the fallout (radioactive fallout) observed in Japan in connection with atmospheric nuclear tests in the past, i.e., equivalent to normal environmental levels, and it did not pose any harm to human health.

<Prevention of Diffusion of Contaminated Water>

- In order to prevent any flow of contaminated water from the exclusive port to the sea, large-sized sandbags were placed around the seawall on the south side of the NPS. (From 15:00 till 16:30 April 5)
- The installation of a double row of silt fences was completed near the seawall on the south side of the NPS to prevent the diffusion of contaminated water. (10:45 April 11)
- On the ocean-side of the Inlet Bar Screen of Unit 2, a temporary board to stop water (one of 7 steel plates) was installed. (From 12:00 till 13:00 April 12)
- On the ocean-side of the Inlet Bar Screen of Unit 2, temporary boards to stop water (2 of 7 steel plates) were installed. (From around 8:30 till around 10:00 April 13)
- Silt fences to prevent the diffusion of contaminated water were installed in front of the screens of Units 3 and 4. (13:50 April 13)
- Silt fences to prevent the diffusion of contaminated water were installed at the Curtain Wall and in front of the screens of Units 1 and 2. (12:20

April 14)

- 3 sandbags filled with Zeolite were placed between the Inlet Screen Pump Room of Unit 3 and the Inlet Screen Pump Room of Unit 4. (From 14:30 till 15:45 April 15)
- Temporary boards to stop water (4 of 7 steel plates) were installed on the ocean-side of the Inlet Bar Screen of Unit 2. (From 9:00 till 14:15 April 15)
- 2 sandbags filled with Zeolite were placed between the Inlet Screen Pump Room of Unit 1 and the Inlet Screen Pump Room of Unit 2, and 5 sandbags filled with Zeolite were placed between the Inlet Screen Pump Room of Unit 2 and the Inlet Screen Pump Room of Unit 3. (From 9:00 till 11:15 April 17)
- 7 sandbags filled with Zeolite were placed near the Inlet Bar Screen between Units 1 and 2, and 3 sandbags near the Inlet Bar Screen between Units 3 and 4. (From 10:00 till 11:00 May 19)

<Spraying of an Anti-scattering Agent to Prevent the Spread of Radioactive Materials>

- Spraying was carried out by workers on a trial basis in an area of about 500m² on the mountain-side of the Common Pool. (From 15:00 till 16:05 April 1)
- Spraying was carried out by workers on a trial basis in an area of about 600m² on the mountain-side of the Common Pool and on the west and south sides of Unit 4. (From 13:00 till 16:30 April 5)
- Spraying was carried out by workers on a trial basis in an area of about 600m² on the mountain-side of the Common Pool. (From 12:30 till 14:30 April 6)
- Spraying was carried out by workers on a trial basis in an area of about 680m² on the mountain-side of the Common Pool. (From 11:00 till 14:00 April 8)
- Spraying was carried out by workers on a trial basis in an area of about 550m² on the mountain-side of the Common Pool. (From 13:00 till 14:00 April 10)
- Spraying was carried out by workers on a trial basis in an area of about 1,200m² on the mountain-side of the Common Pool. (From 12:00 till 13:00 April 11)

- Spraying was carried out by workers on a trial basis in an area of about 700m² on the mountain-side of the Common Pool. (From 12:00 till 13:00 April 12)
- Spraying was carried out by workers on a trial basis in an area of about 400m² on the mountain-side of the Common Pool. (From 11:00 till 11:30 April 13)
- Spraying was carried out by workers on a trial basis in an area of about 1,600m² on the mountain-side of the Common Pool. (From 12:00 till 13:30 April 14)
- Spraying was carried out by workers on a trial basis in an area of about 1,900m² on the mountain-side of the Common Pool. (From 11:30 till 13:00 April 15)
- Spraying was carried out by workers on a trial basis in an area of about 1,800m² that includes the mountain-side of the Surge Tank of the Suppression Pool Water. (From 11:00 till 13:00 April 16)
- Spraying was carried out by workers on a trial basis in an area of about 1,900m² around the Radioactive Waste Treatment Facilities. (From 10:00 till 13:30 April 17)
- Spraying was carried out by workers on a trial basis in an area of about 1200m² around the Radioactive Waste Treatment Facilities. (From 09:00 till 14:30 April 18)
- Spraying was carried out by workers on a trial basis in an area of about 1,900m² that includes the Radioactive Waste Treatment Facilities (From 12:00 till 13:30 April 20)
- Spraying was carried out by workers on a trial basis in an area of about 1,300m² on the mountain-side of the Radioactive Waste Treatment Facilities and about 5,100m² on the mountain-side of the switchyard for the high-voltage power supply of Units 5 and 6. (From 12:00 till 15:00 April 21)
- Spraying was carried out by workers on a trial basis in an area of about 860 m² on the mountain-side of the Nuclear Reactor Building for Unit 5. (From 11:30 till 13:00 April 24)
- Spraying was carried out by workers on a trial basis in an area of about 3,800m² on the mountain-side of the reactor building of Unit 5, on the road in front of the former Main Office Building, and around the gymnasium. (From 10:30 till 12:30 April 25)

- Spraying was carried out on a full scale in an area of about 5,000m² on the ocean-side of the turbine building of Unit 3 using an unmanned crawler dump. (From 13:30 till 17:00 April 26)
- Spraying was carried out on a full scale in an area of about 7,500m² on the ocean-side of the turbine building of Unit 3 using an unmanned crawler dump. (From 11:00 till 17:00 April 27)
- Spraying was carried out by workers on a full scale in an area of about 4,540m² on the mountain-side of the reactor building of Unit 5, the road in front of the former Main Office Building and around the gymnasium. (From 10:30 till 12:00 April 28)
- Spraying was carried out on a full scale in an area of about 7,000m² on the ocean-side of the turbine building of Unit 4 using an unmanned crawler dump. (From 09:00 till 16:00 April 29)
- Spraying was carried out on a full scale by workers in an area of about 5,800m² on the mountain-side of the reactor building of Unit 5, the road in front of the former Main Office Building and around the gymnasium. (From 10:30 till 14:00 April 29)
- Spraying was carried out on a full-scale in an area of about 2,000m² on the south-side of the turbine building of Unit 4 using an unmanned crawler dump. (From 11:00 till 14:00 April 30)
- Spraying was carried out by workers on a full-scale in an area of about 5,400m² on the road in front of the former Main Office Building, near the gymnasium and on the west-side of the shallow draft quay. (From 10:30 till 14:00 April 30)
- Spraying was carried out on a full-scale in an area of about 1,000m² on the south-side of the reactor building of Unit 4 using an unmanned crawler dump. (From 11:00 till 13:00 May 1)
- Spraying was carried out by workers on a full-scale in an area of about 4,400m² on the road in front of the former Main Office Building, around the gymnasium, and on the west-side of the shallow draft quay. (From 10:30 till 14:00 May 1)
- Spraying was carried out on a full scale in an area of about 4,000m² on the south-side and west-side of the reactor building of Unit 4 using an unmanned crawler dump. (From 09:00 till 16:00 May 2)
- Spraying was carried out by workers on a full scale in an area of about 5,500m² on the road in front of the former Main Office Building, around

the gymnasium (sports ground), and on the west-side of the Shallow Draft Quay. (From 10:30 till 14:00 May 2)

- Spraying was carried out by workers on a full scale in an area of about 5,300m² on the road in front of the former Main Office Building, on the sports ground, and on the west-side of the Shallow Draft Quay. (From 9:30 till 14:30 May 3)
- Spraying was carried out on a full scale in an area of about 4,000m² on the west-side of the reactor building of Unit 3 using an unmanned crawler dump. (From 11:00 till 13:30 May 3)
- Spraying was carried out on a full scale by workers in an area of about 5,200m² on the road in front of the former Main Office Building, on the sports ground, and on the west-side of the Shallow Draft Quay. (From 10:30 till 14:00 May 4)
- Spraying was carried out on a full scale by workers in an area of about 4,000m² on the west-side of the reactor building of Unit 3 using an unmanned crawler dump. (From 14:00 till 16:00 May 4)
- Spraying was carried out on a full scale by workers in an area of about 5,350m² on the west-side of the common pool, on the sports ground, and on the west-side of the Shallow Draft Quay. (From 10:30 till 14:00 May 5)
- Spraying was carried out on a full scale in an area of about 4,000m² on the west-side of the reactor building of Unit 2 using an unmanned crawler dump. (From 13:00 till 16:00 May 5)
- Spraying was carried out on a full scale by workers in an area of about 5,200m² on the west-side of the Shallow Draft Quay, around the Radioactive Waste Treatment Facilities, and on the sports ground. (From 10:30 till 14:00 May 6)
- Spraying was carried out on a full scale in an area of about 4,000m² on the west-side of the reactor building of Unit 1 using an unmanned crawler dump. (From 11:00 till 14:00 May 6)
- Spraying was carried out on a full scale by workers in an area of about 5,150m² on the west-side of the Shallow Draft Quay, around the Radioactive Waste Treatment Facilities, and on the sports ground. (From 10:30 till 14:00 May 7)
- Spraying was carried out on a full scale by workers in an area of about 5,100m² on the west-side of the Shallow Draft Quay, around the Radioactive Waste Treatment Facilities and on the sports ground. (From

10:30 till 14:00 May 8)

- Spraying was carried out on a full scale by workers in an area of about 5,250m² around the Solid Waste Storage, around the Radioactive Waste Treatment Facilities and on the sports ground. (From 10:30 till 14:00 May 9)
- Spraying was carried out on a full scale by workers in an area of about 5,050m² around the Solid Waste Storage, the Observation Deck and the sports ground. (From 10:30 till 13:00 May 10)
- Spraying was carried out on a full scale by an unmanned crawler dump in an area of about 6,000m² around the turbine buildings of Units 1 and 2. (From 11:00 till 16:00 May 10)
- Spraying was carried out on a full scale by workers in an area of about 5,250m² around the Solid Waste Storage and South Seawall. (From 10:30 till 14:00 May 11)
- Spraying was carried out on a full scale by workers in an area of about 5,250m² around the Solid Waste Storage and South Seawall. (From 10:30 till 14:00 May 12)
- Spraying was carried out on a full scale by workers in an area of about 5,250m² around the Solid Waste Storage and South Seawall. (From 09:00 till 14:30 May 13)
- Spraying was carried out on a full scale in an area of about 6,000m² on the north and east sides of the turbine building of Unit 1 using an unmanned crawler dump. (From 11:00 till 15:00 May 13)
- Spraying was carried out by workers on a full scale in an area of about 5,250m² around the Solid Waste Storage, South Seawall and the Observation Deck. (From 10:30 till 14:00 May 14)
- Spraying was carried out on a full scale using an unmanned crawler dump in an area of about 7,000m² on the east side of the turbine building of Unit 2. (From 11:00 till 15:00 May 14)
- Spraying was carried out by workers on a full scale in an area of about 7,000m² around the Solid Waste Storage, the Controlled-Type Landfill Site for Industrial Waste, the Observation Deck and the sports ground. (From 9:00 till 14:00 May 15)
- Spraying was carried out on a full scale by workers in an area of about 6,520m² on the road in front of the former Main Office Building, around the Controlled-Type Landfill Site for Industrial Waste, at the

Observation Deck and around the parking lot for the Seismic Isolated Building. (From 10:30 to 14:00 May 16)

- Spraying was carried out on a full scale by an unmanned crawler dump truck in an area of about 3,000 m² on the east side of the turbine building of Unit 1. (From 11:00 till 15:45 May 16)
- Spraying was carried out on a full scale by workers in an area of about 6,550m² in the baseball field, the subcontractor's yard, and around the Controlled-Type Landfill Site for Industrial Waste. (From 10:30 till 14:00 May 17)
- Spraying was carried out on a full scale by workers in an area of about 8,750m² in the baseball field, the observation deck, the subcontractor's yard, and around the Controlled-Type Landfill Site for Industrial Waste. (From 09:00 till 14:30 May 18)
- Spraying was carried out on a full scale by workers in an area of about 8,750m² in the baseball field, the observation deck, the subcontractor's yard and around the Controlled-Type Landfill Site for Industrial Waste. (From 10:30 till 14:00 May 19)
- Spraying was carried out on a full scale by workers in an area of about 8,250m² in the baseball field, the observation deck, the subcontractor's yard and around the Nonflammable Waste Treatment Facility, etc. (From 10:30 till 14:00 May 20)
- Spraying was carried out on a full scale by workers in an area of about 8,750m² at the observation deck, in the subcontractor's yard, around the Nonflammable Waste Treatment Facility, the Main Office Building and the Main Gate. (From 09:00 till 13:00 May 23)
- Spraying was carried out on a full scale using an unmanned crawler dump in an area of about 6,000m² on the east side of the turbine building of Unit 3. (From 11:00 till 15:30 May 23)
- Spraying was carried out by workers on a full scale in an area of about 8,750m² around the Nonflammable Waste Treatment Facility, in the subcontractor's yard, around the Main Office Building, the Main Gate and the observation deck. (From 09:30 till 13:00 May 24)
- Spraying was carried out on a full scale using an unmanned crawler dump in an area of about 6,000m² on the east side of the turbine building of Units 2 and 3. (From 11:00 till 14:00 May 24)
- Spraying was carried out on a full scale by workers in an area of about

8,750m² around the Nonflammable Waste Treatment Facility, the Solid Waste Storage, the Main Office Building, near the Main Gate and at the observation deck. (From 09:30 till 13:30 May 25)

- Spray was carried out on a full scale by workers in an area of about 7,875m² around the Nonflammable Waste Treatment Facility and other locations. (From 09:00 till 13:00 May 26)
- Spraying was carried out on a full scale using an unmanned crawler dump in an area of about 6,000m² around the north side of the reactor building of Unit 1. (From 13:30 till 16:00 May 26)
- Spraying was carried out on a full scale by workers in an area of about 8,750m² around the Nonflammable Waste Treatment Facility, the Solid Waste Storage, the Main Office Building, at the South Seawall and the observation deck. (From 09:00 till 13:00 May 27)
- Spraying was carried out on a full scale using a Water Spraying Vehicle with Bending Arm (an overhead spraying truck) in an area of about 6,600m² on the roof and exterior wall of the turbine building of Unit 1. (From 11:25 till 16:00 May 27)
- Spraying was carried out on a full scale by workers in an area of about 4,375m² around the tennis court, the Solid Waste Storage, the South Seawall and the observation deck. (From 13:00 till 14:00 May 28)
- Spraying was carried out on a full scale by workers in an area of about 8,750m² around the tennis court, the parking lot for the Seismic Isolated Building, near the Main Gate and the Observation Deck. (From 09:00 till 13:00 May 29)
- Spraying was carried out on a full scale by workers in an area of about 8,750m² around the tennis court, the parking lot for the Seismic Isolated Building, and near the Main Gate. (From 09:00 till 13:00 May 31)
- Spraying was carried out on a full scale by workers in an area of about 8,750m² near the main gate, the observation deck, the South Seawall, and around the Solid Waste Storage. (From 09:00 till 13:00 June 1)
- Spraying was carried out on a full scale using a Water Spray Vehicle with Bending Arm (an overhead spraying truck) in an area of about 2,200m² on the roof and the exterior wall of the reactor building of Unit 2. (From 11:00 till 13:30 June 1)
- Spraying was carried out on a full scale by workers in an area of about 8,525m² near the main gate, the observation deck, the South Seawall,

and around the Solid Waste Storage. (From 09:00 till 13:00 June 2)

- Spraying was carried out on a full scale using a Water Spray Vehicle with Bending Arm (an overhead spraying truck) in an area of about 7,200m² on the roof and the exterior wall of the reactor building of Unit 2. (From 11:00 till 14:00 June 2)
- Spraying was carried out on a full scale by workers in an area of about 8,750m² near around the Solid Waste Storage, the Observation Deck and the South Seawall. (From 09:00 till 13:00 June 3)
- Spraying was carried out on a full scale using a Water Spray Vehicle with Bending Arm (an overhead spraying truck) in an area of about 4,800m² on the roof and the exterior wall of the turbine building of Unit 3. (From 10:30 till 15:00 June 3)
- Spraying was carried out on a full scale by workers in an area of about 10,500m² on the west-side of the shallow draft quay, the observation deck, the South Seawall, and on the mountain-side of the common pool. (From 9:00 till 13:00 June 4)
- Spraying was carried out on a full scale using a Water Spray Vehicle with Bending Arm (an overhead spraying truck) in an area of about 7,200m² on the roof and the exterior wall of the turbine building of Unit 4. (From 10:00 till 12:00 June 4)

<Situation of Removal of Rubble Using Remote-Controlled Heavy Machinery>

- April 10
- From 11:00 till 16:10 April 13 (an amount equivalent to 6 containers)
- From 09:00 till 15:45 April 15 (an amount equivalent to 1 container)
- From 09:00 till 16:00 April 16 (an amount equivalent to 8 containers)
- From 09:00 till 16:00 April 17 (an amount equivalent to 2 containers)
- From 09:00 till 16:00 April 18 (an amount equivalent to 4 containers)
- From 09:00 till 15:00 April 19 (an amount equivalent to 3 containers)
- From 09:00 till 16:00 April 20 (an amount equivalent to 1 container)
- From 09:00 till 16:00 April 21 (an amount equivalent to 1 container)
- From 09:00 till 16:00 April 22 (an amount equivalent to 2 containers)
- From 09:00 till 16:00 April 24 (an amount equivalent to 3 containers)
- From 09:00 till 16:00 April 25 (an amount equivalent to 4 containers)
- From 09:00 till 16:00 April 26 (an amount equivalent to 2 containers)

- From 09:00 till 16:00 April 27 (an amount equivalent to 3 containers)
- From 09:00 till 16:00 April 28 (an amount equivalent to 4 containers)
- From 09:00 till 16:00 April 29 (an amount equivalent to 4 containers)
- From 09:15 till 16:15 April 30 (an amount equivalent to 4 containers)
- From 09:00 till 16:15 May 1 (an amount equivalent to 4 containers)
- From 09:00 till 16:00 May 2 (an amount equivalent to 6 containers)
- From 09:00 till 16:00 May 3 (an amount equivalent to 2 containers)
- From 09:00 till 16:00 May 4 (an amount equivalent to 5 containers)
- From 09:00 till 16:00 May 5 (an amount equivalent to 4 containers)
- From 09:00 till 16:00 May 6 (an amount equivalent to 7 containers)
- From 09:00 till 16:00 May 7 (an amount equivalent to 8 containers)
- From 09:00 till 16:00 May 8 (an amount equivalent to 9 containers)
- From 09:00 till 16:00 May 9 (an amount equivalent to 6 containers)
- From 09:00 till 16:00 May 10 (an amount equivalent to 5 containers)
- From 09:00 till 16:00 May 11 (an amount equivalent to 7 containers)
- From 09:00 till 16:00 May 12 (an amount equivalent to 4 containers)
- From 09:00 till 16:00 May 13 (an amount equivalent to 8 containers)
- From 09:00 till 16:00 May 14 (an amount equivalent to 7 containers)
- From 09:00 till 16:00 May 15 (an amount equivalent to 5 containers)
- From 09:00 till 16:00 May 16 (an amount equivalent to 4 containers)
- From 09:00 till 16:00 May 17 (an amount equivalent to 6 containers)
- From 09:00 till 16:00 May 18 (an amount equivalent to 3 containers)
- From 09:00 till 16:00 May 19 (an amount equivalent to 5 containers)
- From 09:00 till 16:00 May 20 (an amount equivalent to 9 containers)
- From 09:00 till 16:00 May 21 (an amount equivalent to 11 containers)
- From 09:00 till 16:00 May 22 (16 felled trees)
- From 09:00 till 16:00 May 23 (an amount equivalent to 4 containers)
- From 09:00 till 16:00 May 24 (an amount equivalent to 2 containers)
- From 09:00 till 16:00 May 25 (an amount equivalent to 3 containers)
- From 09:00 till 16:00 May 26 (an amount equivalent to 1 container)
- From 09:00 till 16:00 May 27 (an amount equivalent to 5 containers)
- From 09:00 till 16:00 May 28 (an amount equivalent to 7 containers)
- From 09:00 till 16:00 May 29 (an amount equivalent to 8 containers)
- From 09:00 till 16:00 May 30 (an amount equivalent to 7 containers)
- From 09:00 till 16:00 May 31 (an amount equivalent to 6 containers)
- From 09:00 till 16:00 June 1 (an amount equivalent to 12 containers)

- From 09:00 till 16:00 June 2 (an amount equivalent to 11 containers)
- From 09:00 till 16:00 June 3 (an amount equivalent to 7 containers)
- From 09:00 till 16:00 June 4 (an amount equivalent to 8 containers)

<Others>

- Accumulated water was found in the vertical shafts of trenches (underground structures for laying pipes, shaped like tunnels) located outside the turbine buildings of Units 1 to 3. The dose rates at the surface of the water were 0.4mSv/h in the trench of Unit 1 and 1,000mSv/h in the trench of Unit 2. The dose rate of Unit 3 could not be measured due to rubble. (Around 15:30 March 27) The accumulated water in the vertical shaft of Unit 1 was transferred to the storage tank in the Process Main Building of the Radioactive Waste Treatment Facilities using a temporary pump, which reduced the water level from approximately -0.14m to approximately -1.14m from the top of the shaft. (From 09:20 till 11:25 March 31)
- When removing a flange of a pipe in the RHRS outside the building of Unit 3, three subcontractor's employees spilled water on themselves with water remaining in the pipe. However, as a result of wiping the water off, no radioactive materials were attached to their bodies. (12:03 March 29)
- On March 28, accumulated water was found in the Main Building of the Radioactive Waste Treatment Facilities. On March 29, as a result of a radioactivity analysis, the total amount of radioactivity detected was 1.2×10^1 Bq/cm³ in the controlled area and 2.2×10^1 Bq/cm³ in the non-controlled area.
- A barge from the U.S. Forces, Japan (USFJ) carrying fresh water for cooling reactors, etc. (the first ship), was towed to and brought along the shore in an exclusive port of Fukushima Dai-ichi NPS by the Maritime Self-Defense Force vessels. (15:42 March 31) The transfer of fresh water from the barge (the first ship) to the Filtrate Tank was started. (15:58 April 1) Subsequently, it was suspended due to a malfunction of a hose (16:25 April 1), but injection resumed on April 2. (From 10:20 till 16:40 April 2)
- The second USFJ barge (the second ship) carrying fresh water for cooling reactors, etc., was towed to and was brought alongside the shore in the exclusive port of Fukushima Dai-ichi NPS by the Maritime Self-Defense

Force vessels. (09:10 April 2)

- The freshwater was transferred from one USFJ barge (the second ship) to the other barge (the first ship). (From 09:52 till 11:15 April 3)
- Discharge of accumulated water with low radioactive concentration in the Process Main Building of the Radioactive Waste Treatment Facilities was started. It was discharged from the southern side of the Water Discharge Canal into the sea using the first pump. (19:03 April 4) The discharge was further carried out using 10 pumps in total (19:07 April 4) and then discharge into the sea using submersible pumps was suspended at 17:40 April 10. Confirmation of how much water is remaining is being carried out. (Total amount of discharged water was about 9,070t.)
- The accumulated water with low radioactive concentration in the Building of the Miscellaneous Solid Waste Volume Reduction Facilities was discharged from the southern side of the Water Discharge Canal to the sea using 5 pumps.(From 17:20 April 6 till 18:20 April 7)
- In order to prepare for the transfer of the accumulated water from the turbine buildings to the Radioactive Waste Treatment Facilities, holes were drilled into the outer walls of the turbine buildings of Units 2 to 4. (April 7)
- Discharge of water in the Radioactive Waste Treatment Facilities was resumed after it was suspended due to an earthquake off the coast of Miyagi Prefecture that occurred at 11:32 April 7. (14:30 April 8)
- Video shots using an unmanned helicopter were taken in order to grasp the situation of reactor buildings of Units 1 to 4. (From 15:59 till 16:28 April 10)
- It was confirmed that a fire broke out at the Water Discharge Canal Sampling Building for Units 1 to 4. (Around 6:38 April 12) As a result of immediate fire fighting activities, it was confirmed that there was no more fire or smoke. (Just before 07:00 on the same day) Later, it was confirmed that the fire was completely extinguished. (09:12 on the same day)
- Video shots were taken using an unmanned helicopter in order to grasp the situation of the reactor buildings of Units 3 and 4. (From 10:17 till 12:25 April 14)
- Video shots using an unmanned helicopter was carried out in order to grasp the situation of the reactor buildings of Units 1 to 4. (From 08:02

till 09:55 April 15)

- As a countermeasure against tsunami, distribution panels, etc. of pumps to inject water into the reactors of Units 1 to 3 were transferred to a hill. (From 10:19 till 17:00 April 15)
- Measures to ensure that buildings of the Radioactive Waste Treatment Facilities are watertight were completed. (April 18)
- The work of strengthening the interconnection of the power supplies between Units 1 and 2 and Units 3 and 4 was completed. (10:23 April 19)
- Video shots were taken using an unmanned helicopter in order to grasp the situation of the reactor buildings of Units 1 to 4 (11:43-12:50 April 21)
- The reinforcement work on the external power supplies (the power supply connection between Units 1 and 2, and Units 5 and 6) were carried out. (From 14:44 till 17:38 April 25)
- The reinforcement work on the power supplies for Units 3 and 4 (voltage increase from 6.6kv to 66kv) was completed. (11:34 April 30)
- Due to the restoration of the Okuma No.2 power transmission line, the power supplies for the pumps for injecting water into the reactors of Units 1 to 3 were temporarily switched to temporary diesel generators. (08:47 May 11) The power supply for Unit 1 and Unit 2 is partially received from this line. (15:20 May 11)
- In order to reinforce the power supply for Units 3 and 4, the 480V power panel for Unit 4 and the Common Spent Fuel Pool was reconnected to receive power from Tohoku Electric Power Company's Tohden Genshiryoku line (66kV) instead of the Okuma No.3 power transmission line. (12:20 May 12)
- The Mega-Float left the Port of Yokohama. (05:20 May 15)
- Two barges* of U.S. Forces Japan left Fukushima Dai-ichi NPS for Fukushima Dai-ni NPS. (May 18) (*Handed over from USFJ to TEPCO at the end of March.)
- The Mega-Float entered the port of Fukushima Dai-ichi NPS. (09:35 May 21)
- Oil leakage was confirmed on the surface of the sea near the Curtain Wall of the Intake Canal of Units 5 and 6, in the dedicated port of Fukushima Dai-ichi NPS. (Around 08:00 May 31) Oil absorbing mats and oil fences were placed near the Seawall. (Around 14:00 and 16:50 May 31)

- A big impact sound was confirmed at the site where remote-controlled heavy machinery was being used to remove rubble, outside the south side of the reactor building of Unit 4. (Around 14:30 May 31) Later, it was confirmed that the impact sound was made when the oxygen tank broke under the rubble.

● Fukushima Dai-ni NPS (TEPCO)

(Naraha Town / Tomioka Town, Futaba County, Fukushima Prefecture.)

(1) Operating Status

Unit 1 (1,100MWe): automatic shutdown, cold shut down at 17:00, March 14
 Unit 2 (1,100MWe): automatic shutdown, cold shut down at 18:00, March 14
 Unit 3 (1,100MWe): automatic shutdown, cold shut down at 12:15, March 12
 Unit 4 (1,100MWe): automatic shutdown, cold shut down at 07:15, March 15

(2) Major Plant Parameters (As of 12:00 June 5)

	Unit	Unit 1 (cold shutdown)	Unit 2 (cold shutdown)	Unit 3 (cold shutdown)	Unit 4 (cold shutdown)
Reactor Pressure*1	MPa	0.15	0.13	0.10	0.16
Reactor water temperature	°C	23.7	24.5	33.6	30.5
Reactor water level*2	Mm	9,946	9,896	6,663	8,785
Suppression pool water temperature	°C	24	24	26	28
Suppression pool pressure	kPa (abs)	106	107	110	106
Remarks (Data sampling time)		12:00 June 5	12:00 June 5	12:00 June 5	12:00 June 5

*1: Converted from indicated value to absolute pressure

*2: Distance from the top of fuel

(3) Situation of Each Unit

<Unit 1>

- Around 17:56 March 30, smoke was rising from the power distribution

panel on the first floor of the turbine building of Unit 1. However, when the power supply was turned off, the smoke emission stopped. At 19:15 the fire station assessed that this event was caused by a malfunction of the power distribution panel and was not a fire.

- The RHR (B) for cooling the reactor of Unit 1 started to receive power from an emergency power supply, in addition to an external power supply. As a result, the backup power supply (emergency power supply) was secured for the RHR (B) of all Units. (14:30 March 30)

(4) Reports Concerning Other Incidents

- TEPCO reported to NISA the event at Unit 1, pursuant to Article 10 of the Act on Special Measures Concerning Nuclear Emergency Preparedness. (18:08 March 11)
- TEPCO reported to NISA the events at Units 1, 2 and 4, pursuant to Article 10 of the above Act. (18:33 March 11)
- An event (loss of pressure suppression function) broke out at Unit 1, which falls under Article 15 of the Act on Special Measures Concerning Nuclear Emergency Preparedness. (05:22 March 12)
- An event (loss of pressure suppression function) broke out at Unit 2, which falls under Article 15 of the Act on Special Measures Concerning Nuclear Emergency Preparedness. (05:32 March 12)
- An event (loss of pressure suppression function) broke out at Unit 4, which falls under Article 15 of the Act on Special Measures Concerning Nuclear Emergency Preparedness. (06:07 March 12)

● Onagawa NPS (Tohoku Electric Power Co. Inc.)

(Onagawa Town, Oga County and Ishinomaki City, Miyagi Prefecture)

(1) Operating Status

Unit 1 (524MWe): automatic shutdown, cold shut down at 0:58, March 12

Unit 2 (825MWe): automatic shutdown, cold shut down at earthquake

Unit 3 (825MWe): automatic shutdown, cold shut down at 01:17, March 12

(2) Indicated Values at the Monitoring Post, etc.

Around MP2 (northernmost monitoring post at the site boundary)

Approx. 0.21 μ SV/h (16:00 June 4) (Approx. 0.21 μ SV/h (16:00 June 3))

(3) Reports Concerning Other Incidents

- It was confirmed that the smoke on the first basement level of the turbine building was extinguished. (22:55 March 11)
- Tohoku Electric Power Co. Inc. reported to NISA the event, pursuant to Article 10 of the Act on Special Measures Concerning Nuclear Emergency Preparedness. (13:09 March 13)

2. Actions Taken by NISA

(March 11)

- 14:46 The NISA Emergency Preparedness Headquarters (Tokyo) was set up immediately after the earthquake
- 15:42 TEPCO reported to NISA the events at Fukushima Dai-ichi NPS, pursuant to Article 10 of the Act on Special Measures Concerning Nuclear Emergency Preparedness.
- 16:36 TEPCO recognized the events (inability of water injection of the emergency Core Cooling System) at Units 1 and 2 of Fukushima Dai-ichi NPS as falling under Article 15 of the Act on Special Measures Concerning Nuclear Emergency Preparedness. (It was reported to NISA at 16:45)
- 18:08 TEPCO reported to NISA the events at Unit 1 of Fukushima Dai-ni NPS, pursuant to Article 10 of the Act on Special Measures Concerning Nuclear Emergency Preparedness.
- 18:33 TEPCO reported to NISA the events at Units 1, 2, and 4 of Fukushima Dai-ni NPS, pursuant to Article 10 of Act on Special Measures Concerning Nuclear Emergency Preparedness.
- 19:03 The Government declared the state of nuclear emergency. (The Government Nuclear Emergency Response Headquarters and the Local Nuclear Emergency Response Headquarters were established.)
- 20:50 Fukushima Prefecture's Emergency Response Headquarters issued an evacuation instruction to the residents within 2 km radius from Unit 1 of Fukushima Dai-ichi NPS. (The population of this area is 1,864.)
- 21:23 The Prime Minister issued the following instructions to the Governor of Fukushima Prefecture, and the Mayors of Okuma Town and

Futaba Town regarding the event that occurred at Fukushima Dai-ichi NPS, TEPCO, pursuant to Article 15, paragraph 3 of the Act on Special Measures Concerning Nuclear Emergency Preparedness:

- an evacuation instruction for residents within a 3km radius from Unit 1 of Fukushima Dai-ichi NPS, and
- an indoor evacuation instruction for residents within a 10km radius from Unit 1 of Fukushima Dai-ichi NPS.

24:00 The Senior Vice Minister of Economy, Trade and Industry, Ikeda arrived at the Local Nuclear Emergency Response Headquarters.

(March 12)

00:49 TEPCO recognized the event (unusual rise of the pressure in the PCV) at Unit 1 of Fukushima Dai-ichi NPS as falling under Article 15 of the Act on Special Measures Concerning Nuclear Emergency Preparedness. (It was reported to NISA at 01:20.)

05:22 TEPCO recognized the event (loss of pressure suppression function) at Unit 1 of Fukushima Dai-ichi NPS as falling under Article 15 of the Act on Special Measures Concerning Nuclear Emergency Preparedness. (It was reported to NISA at 06:27.)

05:32 TEPCO recognized the event (loss of pressure suppression function) at Unit 2 of Fukushima Dai-ichi NPS as falling under Article 15 of the Act on Special Measures Concerning Nuclear Emergency Preparedness. (It was reported to NISA at 06:27.)

05:44 The Prime Minister issued an evacuation instruction to residents within a 10km radius from Unit 1 of Fukushima Dai-ichi NPS.

06:07 TEPCO recognized the event (loss of pressure suppression function) at Unit 4 of Fukushima Dai-ichi NPS as falling under Article 15 of the Act on Special Measures Concerning Nuclear Emergency Preparedness.

06:50 The Minister of Economy, Trade and Industry issued an order to suppress the internal pressure of the PCV of Units 1 and 2 of Fukushima Dai-ichi NPS, pursuant to the provisions of Article 64, paragraph 3 of the Nuclear Regulation Act.

07:45 The Prime Minister issued the following instructions to the Governor of Fukushima Prefecture, the Mayors of Hirono Town, Naraha Town, Tomioka Town and Okuma Town, regarding the event that occurred at Fukushima Dai-ichi NPS, TEPCO, pursuant to the provisions of

Article 15, paragraph 3 of the Act on Special Measures Concerning Nuclear Emergency Preparedness:

- an evacuation instruction for residents within a 3km radius from Fukushima Dai-ni NPS, and
- an indoor evacuation instruction for residents within a 10km radius from Fukushima Dai-ni NPS.

17:00 TEPCO reported to NISA the event (unusual increase of radiation dose at the site boundary) at Fukushima Dai-ichi NPS as falling under Article 15 of the Act on Special Measures Concerning Nuclear Emergency Preparedness.

17:39 The Prime Minister issued an evacuation instruction to the residents within a 10 km radius from Fukushima Dai-ni NPS.

18:25 The Prime Minister issued an evacuation instruction to the residents within a 20km radius from Fukushima Dai-ichi NPS.

19:55 The Prime Minister issued an instruction to inject seawater into Unit 1 of Fukushima Dai-ichi NPS.

20:05 Based on the instruction from the Prime Minister, the Minister of Economy, Trade and Industry issued an order to inject seawater into Unit 1 of Fukushima Dai-ichi NPS, etc. pursuant to the provisions of Article 64, paragraph 3 of the Nuclear Regulation Act.

20:20 Seawater injection was started at Unit 1 of Fukushima Dai-ichi NPS.

(March 13)

05:38 TEPCO reported to NISA the event (total loss of coolant injection function) at Unit 3 of Fukushima Dai-ichi NPS as falling under Article 15 of the Act on Special Measures Concerning Nuclear Emergency Preparedness. Efforts by TEPCO to restore the power supply and coolant injection functions, as well as the work on venting, are underway at the site.

09:01 TEPCO reported to NISA the event (unusual increase of radiation dose at the site boundary) at Fukushima Dai-ichi NPS as falling under Article 15 of the Act on Special Measures Concerning Nuclear Emergency Preparedness.

09:08 Pressure suppression and fresh water injection was started at Unit 3 of Fukushima Dai-ichi NPS.

09:20 The Pressure Vent Valve of Unit 3 of Fukushima Dai-ichi NPS was opened.

09:30 An instruction was issued to the Governor of Fukushima Prefecture and the Mayors of Okuma Town, Futaba Town, Tomioka Town and Namie Town with regard to the content of radioactivity decontamination screening, pursuant to the Act on Special Measures Concerning Nuclear Emergency Preparedness.

13:09 Tohoku Electric Power Co. Inc. reported to NISA the event at Onagawa NPS, pursuant to Article 10 of the Act on Special Measures Concerning Nuclear Emergency Preparedness.

13:12 Fresh water injection was switched to seawater injection for Unit 3 of Fukushima Dai-ichi NPS.

14:36 TEPCO reported to NISA the event (unusual increase of radiation dose at the site boundary) at Fukushima Dai-ichi NPS as falling under Article 15 of the Act on Special Measures Concerning Nuclear Emergency Preparedness.

(March 14)

01:10 Seawater injection into Units 1 and 3 of Fukushima Dai-ichi NPS was temporarily suspended due to a shortage of seawater in the pit.

03:20 Seawater injection into Unit 3 of Fukushima Dai-ichi NPS was resumed.

04:40 TEPCO reported to NISA the event (unusual increase of radiation dose at the site boundary) at Fukushima Dai-ichi NPS as falling under Article 15 of the Act on Special Measures Concerning Nuclear Emergency Preparedness.

05:38 TEPCO reported to NISA the event (unusual increase of radiation dose at the site boundary) at Fukushima Dai-ichi NPS as falling under Article 15 of the Act on Special Measures Concerning Nuclear Emergency Preparedness.

07:52 TEPCO reported to NISA the event (unusual rise of the pressure in the PCV) at Unit 2 of Fukushima Dai-ichi NPS as falling under Article 15 of the Act on Special Measures Concerning Nuclear Emergency Preparedness.

13:25 TEPCO reported to NISA the event (loss of reactor cooling function) at Unit 2 of Fukushima Dai-ichi NPS as falling under Article 15 of the Act on Special Measures Concerning Nuclear Emergency Preparedness.

22:13 TEPCO reported to NISA the event at Fukushima Dai-ni NPS,

pursuant to Article 10 of the Act on Special Measures Concerning Nuclear Emergency Preparedness.

22:35 TEPCO reported to NISA the event (unusual increase of radiation dose at the site boundary) at Fukushima Dai-ichi NPS as falling under Article 15 of the Act on Special Measures Concerning Nuclear Emergency Preparedness.

(March 15)

00:00 The acceptance of experts from International Atomic Energy Agency (IAEA) was decided. NISA agreed to accept IAEA's offer to dispatch experts on NPS damages, in line with the intention of Mr. Amano, Director General of IAEA. Therefore, the schedule, etc. of expert acceptance will be coordinated from now on.

00:00 NISA also decided to accept the experts dispatched from the U.S. Nuclear Regulatory Commission (NRC).

07:21 TEPCO reported to NISA the event (unusual increase of radiation dose at the site boundary) at Fukushima Dai-ichi NPS as falling under Article 15 of the Act on Special Measures Concerning Nuclear Emergency Preparedness.

07:24 The Incorporated Administration Agency, Japan Atomic Energy Agency (JAEA) reported to NISA the event at the Nuclear Fuel Cycle Engineering Laboratories of Tokai Research and Development Center, pursuant to Article 10 of the Act on Special Measures Concerning Nuclear Emergency Preparedness.

07:44 JAEA reported to NISA the event at the Nuclear Science Research Institute, pursuant to Article 10 of the Act on Special Measures Concerning Nuclear Emergency Preparedness.

08:54 TEPCO reported to NISA the event (unusual increase of radiation dose at the site boundary) at Fukushima Dai-ichi NPS as falling under Article 15 of the Act on Special Measures Concerning Nuclear Emergency Preparedness.

10:30 The Minister of Economy, Trade and Industry issued the following orders, pursuant to Article 64, paragraph 3 of the Nuclear Regulation Act:

for Unit 4: to extinguish fire and to prevent the occurrence of re-criticality, and

for Unit 2: to inject water into the reactor vessel promptly and to vent

the Drywell.

10:59 In consideration of a possible prolongation of the situation, it was decided that the function of the Local Nuclear Emergency Response Headquarters be moved to the Fukushima Prefectural Office.

11:00 The Prime Minister issued an instruction regarding the following indoor evacuation area.

- Indoor evacuation was additionally instructed to residents in the area between 20km and 30km radius from Fukushima Dai-ichi NPS, considering the situation inside the reactors.

16:30 TEPCO reported to NISA the event (unusual increase of radiation dose at the site boundary) at Fukushima Dai-ichi NPS as falling under Article 15 of the Act on Special Measures Concerning Nuclear Emergency Preparedness.

22:00 The Minister of Economy, Trade and Industry issued the following order, pursuant to the provisions of Article 64, paragraph 3 of the Nuclear Regulation Act:

for Unit 4: to implement the water injection into the Spent Fuel Pool.

23:46 TEPCO reported to NISA the event (unusual increase of radiation dose at the site boundary) at Fukushima Dai-ichi NPS as falling under Article 15 of the Act on Special Measures Concerning Nuclear Emergency Preparedness.

(March 18)

13:00 The Ministry of Education, Culture, Sports, Science and Technology decided to reinforce the nationwide monitoring, implemented in case of emergency at the Fukushima Dai-ichi and Dai-ni NPS.

15:55 TEPCO reported to NISA the accidents and malfunctions (leakage of radioactive materials inside the reactor buildings to non-controlled areas of radiation) at Units 1, 2, 3 and 4 of Fukushima Dai-ichi NPS, pursuant to Article 62-3 of the Nuclear Regulation Act.

16:48 Japan Atomic Power Co. reported to NISA the accidents and malfunctions (failure of the seawater pump motor of the emergency diesel generator 2C) at Tokai NPS, pursuant to Article 62-3 of the Nuclear Regulation Act.

(March 19)

07:44 The second unit of the Emergency Diesel Generator (A) for Unit 6 started up.

TEPCO reported to NISA that the RHR pump (C) for Unit 5 started up and started to cool the Spent Fuel Storage Pool. (Power supply: Emergency Diesel Generator for Unit 6)

08:58 TEPCO reported to NISA the event (unusual increase of radiation dose at the site boundary) at Fukushima Dai-ichi NPS as falling under Article 15 of the Act on Special Measures Concerning Nuclear Emergency Preparedness.

(March 20)

23:30 The Local Nuclear Emergency Response Headquarters issued an instruction to the Prefectural Governor, the Mayors of cities and towns (Minamisoma City, Tamura City, Iwaki City, Tomioka Town, Futaba Town, Okuma Town, Namie Town, Naraha Town and Hirono Town) and the Heads of villages (Kawauchi Village, Katsurao Village and Iitate Village) regarding the change of the reference value for the screening level for the decontamination of radioactivity.

(March 21)

07:45 The Local Nuclear Emergency Response Headquarters issued an instruction titled “Administration of Stable Iodine” to the Prefectural Governor, the Mayors of cities and towns (Minamisoma City, Tamura City, Iwaki City, Tomioka Town, Futaba Town, Okuma Town, Namie Town, Naraha Town and Hirono Town) and the Heads of villages (Kawauchi Village, Katsurao Village and Iitate Village) to administer stable iodine under the direction of the Headquarters and in the presence of medical experts, and not to administer it based on personal judgements.

16:45 The Director-General of the Local Nuclear Emergency Response Headquarters issued an instruction titled “Ventilation for Using Heating Equipments Within the Indoor Evacuation Zone” to the Prefectural Governor, the Mayors of cities and towns (Iwaki City, Tamura City, Minamisoma City, Hirono Town and Namie Town) and the Heads of villages (Kawauchi Village, Katsurao Village and Iitate Village), to publicly announce to the residents within the indoor evacuation zone on how to use indoor heating equipments that require ventilation, in order to avoid poisoning from carbon monoxide and to reduce exposure.

17:50 The Director-General of the Government Nuclear Emergency Response Headquarters issued an instruction to the Prefectural Governors of Fukushima, Ibaraki, Tochigi and Gunma, to request relevant businesses and people to suspend shipment of spinach, *Kakina* (a green vegetable) and raw milk for the time being.

(March 22)

16:00 NISA received a response (advice) from the Nuclear Safety Commission (NSC) Emergency Technical Advisory Body based on NISA's request for advice on TEPCO's March 22 report titled "The Results of Analysis of Seawater".

(March 25)

NISA directed TEPCO orally to immediately review and improve the radiation control measures from the viewpoint of recurrence prevention, in connection with the exposure of workers at the turbine building of Unit 3, Fukushima Dai-ichi NPS, that occurred on March 24.

(March 28)

NISA directed TEPCO orally to prevent the recurrence of mistakes, in connection with the evaluation error found in the concentration measurement of the accumulated water on the basement level of the turbine building of Unit 2, Fukushima Dai-ichi NPS, that was announced by TEPCO on 27 March,.

13:50 NISA directed TEPCO orally to increase the seawater monitoring points and carry out groundwater monitoring, after receiving advice decided at the special meeting of NSC (on the accumulated water on the first basement level of the turbine building at Fukushima Dai-ichi Plant, Unit 2).

NISA directed TEPCO to carry out intra-company communications on significant information more smoothly, and submit reports in a timely and appropriate manner, on account of the delayed reporting of water identified outside the turbine buildings.

(March 29)

11:16 Tohoku Electric Power Co. Inc. reported to NISA the accidents and malfunctions, etc. at Onagawa NPS (a tsunami-induced malfunction of a pump of the Component Cooling System (B), etc. of Unit 2, and a collapse of a heavy oil tank for the Auxiliary Boiler of Unit 1),

pursuant to Article 62-3 of the Nuclear Regulation Act, and Article 3 of the Ministerial Ordinance for the Reports related to Electricity.

In order to strengthen the structure to assist nuclear accident sufferers, the "Nuclear Sufferers' Life Support Team" headed by the Minister of Economy, Trade and Industry was established, and visits, etc. were made to relevant cities, towns and villages.

The Local Nuclear Emergency Response Headquarters issued the first newsletter for the residents living in the area between 20km and 30km radius, etc.

(March 30)

NISA issued a written instruction and handed it to each electric power company and relevant organizations, instructing them to implement emergency safety measures taking into consideration the 2011 accident at Fukushima Dai-ichi and Dai-ni NPSs.

(March 31)

NISA directed TEPCO orally to take carefully thought-out measures regarding physical protection of nuclear materials, etc. in connection with the intrusion of a propaganda vehicle into Fukushima Dai-ni NPS on March 31.

NISA alerted TEPCO to take carefully thought-out measures regarding radiation control for workers.

The Local Nuclear Emergency Response Headquarters issued the second newsletter for the residents in the area between 20km and 30km radius, etc.

(April 1)

NISA strictly warned TEPCO to take appropriate measures concerning the following three points regarding the erroneous results in the nuclide analysis.

- All erroneously evaluated nuclides should be identified and promptly re-evaluated, with regard to past evaluation results of nuclide analyses.
- The cause of the erroneous evaluation should be investigated and thorough measures should be taken to prevent recurrences.
- Any erroneous evaluation results, etc. should be notified as

soon as they are identified.

(April 2)

Regarding the outflow of liquid containing radioactive materials from around the Intake Channel of Unit 2 of Fukushima Dai-ichi NPS, NISA directed TEPCO orally to carry out a nuclide analysis of the liquid sampled, to confirm whether there are other outflows from similar spots in the facilities as the one around Unit 2, from which the outflow was confirmed, and to strengthen monitoring by sampling water at additional points around the facility concerned.

(April 4)

NISA requested technical advice from NSC with regard to using sea discharge as an inevitable emergency measure. NISA directed TEPCO to steadily conduct and enhance the current sea monitoring (by increasing the number of locations and the frequency of measurement) in order to investigate and confirm the impact of the diffusion of radioactive materials caused by the discharge, and to ensure that information is disclosed. NISA also directed TEPCO to strengthen measures to reduce the sea discharge as much as possible.

(April 5)

A written instruction was issued so that local governments would be contacted and notified in advance should any measures be taken in connection with any discharge of radioactive materials from Fukushima Dai-ichi NPS that may impact the environment

(April 6)

NISA directed TEPCO to do the following three points regarding the implementation of nitrogen injection into the PCV of Unit 1 (12:40 April 6): (1) properly control the plant parameters and take measures appropriately according to parameter changes in order to ensure safety, (2) establish and implement an organizational structure, etc. that will ensure the safety of the workers engaging in the operation, and (3) steadily conduct and enhance the monitoring to investigate and confirm the impact of any release or dispersion of radioactive materials caused by the nitrogen injection, since the possibility of the nitrogen injection causing air in the PCV to leak outside cannot be ruled out, and ensure that information is disclosed.

(April 7)

The Local Nuclear Emergency Response Headquarters issued the third newsletter for the residents in the area between 20km and 30km radius, etc. (April 7)

(April 9)

Due to the earthquake off the coast of Miyagi Prefecture that occurred around 23:32 April 7, all the Emergency Diesel Generators for Unit 1 of the Higashidori NPS of Tohoku Electric Power Co. Inc. became inoperative. Considering this event, NISA issued a written direction titled "Regarding the Treatment of Emergency Power Generating Facilities in Terms of Safety Regulations (Directions)" to each Electricity Utility and other organizations concerned.

(April 10)

NISA issued a written instruction to TEPCO to submit a report on transferring the accumulated water in Fukushima Dai-ichi NPS, from which high radiation dose was measured above the surface, to the Radioactive Waste Treatment Facilities. The report should describe the necessity of the measure, the safety evaluation, and policies, etc. for the permanent storage and treatment facilities for the waste water, pursuant to Article 67, paragraph 1 of the Nuclear Regulation Act.

(April 13)

NISA instructed TEPCO to report the result of conducting an evaluation of seismic safety and an examination of reinforcement work, etc. as an effective measure for buildings in Fukushima Dai-ichi NPS, pursuant to Article 67, paragraph 1 of the Nuclear Regulation Act.

NISA directed TEPCO to conduct a detailed analysis and examination of the tsunami caused by the 2011 Tohoku District-Off the Pacific Ocean Earthquake.

NISA directed Tohoku Electric Power Co. Inc. to report the analysis of seismic data observed at the time of the 2011 earthquake off the coast of Miyagi Prefecture at around 23:32 April 7, and to report the seismic impact assessment on the facilities that are important for seismic safety, with regard to Units 1 to 3 of Onagawa NPS.

(April 14)

NISA directed TEPCO orally to strengthen the monitoring of the Sub Drain (the subsurface water collected and controlled in the facilities) of Units 1 and 2, because the radioactive concentration of the water

sampled on April 13 had risen one digit compared to the immediately preceding result.

(April 15)

NISA strictly warned TEPCO and directed it orally to establish a recurrence prevention measure regarding the delayed notification of the dismissal of the Nuclear Emergency Preparedness Manager, associated with the April 1 personnel changes, pursuant to Article 9, paragraph 5 of the Act on Special Measures Concerning Nuclear Emergency Preparedness.

NISA directed the general utilities companies and other related organizations to consider taking measures to ensure the reliability of the external power supply, on account of the fact that NPSs and other facilities temporary lost their external power supply when the earthquake off the coast of Miyagi Prefecture on April 7, 2011 caused ground faults in some parts of the electric power system.

(April 18)

NISA received a report from TEPCO (on April 18) on the transfer of the accumulated water in Fukushima Dai-ichi NPS, from which high radiation dose was measured above the surface, to the Radioactive Waste Treatment Facilities, which was in response to NISA's April 10 instruction for submission of such a report. NISA confirmed the content of the report (on April 19).

(April 21)

The Prime Minister issued the following instruction to the Governor of Fukushima Prefecture and the Mayors of Hirono Town, Naraha Town, Tomioka Town and Okuma Town, in relation to the accident at Fukushima Dai-ni NPS of TEPCO, pursuant to the provisions of Article 20, paragraph 3 of the Act on Special Measures Concerning Nuclear Emergency Preparedness:

- an instruction to change the evacuation area from within the 10km radius to within a 8km radius from Fukushima Dai-ni NPS.

The Prime Minister issued the following instruction to the Governor of Fukushima Prefecture, the Mayors of Minamisoma City, Tamura City, Tomioka Town, Futaba Town, Okuma Town, Namie Town, and Naraha Town, and the Heads of Kawauchi Village and Katsurao Village, in

relation to the accident at Fukushima Dai-ichi NPS of TEPCO, pursuant to the provisions of Article 20, paragraph 3 of the Act on Special Measures Concerning Nuclear Emergency Preparedness:

- an instruction to establish a restricted area within a 20km radius from Fukushima Dai-ichi NPS, and with the exception of persons engaged in emergency response measures, to prohibit people from accessing the area, or to order them to leave, excluding the case when the mayor of the city or town or the head of the village permits temporary access.

(April 22)

The Prime Minister issued the following instruction to the Governor of Fukushima Prefecture and Mayors of Minamisoma City, Tamura City, Iwaki City, Namie Town, Naraha Town, Hirono Town and Kawamata Town, and Heads of Kawauchi Village, Katsurao Village and Iitate Village, pertaining to the accident at Fukushima Dai-ichi NPS of TEPCO, pursuant to Article 20, paragraph 3 of the Act on Special Measures Concerning Nuclear Emergency Preparedness:

- to lift the instruction for indoor evacuation which had been established for the area between 20km and 30km radius from Fukushima Dai-ichi NPS, and to establish a Deliberate Evacuation Area as well as an Evacuation-Prepared Area in Case of Emergency, for the residents and others to carry out deliberate evacuation, or make preparations to evacuate or stay indoors whenever there is an emergency in the subject area.

The Government Nuclear Emergency Response Headquarters initiated the “Environmental Monitoring Enhancement Plan” to undertake the following tasks in order to grasp the entire state of the accident and to evaluate the configuration of the deliberate evacuation areas, etc.:

- grasp the scattering situation of radioactive materials within the appropriate area including the periphery of Fukushima Dai-ichi NPS,
- prepare for future dose assessments and evaluations of the accumulation of radioactive materials in each of the areas (Evacuation Area, Deliberate Evacuation Area and Evacuation-Prepared Area in Case of Emergency), and

- provide environmental radiation dose information to evaluate the exposure dose of residents living in the peripheral areas, etc.

(April 24)

NISA strictly warned TEPCO orally on the following matters, regarding TEPCO's report that some of the plant data the company provided contained errors.

- These parameters were data that formed the basis of appropriate and prompt actions after the accident, and it is extremely regrettable that the data that was provided contained errors.
- Inspections should be continued and carried out swiftly and reliably.
- An infallible recurrence prevention measure should be put in place.

(April 25)

NISA instructed TEPCO to report accident records etc., regarding the accident at Fukushima Dai-ichi NPS, pursuant to the provisions of Article 67, paragraph 1 of the Nuclear Regulation Act, and Article 106, paragraph 3 of the Electricity Business Act.

(April 27)

NISA received a report from TEPCO that the effective dose rate of one (female) employee who was working after the occurrence of the Tohoku District-Off the Pacific Ocean Earthquake exceeded 5mSv, during the period from January 1 to March 31, 2011 (4th Quarter). NISA strictly warned TEPCO and directed the company to investigate the cause and to establish measures for recurrence prevention, as well as to validate the radiation management system in Fukushima Dai-ichi NPS, and establish measures based on the validation. NISA directed TEPCO to report back to NISA by May 2, 2011.

(April 30)

NISA instructed TEPCO to submit a report on the implementation of the measure to fill the PCV of Unit 1 of Fukushima Dai-ichi NPS with water above the level of the reactor fuel and on how it impacts the stable cooling of the reactor, and to report the safety evaluations made on the following items, pursuant to the provisions of Article 67, paragraph 1 of the Nuclear Regulation Act:

- the impact on structural strength and seismic adequacy of the

reactor building (RB) and the PCV, with the rise of the water level of the PCV,

- the impact of rising pressure inside of the PCV due to the rise of the water level,
- the impact caused by the increase of water leakage from the turbine building, and
- other items that are required to evaluate the safety of implementing the measure to fill the PCV with water above the reactor fuel.

(May 2)

NISA instructed TEPCO to submit a report on the necessity of implementing measures to reduce the concentration of nuclear materials inside the reactor building of Unit 1, Fukushima Dai-ichi NPS (including future prospects for work inside the reactor building), as well as the details of each reduction measure (installation and use of the ambient air filtration system, and opening of the double doors on the north side), pursuant to the provisions of Article 67, paragraph 1 of the Nuclear Regulation Act. The report was received on May 3.

(May 5)

NISA conducted an evaluation of the report from TEPCO and issued the following instructions regarding the implementation of the measure to fill the PCV of Unit 1 of Fukushima Dai-ichi NPS with water above the level of the reactor fuel.

- TEPCO should carry out sufficient monitoring of the water level inside the PCV and the water leakage from the PCV. In addition, TEPCO should adequately implement predetermined measures such as suppressing the water injection amount.
- TEPCO should consider applying seismic reinforcements to the supporting post of the Suppression Chamber after making improvements to the working environment, considering the post's small margin against the acceptable criteria, with the expectation that aftershocks would continue.

(*) The May 6 statement regarding Chubu Electric Power Co., Ltd. has been deleted.

(May 8 and 9)

NISA confirmed and evaluated the report from TEPCO on the necessity for measures to reduce the concentration of radioactive materials inside the reactor building of Unit 1, Fukushima Dai-ichi NPS, and the effect of the measures on reducing the concentration of radioactive materials, as well as the assessment of the impact of the measures on the environment, etc. NISA was advised by NSC that the evaluation was sufficient. In addition, NISA received advice from NSC to take into consideration several points in connection with the above, such as paying attention to the reduction of exposure of workers and to the impact on the environment, and to carry out environmental monitoring and to report it to NSC.

NISA directed TEPCO to do the following:

- When the reactor building of Unit 1 of Fukushima Dai-ichi NPS is opened after taking measures to reduce the concentration of radioactive materials, it should be done with careful consideration of the impact on the surrounding community, and should be done after advance notice to NISA.
- The opening of the reactor building of Unit 1 should be done with careful attention to avoid sudden impact on the atmosphere inside the building.
- Radiation exposure of workers working inside the reactor building of Unit 1 should be managed appropriately.
- After opening the door of the reactor building of Unit 1, adequate monitoring should be conducted.

While TEPCO conducted the above work of opening the door of the reactor building, two staffs from NISA were present at the scene and checked how the work such as removal of the exhaust duct was performed, how the radiation measurement was carried out by TEPCO, and what the situation was like inside the reactor building after it was opened.

(May 11)

NISA gave the following oral direction with regard to an incident of an inflow of water into a pit via an electric cable conduit, which a worker who was working to block the pit near the Intake Channel of Fukushima Dai-ichi NPS Unit 3 identified at around 12:30 May 11.

- Any impact to the sea should be confirmed.
- Measures to stop the water should be taken immediately.
- The inflow and outflow routes as well as the situation should be confirmed and reported immediately.

In addition, after the water was stopped at 18:45 of the same day, NISA gave the following oral direction on 19:00 of the same day.

- Continuous confirmation should be made to ensure that the water has stopped completely.
- Continuous monitoring should be carried out.
- A recurrence prevention measure should be thoroughly considered.

(May 15)

NISA evaluated TEPCO's report on the transfer of the waste water with high concentration of radioactive materials from the basement of the turbine building of Unit 3, Fukushima Dai-ichi NPS, to the Process Main Building of the Radioactive Waste Treatment Facilities, and determined that the measure was necessary for the prevention of radiation hazards. In addition, NISA directed TEPCO to do the following:

With regard to the transfer of accumulated water to the Process Main Building and to the High Temperature Incinerator Building, the action plan described in TEPCO's report, as well as concrete measures to ensure safety, should be infallibly carried out, focusing on the prevention of leakage during the transfer process, management and monitoring of water levels of the accumulated waste water, and reduction of the exposure of workers.

Due to the fact that neither the Process Main Building nor the High Temperature Incinerator Building were originally set up for the purpose of storing accumulated waste water, TEPCO should consider when to terminate the use of these buildings based on the completion status of the establishment of treatment facilities, and should report the outcome to NISA.

In order to conduct the above evaluation, NISA's nuclear safety inspectors were present whenever necessary, to confirm the work conducted by TEPCO, such as the inspection of the integrity of the High Temperature Incinerator Building in the Building of the

Radioactive Waste Treatment Facilities, the sealing work to prevent any post-transfer leakages, and the efforts to ensure safety of works such as laying down water transfer pipes.

(May16)

NISA received from TEPCO a report on accident records etc. from the accident at Fukushima Dai-ichi NPS, pursuant to Article 67, paragraph 1 of the Nuclear Regulation Act. NISA determined that an analysis of records before and after the earthquake were required, as well as an evaluation based on the result of the above analysis, of the impact on the safety of the reactor facilities, in order to implement appropriate emergency measures in the future. Therefore, NISA directed TEPCO to report the analysis of records of water levels in the RPV, etc., before and after the 2011 Tohoku District-Off the Pacific Ocean Earthquake, and of the results of the safety impact evaluation on other reactor facilities.

NISA received a report from TEPCO, regarding the record of damages, etc. of the electric facilities inside and outside Fukushima Dai-ichi NPS after the earthquake, pursuant to the provisions of Article 106, paragraph 3 of the Electricity Business Act. NISA determined that TEPCO needed to clarify what caused the reported damages to the electric facilities inside and outside the NPS after the earthquake, and what caused the protective equipment of the electric power lines to react as they did, leading to the suspension of power supply to the NPS. Therefore, NISA directed TEPCO to report the following items:

- the result of the investigation into what caused the reported damages to the electric facilities inside and outside the NPS after the earthquake, and
- the result of the investigation into what caused the protective equipment of Okuma No.1 to 4 Lines as well as Yonomori No.1 and 2 Lines to activate, which led to the suspension of the power supply to the NPS.

(May 17)

The Nuclear Emergency Response Headquarters established a “Roadmap for Immediate Actions for the Verification of and Restoration from the Accident at Fukushima Dai-ichi Nuclear Power Station” and the “Roadmap for Immediate Actions for the Assistance

of Nuclear Sufferers” in order to lay out the immediate challenges and action guidelines to respond to the sufferers of the NPS accident and to the affected municipalities.

(May 18)

Based on TEPCO's report received on May 16 regarding the result of the analysis of seismic observation records and a reported interruption in the recording of seismic observation data, NISA directed TEPCO to evaluate the impact of the earthquake's shake on the reactor buildings, turbine buildings, and facilities and piping, etc., that are important for seismic safety. NISA also directed the reactor operator to investigate the malfunction of the seismometer recording device and to develop a modification plan as needed.

(May 20)

NISA instructed TEPCO, pursuant to Article 67, paragraph 1 of the Nuclear Regulation Act, to submit a report regarding the installation of an alternative cooling and clean-up system for the Spent Fuel Pool of Unit 2 of Fukushima Dai-ichi NPS. The report should include details of the installation plan, the effect of the system on the stable cooling of spent fuel inside the Spent Fuel Pool, and the result of a safety evaluation in connection with the installation of the alternative cooling and clean-up system for the Spent Fuel Pool.

(May 23)

NISA instructed TEPCO to submit a report on the installation of an alternative cooling and clean-up system for the Spent Fuel Pool of Unit 2, Fukushima Dai-ichi NPS pursuant to the provisions of Article 67, paragraph 1 of the Nuclear Regulation Act, in order to verify its validity as an emergency measure prescribed in Article 64, paragraph 1 of said Act. On May 21, the report was received and NISA determined that the installation was unavoidable as an emergency measure.

Based on the report received from TEPCO on May 20 regarding the actions taken in response to the outflow of contaminated water with high concentration of radioactive materials (hereinafter referred to as “Contaminated Water”) near the Intake Channel of Unit 3, Fukushima Dai-ichi NPS, NISA directed TEPCO to carry out the following items in addition to the measures taken by the company, in

order to further reinforce the measures to prevent the recurrence of outflow of the Contaminated Water at the NPS.

- Conduct an investigation of the situation of the pits and seawall (cracks, etc. on the quay, etc.), which have not been fully confirmed. For locations where the possibility of outflow cannot be ruled out, outflow prevention measures should be planned and reported to NISA.
- If the results of monitoring inside the port indicate a significant increase in the concentration of radioactive materials, an investigation of the surrounding area should be carried out immediately, such as by visual inspection. If an outflow is confirmed, appropriate measures to stop the water must be taken and the result of the measures should be reported to NISA.
- Investigate as much as possible the situation of accumulated water inside the facilities in order to reduce the accumulation of the Contaminated Water, as well as reduce the possibility of the outflow of the water, and report to NISA about the plans on how to store and treat the Contaminated Water.

(May 24)

NISA received a report from TEPCO on May 23 regarding the analysis of operational records and accident records and the evaluation of the impact at Fukushima Dai-ichi NPS, and made the following evaluation based on the report.

- Each plant shut-down normally when the earthquake occurred, and the Emergency Diesel Generators started up normally after losing the external power supply due to the earthquake. It was confirmed that the cooling functions were also working normally. However, due to the arrival of the tsunami, all AC power supply was lost, and in addition, the power supply system such as batteries and distribution boards became wet or submerged in water. Therefore, the power supply was lost for an extended period, which led to the current serious situation.
- With regard to some electric facilities, it was difficult to verify them at the scene due to the presence of large amounts of radioactive waste water, and although information was limited, NISA determined at this point that TEPCO's analysis on these

facilities was valid to a certain extent. As a result of making a comprehensive review of records such as plant data, it was estimated that the electric facilities in the NPS lost their functions due to the tsunami.

(May 25)

NISA received a report from TEPCO on May 2 and May 11 titled “On the Investigation of the Cause and Establishment of Recurrence Prevention Measures, etc., Regarding the Exposure Exceeding the Dose Limit of Radiation Workers at Fukushima Dai-ichi NPS”. NISA conducted an evaluation of the report, and as a result, regrettably found three cases of violation of the law regarding radiation control of radiation workers. NISA strictly alerted TEPCO and directed that the company make further improvements to labor safety, health management, and living conditions of the workers from the standpoint of proper radiation control for radiation workers. In addition, NISA also directed TEPCO to establish measures to properly conduct radiation control for radiation workers and to enforce the compliance with operational safety programs at Fukushima Dai-ichi and Dai-ni NPSs.

< Possibility of Radiation Exposure (As of 15:30 June 4) >

1. Exposure of Residents

- (1) 133 people including 60 or so evacuees from Futaba Public Welfare Hospital were measured at the Nihonmatsu City Fukushima Gender Equality Center, and 23 people with more than 13,000cpm were decontaminated.
- (2) The 35 residents who were transferred from Futaba Public Welfare Hospital to Kawamata Town Saiseikai Kawamata Hospital by private bus arranged by Fukushima Prefecture were judged to be free of contamination by the Prefectural Response Center.
- (3) As for the 100 or so residents in Futaba Town who evacuated by bus, the results of measurement for 9 of the 100 residents were as follows. The evacuees who moved outside the Prefecture (Miyagi Prefecture) were divided into two groups, which joined later and moved to Nihonmatsu City Fukushima Gender Equality Centre.

No. of Counts	No. of Persons
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18,000 cpm	1
30,000-36,000 cpm	1
40,000 cpm	1
little less than 40,000 cpm*	1
very small counts	5

*(The count exceeded 100,000cpm at the first measurement, but after shoes were removed and measurement redone, this was the result.)

- (4) The screening was started at the Off-site Centre in Okuma Town from March 12 to 15. 162 people have received examinations so far. At the beginning, the reference value for decontamination was set at 6,000cpm. 110 people had values below 6,000cpm and 41 people had values at or above 6,000cpm. When the reference value was increased to 13,000cpm afterward, 8 people had values below 13,000cpm and 3 people had values at or above 13,000cpm.

The 5 out of 162 people who were examined were transported to hospital after being decontaminated.

- (5) Fukushima Prefecture carried out the evacuation of patients and personnel of hospitals located within the 10km area. The screening of the related people showed that 3 persons had a high count even after decontamination. Therefore, these people were transported to a secondary radiation emergency hospital. As a result of screening 60 fire fighting personnel involved in the transportation, the radiation level of 3 personnel was more than double that of the background, therefore, all the 60 personnel were decontaminated.
- (6) Fukushima Prefecture started the screening from March 13. The screening is carried out at 9 (permanent) locations including evacuation sites and health offices. Up until June 3, the screening has been conducted on 196,680 people. Among this number, 102 people had values above 100,000cpm, but when re-measured without clothes, etc., their counts dropped below 100,000cpm, and nobody's health was impacted.

2. Exposure of Employees, etc.

Among the employees working in Fukushima Dai-ichi NPS, a total of 30 people had a level of external exposure dose related to emergency work above 100mSv. (As of 00:30 June 5)

For the two out of the three workers confirmed with an exposure level of more than 170mSv on March 24, it was confirmed that radioactive material was attached to the skin on both legs. As it was estimated that these two workers may have beta ray burns, they were transferred to the Fukushima Medical University Hospital on March 24, and thereafter all three workers arrived at the National Institute of Radiological Sciences in Chiba Prefecture on March 25. As a result of the examination, the level of exposure of the legs of the two people was estimated to be around 2 to 3Sv. Although neither the exposure of the legs nor the internal exposure required medical treatment, all three were hospitalized to monitor the course. All three workers were discharged from the hospital around noon on March 28. These three workers were re-examined at the National Institute of Radiological Sciences on April 11, and as a result, there was no problem with their health condition. The two workers who had been partially exposed to radiation on the skin of both legs were found to have no burns or red spots on their skin.

At around 11:35 April 1, a worker fell into the sea when he was trying to board the USFJ barge in order to adjust the hose. He was rescued immediately by other workers around him and was not injured or subjected to external contamination. In order to make sure, measurement by a whole-body counter was implemented. As a result, it was determined on April 12 that there was no internal radionuclide contaminant.

On April 27, the effective dose rate during a 3-month period starting from January 1 (4th Quarter of FY2010) of one (female) employee working after the occurrence of the Tohoku District-Off the Pacific Ocean Earthquake was confirmed to be 17.55mSv, exceeding the statutory limit (5mSv/3 months). Following medical exams conducted by a doctor, it was confirmed that there was no impact on the health of this employee.

On April 30, TEPCO summarized the results of exposure dose measurement of workers engaged in emergency work and whose external exposure dose exceeded 100mSv at the end of March 2011. According to the summary, the results of exposure dose measurement (the total value of internal and external exposure, and the number of personnel) were as follows: two persons with 200~250mSv, eight persons with 150~200mSv, and eleven persons with 100~150mSv.

On May 1, a new case was confirmed regarding one female who was subjected to an exposure dose exceeding the statutory dose limit (5mSv/ 3 months). The woman received an exposure dose of 7.49mSv. As a result of a medical examination, it was confirmed that there was no health impact. On June 4, TEPCO announced their evaluation at this stage of the exposure dose of two employees who TEPCO confirmed on May 31 to have an elevated internal radioactivity (Iodine 131) in their thyroid glands. According to the announcement, the two employees have an estimated dose (preliminary estimation) of 210~580mSv and 200~570mSv.

3. Others

- (1) Four Self-Defence Force officials who were working in Fukushima Dai-ichi NPS were injured by an explosion. One official was transferred to the National Institute of Radiological Sciences, and was judged after an examination that there were external wounds but no health hazard from the exposure. He was discharged from the hospital on March 17. No other Self-Defence official was confirmed with exposure at the Ministry of Defence.
- (2) It was confirmed that two policemen were decontaminated at the National Police Agency. Nothing unusual was reported.
- (3) On March 24, thyroid gland examinations for 66 children aged 1 to 15 years were carried out at the Kawamata Town Public Health Center. The result showed that the level of exposure did not pose any health problems.
- (4) From March 26 to 27, thyroid gland examinations for 137 children aged 0 to 15 years were carried out at the Iwaki City Public Health Center. The result showed that the level of exposure did not pose any health problems.
- (5) From March 28 to 30, thyroid gland examinations for 946 children aged 0 to 15 years were carried out at the Kawamata Town Community Center and the Iitate Village Office. The result showed that the level of exposure did not pose any health problems.

<Instruction of Screening Levels for Decontamination of Radioactivity>

- (1) On March 20, the Local Nuclear Emergency Response Headquarters issued the instruction to the Prefectural Governor and the Mayors of

cities and towns (Minamisoma City, Tamura City, Iwaki City, Tomioka Town, Futaba Town, Okuma Town, Namie Town, Naraha Town and Hirono Town) and Heads of villages (Kawauchi Village, Katsurao Village and Iitate Village) to change the reference value for the screening level for the decontamination of radioactivity as follows.

Old: 40Bq/cm² measured by a gamma-ray survey meter or 6,000cpm

New: 1 μ Sv/hour (dose rate at 10cm distance) or 100,000cpm equivalent

<Instruction of Adminstrating Stable Iodine During Evacuation>

- (1) On March 16, the Local Nuclear Emergency Response Headquarters issued the “Instruction to Administer the Stable Iodine During Evacuation from the Evacuation Area (20km radius)” to the Prefectural Governor and the Mayors of cities and towns (Minamisoma City, Tamura City, Iwaki City, Tomioka Town, Futaba Town, Okuma Town, Namie Town, Naraha Town, and Hirono Town), and Heads of villages (Kawauchi Village, Katsurao Village and Iitate Village).
- (2) On March 21, the Local Nuclear Emergency Response Headquarters issued the instruction titled “Administration of the Stable Iodine” to the Prefectural Governor and the Mayors of cities and towns (Minamisoma City, Tamura City, Iwaki City, Tomioka Town, Futaba Town, Okuma Town, Namie Town, Naraha Town, and Hirono Town) and Heads of villages (Kawauchi Village, Katsurao Village and Iitate Village), which instructs the above-mentioned Governor, Mayors and Heads to administer stable iodine under the instruction of the headquarters, in the presence of medical experts, and not to administer it based on personal judgements.

<Situation of Injuries, etc. (As of 15:30 June 5)>

1. Injury in Unit 1 of Fukushima Dai-ichi NPS due to earthquake on March 11
 - Two employees (slightly injured, have already returned to work)
 - Two employees (received cuts from glass broken by the earthquake and tsunami, have already returned to work)
 - One employee (received abrasions when evacuating, has already returned to work)
 - One subcontractor employee (fracture in both legs and hospitalized)

- Two died (after the occurrence of the earthquake, two TEPCO employees were missing and the search for them was continued. In the afternoon of March 30, the two employees were found on the first basement level of the turbine building of Unit 4 and were confirmed dead by April 2.)
- 2. Injury Due to the Explosion of Unit 1 of Fukushima Dai-ichi NPS on 12 March
 - Four employees (two TEPCO's employees and two subcontractor's employees) were injured by the explosion and smoke of Unit 1 around the turbine building of Unit 1 (non-controlled area of radiation) and were examined at Kawauchi Clinic. Two TEPCO's employees have already returned to work and two subcontractors' employees are recuperating at home
- 3. Injury Due to the Explosion of Unit 3 of Fukushima Dai-ichi NPS on 14 March.
 - Four TEPCO's employees (already returned to work.)
 - Three subcontractor's employees (already returned to work.)
 - Four Self-Defence officials (one of them was transported to National Institute of Radiological Sciences considering the possibility of internal exposure. The examination resulted in no internal exposure. The official was discharged from the institute on March 17.)
- 4. Other Injuries, etc.
 - On March 11, during the earthquake, one subcontractor's employees (a crane operator) died at Fukushima Dai-ni NPS. (It seems that the tower crane broke and crushed the operator room, and the person was hit on the head.)
 - On March 11, one subcontractor's employee was transported to hospital. (Later, turned out to be cerebral infarction)
 - On March 12, one emergency patient (cerebral stroke, transported by ambulance and hospitalized)
 - On March 12, one employee complained of pains in the left chest outside the control area and requested an ambulance. (Conscious and currently recuperating at home)

- On March 12, one employee suffered lacerations on his left arm and was transported to hospital for treatment. (Has already returned to work)
- On March 13, two employees complained of discomfort wearing full-face masks in the Main Control Room and were transported to Fukushima Dai-ni NPS for a consultation with an industrial physician. (One employee has already returned to work and the other is recuperating at home.)
- On March 22 and 23, two subcontractor's employees were injured while working on the temporary power panel in the Common Spent Fuel Pool. They were transported to Fukushima Dai-ni NPS to see an industrial physician. (One employee has already returned to work and the other is recuperating at home.)
- In the afternoon of April 7, a worker who was making sandbags at the soil disposal yard (spoil bank) on the north side of Fukushima Dai-ichi NPS got sick and was transported to J-Village for a whole-body survey. Being confirmed to be free from contamination, the worker was taken to the Iwaki City Kyouritsu Hospital by ambulance. On April 8, the worker was diagnosed with "dehydration and transient unconsciousness".
- At 09:19 April 9, one subcontractor's employee was transported to a hospital after the worker felt discomfort while working wearing a full-face mask processing cables in the Water Processing Building and stepped into a manhole with a displaced lid outside the building, resulting in an injury. As a result of medical examination, the worker was diagnosed with a right knee contusion and suspicion of right knee medial collateral ligament injury. Furthermore, as a result of a whole body survey, it was confirmed that the worker was free from contamination of radioactive materials.
- At around 11:10 April 10, a subcontractor's employee who was working to lay down drain hoses in the yard of Unit 2 got sick and was transported to J-Village. Thereafter, the employee was taken to the Iwaki City Kyouritsu Hospital by ambulance at 14:27 on the same day. It was confirmed that there were no radioactive materials attached to his body.
- Around 16:30 April 23, outside the NPS site (in a ready-mixed concrete plant in Naraha Town), a worker was carrying out maintenance work on the connection part of a hose used by a concrete mixer, when liquid splashed into his eyes. Because he felt pain in the eyes, he was

transported to J-Village where he was examined by an industrial physician, and then taken to Iwaki City Municipal Kyoritsu Hospital by ambulance as a precautionary measure, since no ophthalmologist was available nearby. The worker was treated with ointment, etc., in the left eye and went home with an eye bandage. Since no specialist was available, the worker revisited the hospital on April 24, and was diagnosed with moderate conjunctivitis requiring treatment at the hospital for about a week. Since he was allowed to engage in regular work, he has returned to normal work (indoors) from April 24.

- At around 11:00 May 5, one worker of a subcontractor fell from a stepladder and got injured when assembling a temporary rest station at the parking area outside the west gate of Fukushima Daiichi NPS. The worker was taken to the Fukushima Rosai Hospital by ambulance. There was no contamination on the body of this worker.
- At around 06:50 May 14, a worker who belonged to a subcontractor became sick while carrying out water discharge related work (equipment delivery work) in the Radioactive Waste Treatment Facilities of Fukushima Dai-ichi NPS. The worker became unconscious and was not breathing on his own, so he was taken to J-Village. After receiving a medical examination, he was taken by ambulance to Sogo Iwaki Kyoritsu Hospital. As a result of a whole body survey, it was confirmed that there was no radioactive contamination. Later, the worker was confirmed dead at 09:33.
- Around 10:20 am May 23, a subcontractor worker who was unloading a tank for the treatment water near the large object delivery entrance on the 1st floor of On-site Bunker Building, injured his left hand. He was examined at the medical office in Fukushima Dai-ichi NPS and re-examined at J-Village. After these medical examinations, at around 12:50, he was transferred to Iwaki Kyouritsu General Hospital by an ambulance. There was no contamination on his body.
- Around 13:30 May 31, one subcontractor employee injured his right index finger while laying cables at the Radioactive Waste Treatment Facilities. After administering an IV drip injection at the medical office of the NPS as a precautionary measure, he was taken to J-Village on a service car at 14:26. Thereafter he was taken from J-Village to the

Fukushima Accident Hospital by ambulance at 15:35. There was no contamination on his body.

- Around 09:00 on June 4, a worker of a subcontractor who was the on-site supervisor for the project of collecting accumulated water on the 1st floor of the Process Main Building of the Radioactive Waste Treatment Facilities complained of sickness. Later he was transported to Iwaki City Kyouritsu Hospital by ambulance and doctor's helicopter. There was no contamination on his body.
- Around 10:00 and 10:15 on June 5, two workers who were laying electric cables in a pump system got sick and were transported to J-Village. Thereafter one worker was taken to the Iwaki City Kyouritsu Hospital by ambulance and doctor helicopter. The other worker was taken to the Fukushima Rosai Hospital. It was confirmed they were free from radioactive contamination.

<Situation of Resident Evacuation (As of 12:00 June 5)>

At 11:00 March 15, the Prime Minister instructed the residents in the area between 20km and 30km radius from Fukushima Dai-ichi NPS to evacuate indoors. The instruction was conveyed to Fukushima Prefecture and related municipalities.

Regarding the evacuation outside the 20km area from Fukushima Dai-ichi NPS and outside 10km from Fukushima Dai-ni NPS, necessary measures have already been taken.

- The indoor evacuation in the area between 20km and 30km radius from Fukushima Dai-ichi NPS is made fully known to the residents concerned.
- Cooperating with Fukushima Prefecture, livelihood support, etc. to the residents of the indoor evacuation area is being carried out.
- On March 28, the Chief Cabinet Secretary made a statement about continuing the access restriction in the area within 20km radius from Fukushima Dai-ichi NPS. On the same day, the Local Nuclear Emergency Response Headquarters notified the related municipalities to forbid entry to the evacuation area within the 20km zone.
- At 11:00 April 21, the Prime Minister issued the instruction to change the evacuation area related to the accident at Fukushima Dai-ni NPS, from within 10km radius to within 8km radius from Fukushima Dai-ni NPS.

- At 11:00 April 21, the Prime Minister issued an instruction to establish the area within 20km radius from Fukushima Dai-ichi NPS as a restricted area, and with the exception of personnel engaged in emergency response measures, to prohibit people from accessing the area or to instruct them to leave, excluding the case when the mayor of the city or town or the head of the village permits temporary access. (The restricted area comes into effect from 00:00 April 22)
- At 09:44 April 22, the Prime Minister issued an instruction to lift the area of indoor evacuation which had been established for the area between 20km and 30km radius from Fukushima Dai-ichi NPS, and to establish a Deliberate Evacuation Area as well as an Evacuation-Prepared Area in Case of Emergency, for the residents and others to carry out deliberate evacuation, or make preparations to evacuate or stay indoors whenever there is an emergency in the subject area.
- From May 15, deliberate evacuation was started in Iitate Village and Kawamata Village to locations recommended by the municipalities. As of May 31, the number of people who have already evacuated or have definite places to evacuate (including voluntary evacuation) is 4,750 people (of 6,177 target residents, about 77%) in Iitate Village and 1,240 people (of 1,252 target residents, about 99%) in Kawamata Village. NISA will give continuous assistance for the towns and villages in order to carry out the deliberate evacuation smoothly for the remaining residents.

< Temporary Access into Restricted Areas >

- Temporary access into the following cities, towns or villages was allowed to residents:
 - Kawauchi Village (on May 10)
 - Katsurao Village (on May 12)
 - Tamura City (on May 22)
 - Minamisoma City (on May 25 and 27)
 - Tomioka Town (on May 25)
 - Namie Town (on May 26, 27, June 4 and 5)
 - Futaba Town (on May 26 and 27)
 - Okuma Town (June 4 and 5)
- Vehicles were retrieved from the following cities, towns and villages.

Minamisoma City (on June 1)
Kawauchi Village (on June 1)
Tamura City (on June 2)
Okuma Town (on June 2)
Futaba Town (on June 2)
Namie Town (on June 2)
Katsurao Village (on June 2)

<Instructions Regarding Foods and Drinks>

The Director-General of the Government Nuclear Emergency Response Headquarters issued an instruction to the Prefectural Governors of Fukushima, Ibaraki, Tochigi and Chiba to suspend shipment, etc. of the following products for the time being.

The Government Nuclear Emergency Response Headquarters took into consideration the advice from NSC and clarified the view on how to impose or lift restrictions on shipments as follows:

- The restrictions on shipments can be imposed or lifted on subdivisions of a prefecture, such as cities, towns, and villages, taking into consideration the expansion of the contaminated area as well as the actual situation of the collection of produce, etc.
- The decision for restricting shipments of items that exceed the provisional regulation limits should be based on a comprehensive review, taking into consideration the regional spread of the contamination,
- The restrictions on shipment should be lifted when an item or area is inspected roughly every week and falls below the provisional regulation limit three times in a row, while taking into account the situation of the Fukushima Dai-ichi NPS.
- However, the tests should be carried out roughly every week even after the restriction is lifted, as long as the release of the radioactive materials from the NPS continues.

(1) Items Under the Suspension of Shipment and Restriction of Intake (As of 12:00 June 5)

Prefec tures	Suspension of Shipment (Item and Municipality)	Restriction of Intake (Item and Municipality)
Fukus	Raw milk (Minamisoma City (limited	

hima Prefec ture	to Haramachi-ku, Odaka-ku, and the areas of Karasuzaki, Ouchi, Kawago and Shiozaki within Kashima-ku), Tamura City (limited to former Miyakoji Village area), Kawamata Town (limited to Yamakiya area), Namie Town, Futaba Town, Okuma Town, Tomioka Town, Naraha Town, Hirono Town, Iitate Village, Katsurao Village, Kawauchi Village, Kitashiobara Village, Nishiaizu Town, Aizubange Town, Yukawa Village, Aizuwakamatsu City, Tenei Village, Yaizu Town, Showa Village, Kaneyama Town, Tadami Town, Showa Village, Hinoemata Village and Tamagawa Village). Non-head type leafy vegetables (all types, such as spinach and <i>komatsuna</i>) (Fukushima City, Nihonmatsu City, Date City, Motomiya City, Tamura City (limited to the area within 20km radius from Fukushima Dai-ichi NPS), Minamisoma City (limited to the area within 20km radius of Fukushima Dai-ichi NPS, and the following locations in Haramachi-ku; Suketsune, Fukiyatoge, Nanamagari, Mori, Karekimori of Takanokura Area; Godaisan, Yokokawa, Yakushitoge of Baba Area; Namezu of Katakura Area and Wadajo of Ohara Area), Koori Town, Kunimi Town, Kawamata Town, Hirono Town, Naraha Town, Tomioka Town, Okuma Town, Futaba Town, Namie Town, Otama Village, Kawauchi Village, Katsurao Village,	Non-head type leafy vegetables (all types, such as spinach and <i>Komatsuna</i>) (Fukushima City, Nihonmatsu City, Date City, Motomiya City, Tamura City, (limited to the area within 20km radius from Fukushima Dai-ichi NPS) Minamisoma City (limited to the area within the 20km radius of Fukushima Dai-ichi NPS, and the following locations in Haramachi-ku; Suketsune, Fukiyatoge, Nanamagari, Mori,
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	and Iitate Village)	Karekimori of Takanokura Area; Godaisan, Yokokawa, Yakushitoge of Baba Area; Namezu of Katakura Area and Wadajo of Ohara Area), Koori Town, Kunimi Town, Kawamata Town, Hirono Town, Naraha Town, Tomioka Town, Okuma Town, Futaba Town, Namie Town, Otama Village, Kawauchi Village, Katsurao Village, and Iitate Village)
	Head type leafy vegetables (cabbages, etc.) (Tamura City (limited to the area within 20km radius of Fukushima Dai-ichi NPS), Minamisoma City (limited to the area within the 20km radius of Fukushima Dai-ichi NPS, and the following locations in Haramachi-ku; Suketsune, Fukiyatoge, Nanamagari, Mori, Karekimori of Takanokura Area; Godaisan, Yokokawa, Yakushitoge of Baba Area; Namezu of Katakura Area and Wadajo of Ohara Area), Kawamata Town (limited to Yamakiya area), Hirono Town, Naraha Town, Tomioka Town,, Okuma Town, Futaba Town, Namie Town, Kawauchi Village, Katsurao Village and Iitate Village).	Head type leafy vegetables (cabbages, etc.) (Tamura City (limited to the area within 20km radius of Fukushima Dai-ichi NPS), Minamisoma City (limited to the area within the 20km radius of Fukushima Dai-ichi NPS, and the following locations in Haramachi-ku; Suketsune, Fukiyatoge, Nanamagari, Mori, Karekimori of Takanokura Area; Godaisan, Yokokawa, Yakushitoge of Baba Area; Namezu of Katakura Area and

		Wadajo of Ohara Area), Kawamata Town (limited to Yamakiya area), Hirono Town, Naraha Town Tomioka Town, Okuma Town, Futaba Town, Namie Town, Kawauchi Village, Katsurao Village and Iitate Village).
	Flowerhead brassicas (broccoli, cauliflower, etc.) (Fukushima City, Nihonmatsu City, Date City, Motomiya City, Tamura City, (limited to the area within 20km radius of Fukushima Dai-ichi NPS), Soma City, Minamisoma City, Koori Town, Kunimi Town, Kawamata Town, Hirono Town, Naraha Town Tomioka Town, Okuma Town, Futaba Town, Namie Town, Shinchu Town, Otama Village, Kawauchi Village, Katsurao Village and Iitate Village).	Flowerhead brassicas (broccoli, cauliflower, etc.) (Fukushima City, Nihonmatsu City, Date City, Motomiya City, Tamura City, (limited to the area within 20km radius of Fukushima Dai-ichi NPS), Soma City, Minamisoma City, Koori Town, Kunimi Town, Kawamata Town, Hirono Town, Naraha Town Tomioka Town, Okuma Town, Futaba Town, Namie Town, Shinchu Town, Otama Village, Kawauchi Village, Katsurao Village and Iitate Village).
	Turnip (Tamura City, (limited to the area within 20km radius of Fukushima Dai-ichi NPS), Soma City, Minamisoma City, Kawamata Town (limited to the Yamakiya area), Hirono Town, Naraha Town, Tomioka Town, Okuma Town, Futaba Town, Namie Town, Shinchu Town, Kawauchi Village, Katsurao Village and Iitate Village).	
	Shiitake (only those grown on raw lumber in open fields) (Fukushima	Shiitake (only those grown on raw lumber in

	City, Date City, Motomiya City, Soma City, Minamisoma City, Tamura City (limited to areas within 20km radius from Fukushima Dai-ichi NPS), Kawamata Town, Namie Town, Futaba Town, Okuma Town, Tomioka Town, Naraha Town, Hirono Town, Iitate Village, Katsurao Village and Kawauchi Village (limited to the area within 20km radius of Fukushima Dai-ichi NPS)) Bamboo shoots (limited to Date City, Soma City, Minamisoma City, Motomiya City, Iwaki City, Koori Town, Kunimi Town, Kawamata Town, Miharu Town, Tenei Village and Nishigo Village). Ostrich fern (fiddleheads) (Fukushima City and Koori Town) Japanese apricots (ume) (Fukushima City, Date City, Koori City) Juvenile sand lance (Kounago)(All areas)	open fields) of Iitate Village Juvenile sand lance (Kounago)(All areas)
Ibaraki Pref.	Tea (all areas)	
Tochigi Pref.	Tea (Kanuma City, Otawara City)	
Chiba Pref.	Tea (Noda City, Narita City, Yagai City, Tomisato City, Sammu City, Oami-Shirasato Town)	
Kanagawa Pref.	Tea (Minami-Ashigara City, Odawara City, Aikawa City, Manazuru City, Yugawara City, Kiyokawa City)	

Note: The names of cities, town, and villages that are subject to the suspension of shipment and restriction of intake on an item by item basis are mentioned inside this table from the 143rd Release. (Until the 142nd Release, only some areas outside the scope were identified in the footnotes *1~3.)

(2) Request to Restrict Drinking Tap-Water (As of 12:00 June 5)

Scope of the Restriction	Water Services (Municipalities Under the Restriction)
All residents	None
Babies	None
• Water services that continue to take measures • Tap-water supply services that continue to take measures	

< Fire Bureaus' Activities >

- From 11:00 till around 14:00 March 22, Niigata-City Fire Bureau and Hamamatsu City Fire Bureau supervised TEPCO on the set up of a large decontamination system.
- From 8:30 till 9:30 and from 13:30 till 14:30 March 23, Niigata City Fire Bureau and Hamamatsu City Fire Bureau supervised TEPCO on the operation of the large decontamination system.

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