

April 14, 2011
Nuclear and Industrial Safety Agency

Seismic Damage Information (the 92nd Release)
(As of 08:00 April 14th, 2011)

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

Major updates are as follows.

1. Nuclear Power Stations (NPSs)

● Fukushima Dai-ichi NPS

- The stagnant water in the trench of the turbine building of Unit 2 was started to be transferred to the Hot Well of the Condenser using a submersible pump. (19:35 April 12th) It was suspended temporarily to check leakage, etc. (11:00 April 13th) Thereafter it was confirmed that no leakage was found, the transfer of stagnant water resumed from 15:02 April 13th and was stopped 17:04 April 13th. The amount of transfer was about 660t.
- The test implementation of spraying antiscattering agent to prevent the spread of radioactive materials on the ground surface was carried out, in the area of about 400 m² on the mountain-side of the Common Pool. (From 11:00 till 11:30 April 13th)
- Removal of rubble (Amounts equivalent to 6 containers) using remote-control heavy machineries was carried out. (From 11:00 till 16:10 April 13th)

2. Actions taken by NISA

- On 13 April, in accordance with paragraph 1, Article 67 of the Nuclear Regulation Act, NISA directed TEPCO to report the result of implementation on seismic safety evaluation as well as the result of consideration on the measurement of effective seismic reinforcement

work, etc., regarding the buildings of Fukushima Dai-ichi NPS.

- On 13 April, NISA directed TEPCO to implement detailed analysis and consideration regarding the tsunami caused by the 2011 Tohoku District - off the Pacific Ocean Earthquake.
- On 13th April, NISA directed Tohoku Electric Power Co., Inc. to report the analysis of seismic data observed when the 2011 Earthquake off the Coast of Miyagi Prefecture occurred around 23:32 on 7 April and the assessment on seismic impact on the facilities that are important from the seismic safety viewpoints.

For more information:

NISA English Home Page

<http://www.nisa.meti.go.jp/english/index.html>

April 14, 2011
Nuclear and Industrial Safety Agency

Seismic Damage Information (the 93rd Release)
(As of 15:00 April 14th, 2011)

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

Major updates are as follows.

1. Nuclear Power Stations (NPSs)

● Fukushima Dai-ichi NPS

- The silt fences to prevent the spread of the contaminated water were installed at the Curtain Wall and in front of the Screen of Units 1 and 2. (12:20 April 14th)
- In order to cool the Spent Fuel Pool of Unit 3, fresh water spray using Concrete Pump Truck (50t/h) was started. (15:56 April 14th)
- Videotaping using a wireless helicopter was carried out in order to grasp the situations of reactor buildings for Units 3 and 4. (From 10:17 till 12:25 April 14th)

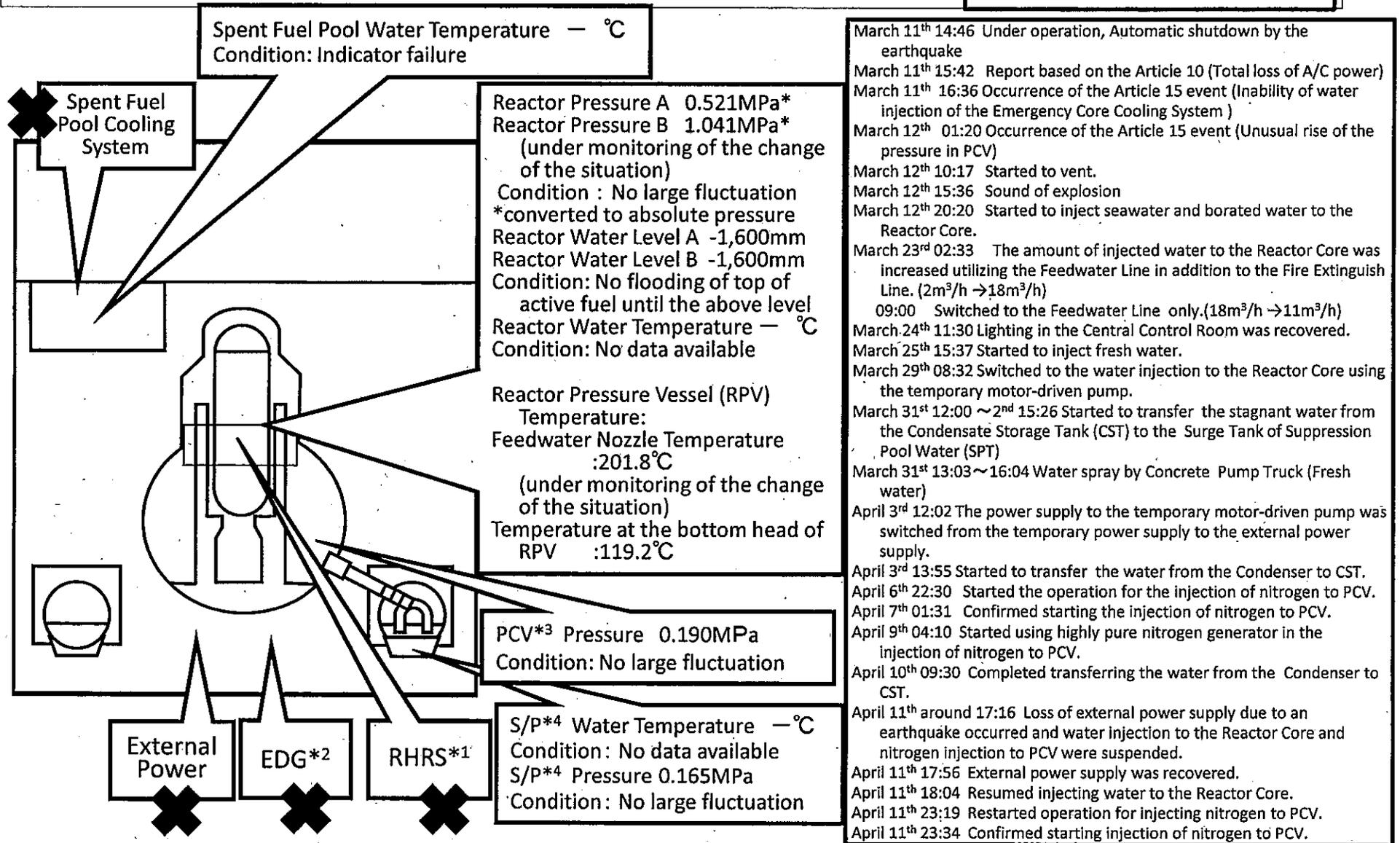
For more information:

NISA English Home Page

<http://www.nisa.meti.go.jp/english/index.html>

Conditions of Fukushima Dai-ichi Nuclear Power Station Unit 1 (As of 8:00 April 14th, 2011)

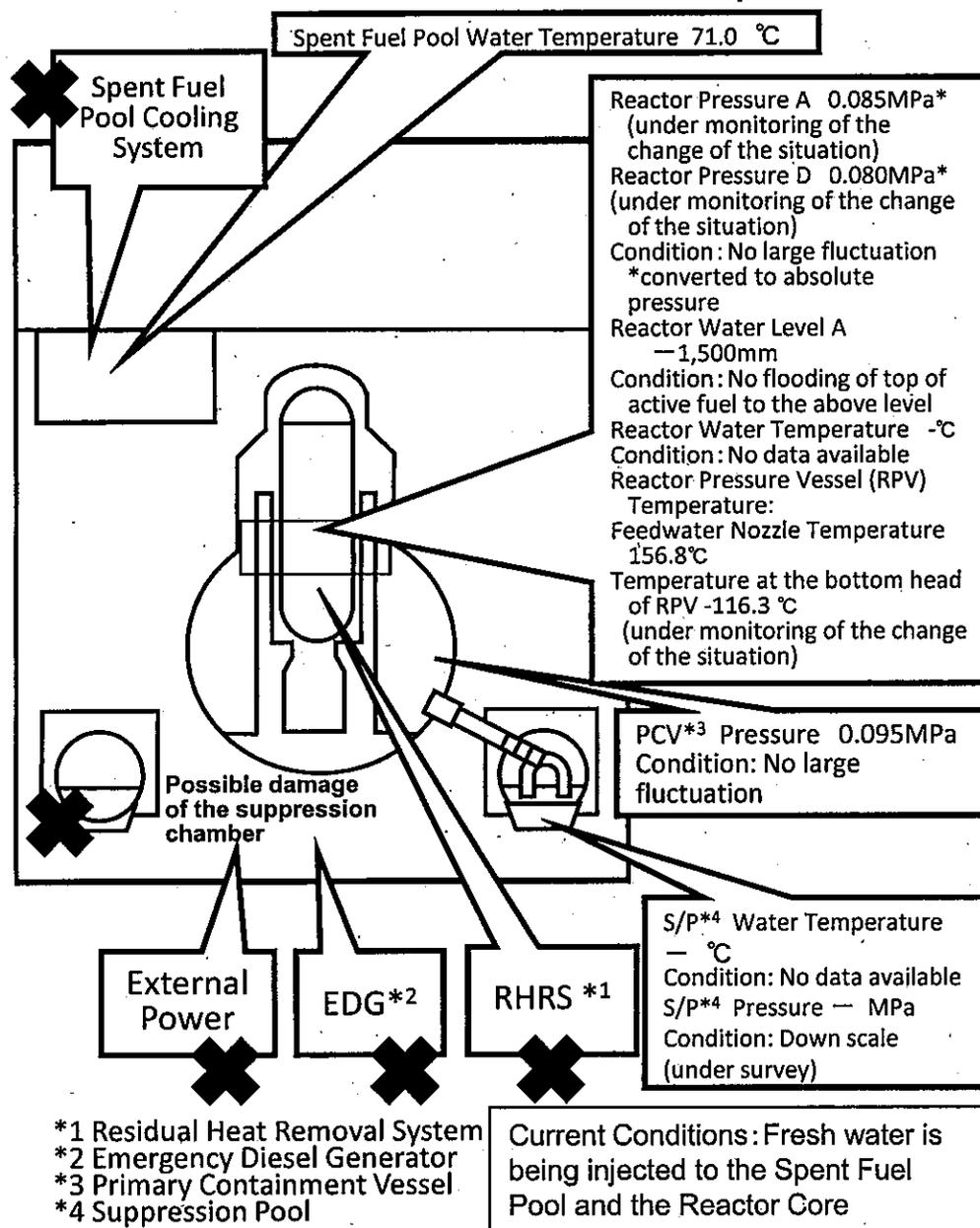
Major Events after the Earthquake



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

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

Conditions of Fukushima Dai-ichi Nuclear Power Station Unit 2 (As of 8:00 April 14th, 2011)



Major Events after the Earthquake 1/2

- March 11th 14:46 Under operation, Automatic shutdown by the earthquake
- March 11th 15:42 Report based on the Article 10 (Total loss of A/C power)
- March 11th 16:36 Occurrence of the Article 15 event (Inability of water injection of the Emergency Core Cooling System)
- March 13th 11:00 Started to vent.
- March 14th 13:25 Occurrence of the Article 15 event (Loss of reactor cooling functions)
- March 14th 16:34 Started to inject seawater to the Reactor Core.
- March 14th 22:50 Occurrence of the Article 15 event (Unusual rise of the pressure in PCV)
- March 15th 00:02 Started to vent.
- March 15th 06:10 Sound of explosion
- March 15th around 06:20 Possible damage of the suppression chamber
- March 20th 15:05 ~ 17:20 Approximately 40 ton seawater injection to the Spent Fuel Pool (SFP) via the Fuel Pool Cooling Line (FPC)
- March 20th 15:46 Power Center received electricity.
- March 21st 18:22 White smoke generated. The smoke died down and almost invisible at 07:11 March 22nd.
- March 22nd 16:07 Injection of around 18 tons of seawater to SFP
- March 25th 10:30 ~ 12:19 Sea water injection to SFP via FPC
- March 26th 10:10 Started to inject fresh water to the Reactor Core.
- March 26th 16:46 Lighting in the Central Control Room was recovered.
- March 27th 18:31 Switched to the water injection to the core using the temporary motor-driven pump.
- March 29th 16:30 ~ 18:25 Switched to the temporary motor-driven pump injecting fresh water to SFP.
- March 29th 16:45 ~ 1st 11:50 Transferred the water from the Condensate Storage Tank (CST) to the Surge Tank of Suppression Pool Water (SPT)
- March 30th 9:25 ~ 23:50 Confirmed malfunction of the temporary motor-driven pump injecting fresh water to SFP(9:45). Switched to the injection using the fire pump Truck, but suspended as cracks were confirmed in the hose. (12:47, 13:10) Resumed injection of fresh water(19:05)
- April 1st 14:56 ~ 17:05 Freshwater injection to SFP via FPC using the temporary motor-driven pump.
- April 2nd around 9:30 The water, of which the dose rate was at the level of more than 1,000mSv/h, was confirmed to be collected in the pit located near the Intake Channel of Unit 2. The outflow from the lateral surface of the pit into the sea was also confirmed.
- April 2nd 17:10 Started to transfer the water from the Condenser to the CST.
- April 3rd 12:12 The power supply to the temporary motor-driven pump was switched from the temporary power supply to the external power supply.
- April 3rd 13:47 ~ 14:30 20 bags of sawdust, 80 bags of high polymer absorbent and 3 bags of cutting-processed newspaper were put into the Pit for the Conduit.
- April 4th 7:08 ~ 7:11 Approximately 13kg of tracer (bath agent) was put in from the Pit for the Duct for Seawater Pipe.
- April 4th 11:05 ~ 13:37 Freshwater injection to SFP via FPC using the temporary motor-driven pump.
- April 5th 14:15 Tracer is confirmed to outflow through the permeable layer around the pit into the sea. 15:07 Started to inject coagulant.
- April 6th around 5:38 The water outflow from the lateral surface of the pit was confirmed to stopped.
- April 7th 13:29 ~ 14:34 Freshwater injection to SFP via FPC (Around 36 ton)
- April 9th 13:10 Completed transferring the water from the Condenser to CST.
- April 10th 10:37 ~ 12:38 Freshwater injection to SFP via FPC using the temporary motor-driven pump (Around 60 ton).
- April 11th around 17:16 Loss of external power supply due to an earthquake occurred. Water injection to the Reactor Core was suspended.
- April 11th 17:56 External power supply was recovered.
- April 11th 18:04 Resumed injecting water to the Reactor Core.

Major Events after the Earthquake 2/2

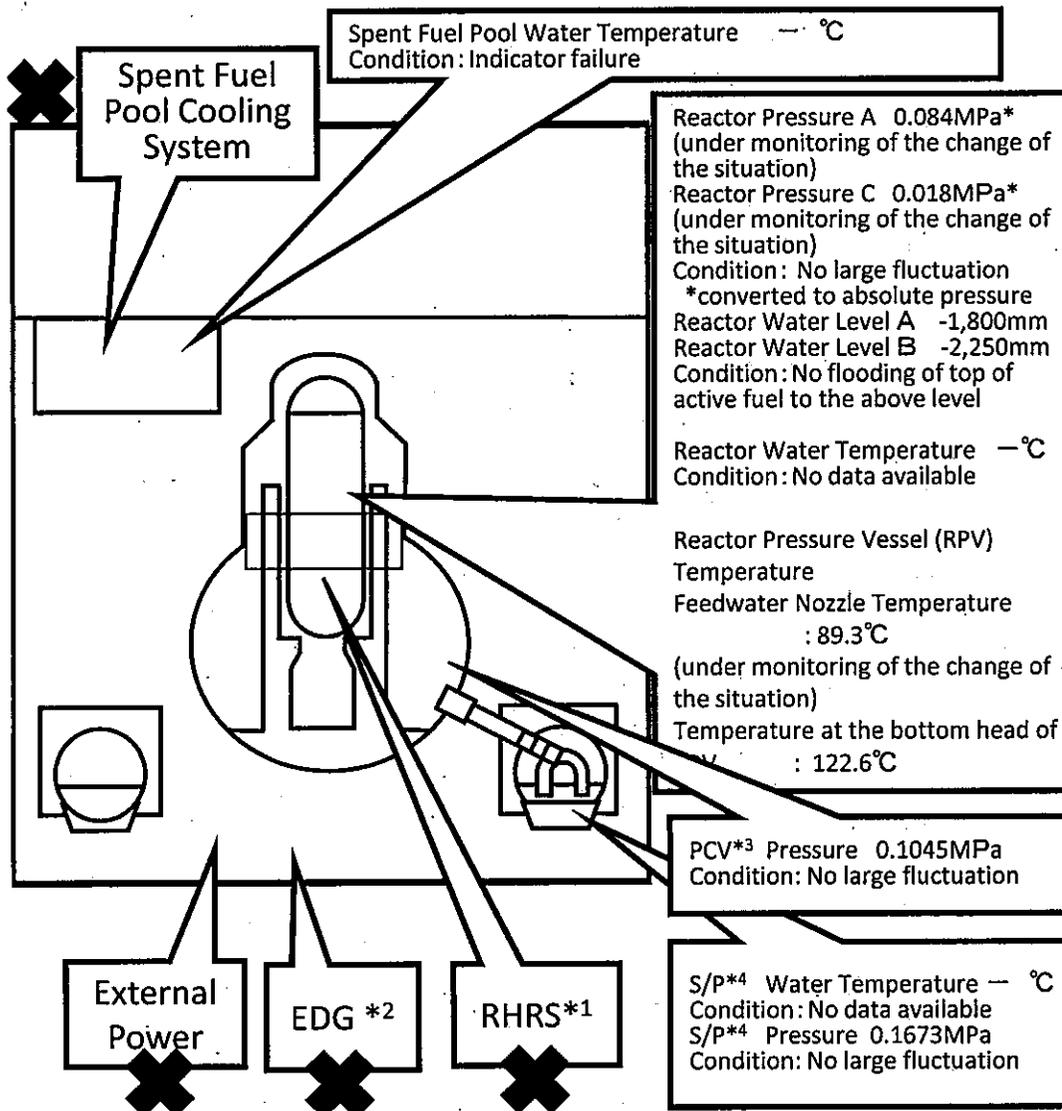
April 12th 19:35~April 13th 17:04 Transfer from the trench of the turbine building to the Condenser.

April 13th 11:00 Suspended the transfer for checking leaks, etc.

April 13th 13:15~14:55 Freshwater injection to SFP via FPC using the temporary motor-driven pump.

Conditions of Fukushima Dai-ichi Nuclear Power Station Unit 3 (As of 8:00 April 14th, 2011)

Major Events after the Earthquake

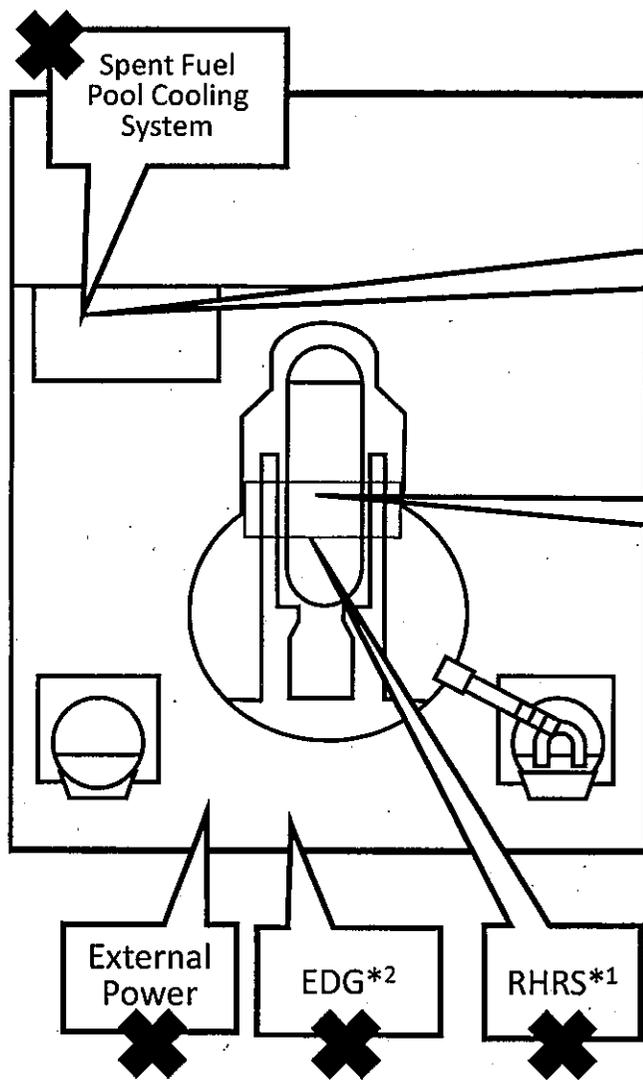


March 11th 14:46 Under operation, Automatic shutdown by the earthquake
 March 11th 15:42 Report based on the Article 10 (Total loss of A/C power)
 March 13th 05:10 Occurrence of the Article 15 event (Inability of water injection of the Emergency Core Cooling System)
 March 13th 08:41 Started to vent.
 March 13th 13:12 Started to inject seawater and borated water to the Reactor Core.
 March 14th 05:20 Started to vent.
 March 14th 07:44 Occurrence of the Article 15 event (Unusual rise of the pressure in PCV)
 March 14th 11:01 Sound of explosion
 March 16th around 08:30 White smoke generated.
 March 17th 09:48~10:01 Water discharge by the helicopters of Self-Defense Force
 March 17th 19:05~19:15 Water spray from the ground by High pressure water-cannon trucks of Police
 March 17th 19:35~20:09 Water spray from the ground by fire engines of Self-Defense Force
 March 18th before 14:00~14:38 Water spray from the ground by 6 fire engines of Self-Defense Force
 March 18th ~14:45 Water spray from the ground by a fire engine of the US Military
 March 19th 00:30 ~01:10 Water spray by Hyper Rescue Unit of Tokyo Fire Department
 March 19th 14:10 ~ 20th 03:40 Water spray by Hyper Rescue Unit of Tokyo Fire Department
 March 20th 11:00 Pressure of PCV rose(320kPa).Afterward fell.
 March 20th 21:36 ~ 21st 03:58 Water spray by Hyper Rescue Unit of Tokyo Fire Department
 March 21st around 15:55 Grayish smoke generated and was confirmed to be died down at 17:55.
 March 22nd 15:10 ~ 16:00 Water spray by Hyper Rescue Unit of Tokyo Fire Department and Osaka City Fire Bureau.
 March 22nd 22:46 Lighting in the Central Control Room was recovered.
 March 23rd 11:03 ~ 13:20 Injection of about 35 ton of sea water to the Spent Fuel Pool (SFP) via the Fuel Pool Cooling Line (FPC)
 March 23rd around 16:20 Black smoke generated and was confirmed to died down at around 23:30 and 24th 04:50.
 March 24th 05:35~16:05 Injection of around 120 ton of sea water to SFP via FPC
 March 25th 13:28~16:00 Water spray by Kawasaki City Fire Bureau supported by Tokyo Fire Department
 March 25th 18:02 Started fresh water injection to the core.
 March 27th 12:34~14:36 Water spray by Concrete Pump Truck
 March 28th 17:40~31st around 8:40 Transferring the water from the Condensate Storage Tank (CST) to the Surge Tank of Suppression Pool Water (SPT)
 March 28th 20:30 Switched to the water injection to the core using a temporary motor-driven pump.
 April 3rd 12:18 The power supply to the temporary motor-driven pump was switched from the temporary power supply to the external power supply.
 April 11th around 17:16 Loss of external power supply of Unit 1 and 2 occurred and water injection to the Reactor Core was suspended.
 April 11th 18:04 External power supply of Units 1 and 2 recovered (April 11th 17:56). Resumed injecting water to the Reactor Core.
 <Water spray by Concrete Pump Truck (Fresh water)>
 March 29th 14:17~18:18, March 31st 16:30~19:33, April 2nd 09:52~12:54, April 4th 17:03~19:19, April 7th 06:53 ~08:53, April 8th 17:06~20:00, April 10th 17:15~19:15, April 12th 16:26~17:16

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

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

Conditions of Fukushima Dai-ichi Nuclear Power Station Unit 4 (As of 8:00 April 14th, 2011)



In periodic inspection outage

Spent Fuel Pool Water Temperature — °C
Condition: Indicator failure

No fuel is inside the Reactor Core

External Power

EDG*2

RHRS*1

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

Major Events after the Earthquake

In periodic inspection outage when the earthquake occurred

- March 14th 04:08 Water temperature in the Spent Fuel Pool (SFP), 84°C
- March 15th 06:14 Confirmed the partial damage of wall in the 4th floor.
- March 15th 09:38 Fire occurred in the 3rd floor. (12:25 extinguished)
- March 16th 05:45 Fire occurred. TEPCO couldn't confirm any fire on the ground. (06:15)
- March 20th 08:21~09:40 Water spray over SFP by Self-Defense Force
- March 20th around 18:30~19:46 Water spray over SFP by Self-Defense Force
- March 21st 06:37~08:41 Water spray over SFP by Self-Defense Force
- March 21st around 15:00 Work for laying cable to Power Center was completed.
- March 22nd 10:35 Power Center received electricity.

<Water spray by Concrete Pump Truck (Seawater)>

- March 22nd 17:17~20:32, March 23rd 10:00~13:02, March 24th 14:36~17:30, March 25th 19:05~22:07, March 27th 16:55~19:25

March 25th 06:05~10:20 Sea water injection to SFP via the Fuel Pool Cooling Line (FPC)

March 29th 11:50 Lighting in the Central Control Room was recovered.

April 11th around 17:16 An earthquake occurred.

April 12th 12:00~13:04 Sampled the water in SFP.

< Water spray by Concrete Pump Truck (Fresh water)>

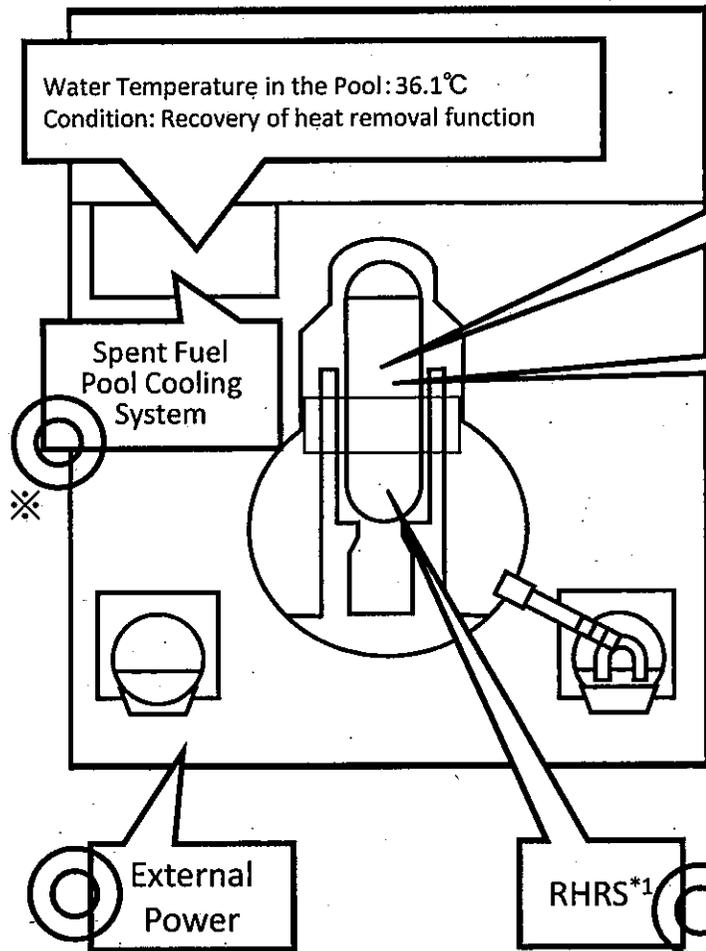
- March 30th 14:04~18:33, April 1st 08:28~14:14, April 3rd 17:14~22:16, April 5th 17:35~18:22, April 7th 18:23~19:40, April 9th 17:07~19:24, April 13th 0:30~6:57

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

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

Conditions of Fukushima Dai-ichi Nuclear Power Station Unit 5 (As of 8:00 April 14th, 2011)

In periodic inspection outage



Water Temperature in the Pool: 36.1°C
Condition: Recovery of heat removal function

Reactor Pressure: 0.104MPa*
Reactor Water Level: 1,842mm
Reactor Water Temperature: 32.6°C
Condition: Pressure is under control.
*converted to absolute pressure

Reactor Pressure Vessel Temperature:
Monitoring by Reactor Water Temperature

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

Major Events after the Earthquake:

March 20th 14:30 Cold shutdown

March 21st 11:36 Receiving electricity from external power supply

March 23rd 17:24 Pump for Residual Heat Removal Seawater System (RHRS) was automatically stopped when the power supply was switched from the temporary to the permanent.

March 24th 16:14 Repair of the RHRS pump was completed.

March 24th 16:35 Started to cooling.

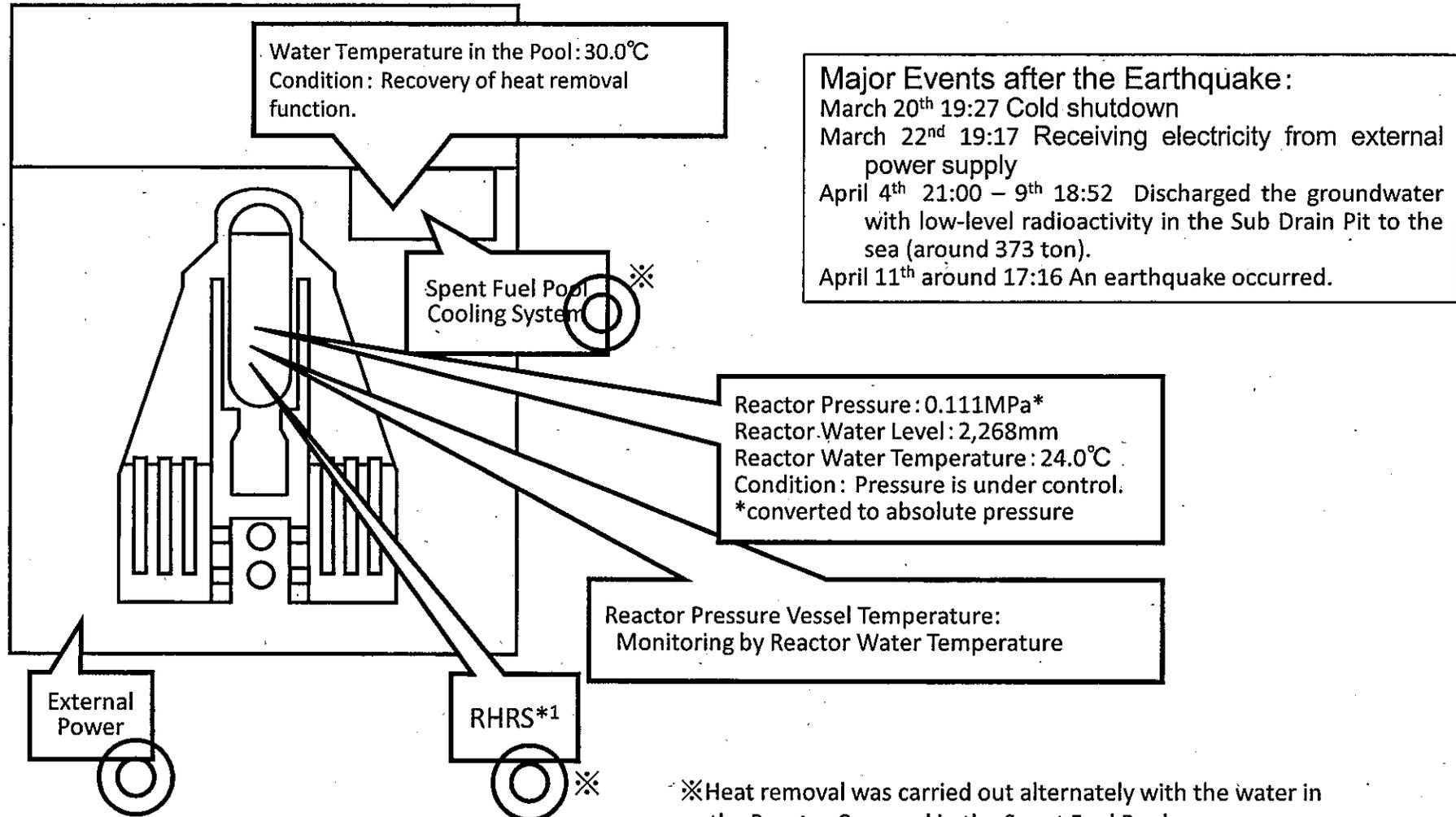
April 4th 21:00 – 8th 12:14 Discharged the groundwater with low-level radioactivity in the Sub Drain Pit to the sea (around 950 ton).

April 11th around 17:16 An earthquake occurred.

*1 Residual Heat Removal System

Conditions of Fukushima Dai-ichi Nuclear Power Station Unit 6 (As of 8:00 April 14th, 2011)

In periodic inspection outage



*1 Residual Heat Removal System

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