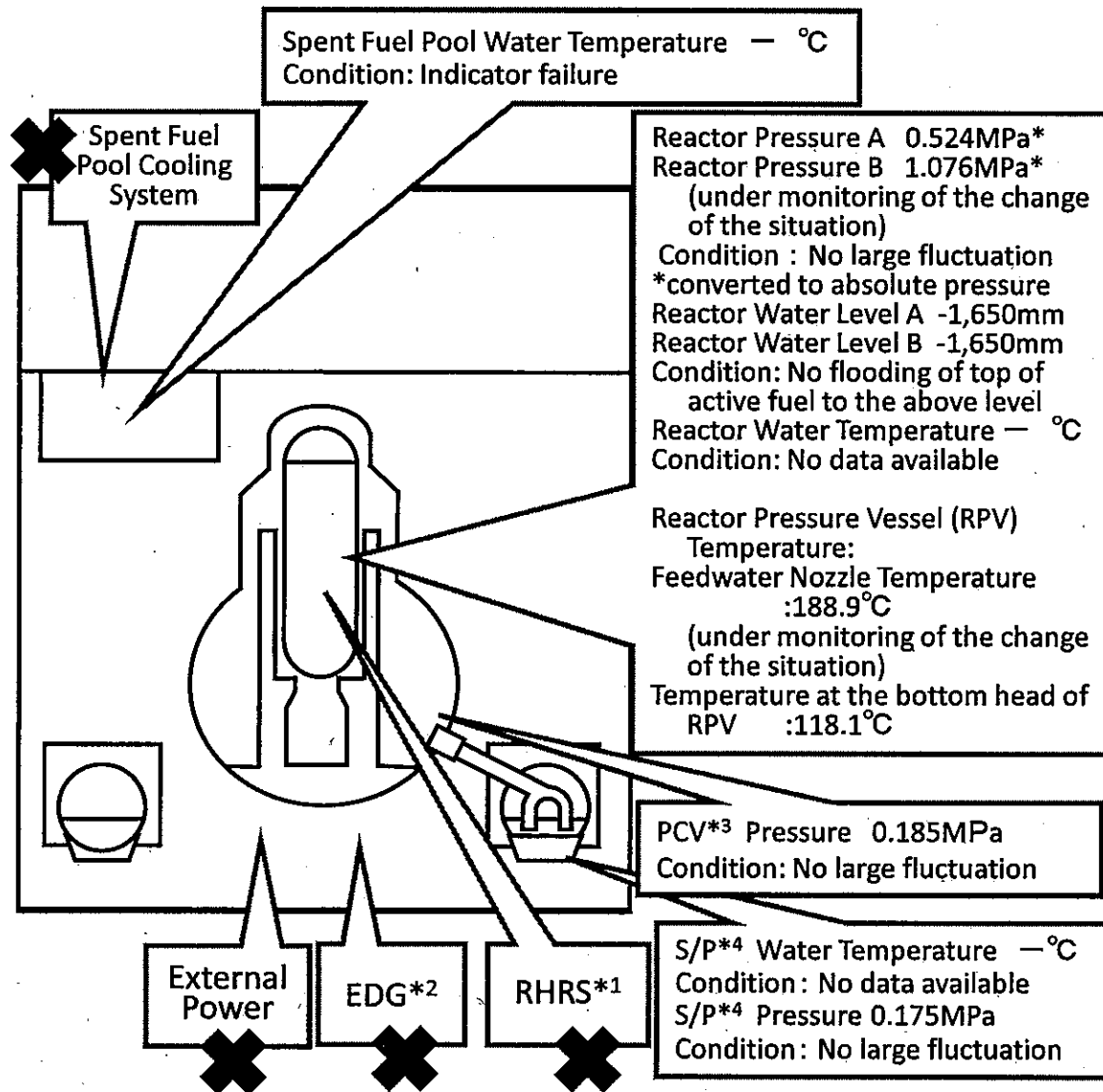


# Conditions of Fukushima Dai-ichi Nuclear Power Station Unit 1 (As of 14:00 April 16th, 2011)

## Major Events after the Earthquake

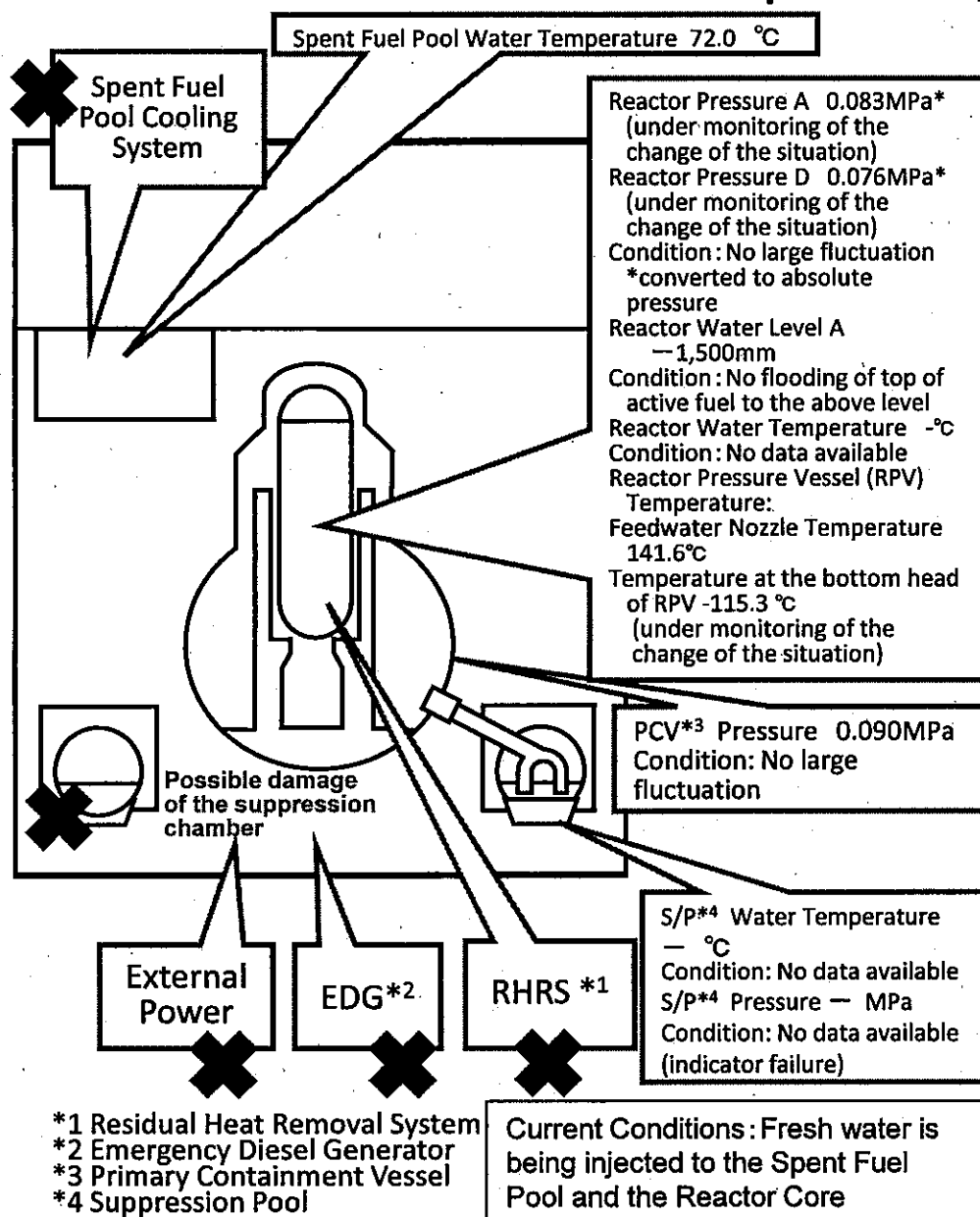


- March 11<sup>th</sup> 14:46 Under operation, Automatic shutdown by the earthquake
- March 11<sup>th</sup> 15:42 Report based on the Article 10 (Total loss of A/C power)
- March 11<sup>th</sup> 16:36 Occurrence of the Article 15 event (Inability of water injection of the Emergency Core Cooling System )
- March 12<sup>th</sup> 01:20 Occurrence of the Article 15 event (Unusual rise of the pressure in PCV)
- March 12<sup>th</sup> 10:17 Started to vent.
- March 12<sup>th</sup> 15:36 Sound of explosion
- March 12<sup>th</sup> 20:20 Started to inject seawater and borated water to the Reactor Core.
- March 23<sup>rd</sup> 02:33 The amount of injected water to the Reactor Core was increased utilizing the Feedwater Line in addition to the Fire Extinguish Line. (2m<sup>3</sup>/h →18m<sup>3</sup>/h)
- 09:00 Switched to the Feedwater Line only.(18m<sup>3</sup>/h →11m<sup>3</sup>/h)
- March 24<sup>th</sup> 11:30 Lighting in the Central Control Room was recovered.
- March 25<sup>th</sup> 15:37 Started to inject fresh water.
- March 29<sup>th</sup> 08:32 Switched to the water injection to the Reactor Core using the temporary motor-driven pump.
- March 31<sup>st</sup> 12:00 ~ 2<sup>nd</sup> 15:26 Started to transfer the stagnant water from the Condensate Storage Tank (CST) to the Surge Tank of Suppression Pool Water (SPT)
- March 31<sup>st</sup> 13:03 ~ 16:04 Water spray by Concrete Pump Truck (Fresh water)
- April 3<sup>rd</sup> 12:02 The power supply to the temporary motor-driven pump was switched from the temporary power supply to the external power supply.
- April 3<sup>rd</sup> 13:55 Started to transfer the water from the Condenser to CST.
- April 6<sup>th</sup> 22:30 Started the operation for the injection of nitrogen to PCV.
- April 7<sup>th</sup> 01:31 Confirmed starting the injection of nitrogen to PCV.
- April 9<sup>th</sup> 04:10 Started using highly pure nitrogen generator in the injection of nitrogen to PCV.
- April 10<sup>th</sup> 09:30 Completed transferring the water from the Condenser to CST.
- April 11<sup>th</sup> around 17:16 Loss of external power supply due to an earthquake occurred and water injection to the Reactor Core and nitrogen injection to PCV were suspended.
- April 11<sup>th</sup> 17:56 External power supply was recovered.
- April 11<sup>th</sup> 18:04 Resumed injecting water to the Reactor Core.
- April 11<sup>th</sup> 23:19 Restarted operation for injecting nitrogen to PCV.
- April 11<sup>th</sup> 23:34 Confirmed starting injection of nitrogen to PCV.

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

**Current Conditions : Fresh water is being injected to the Spent Fuel Pool and the Reactor Core**  
(Editorial committee for Nuclear Energy Handbook, Nuclear Energy Handbook)

# Conditions of Fukushima Dai-ichi Nuclear Power Station Unit 2 ( As of 14:00 April 16th, 2011 )



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

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

## Major Events after the Earthquake 1/2

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

## Major Events after the Earthquake 2/2

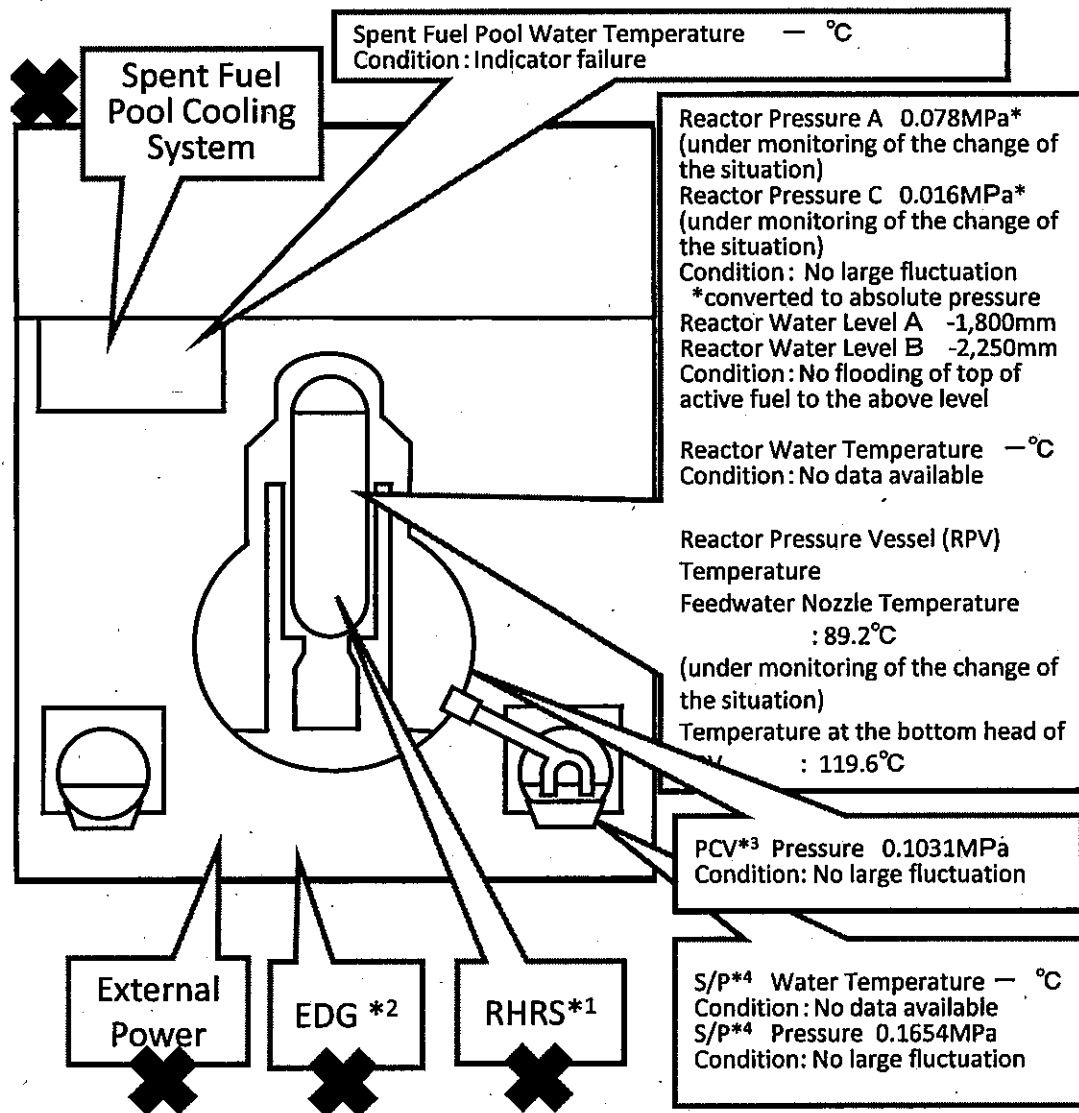
April 12<sup>th</sup> 19:35~April 13<sup>th</sup> 17:04 Transfer from the trench of the turbine building to the Condenser.

April 13<sup>th</sup> 11:00 Suspended the transfer for checking leaks, etc.

April 13<sup>th</sup> 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 14:00 April 16th, 2011 )

## Major Events after the Earthquake

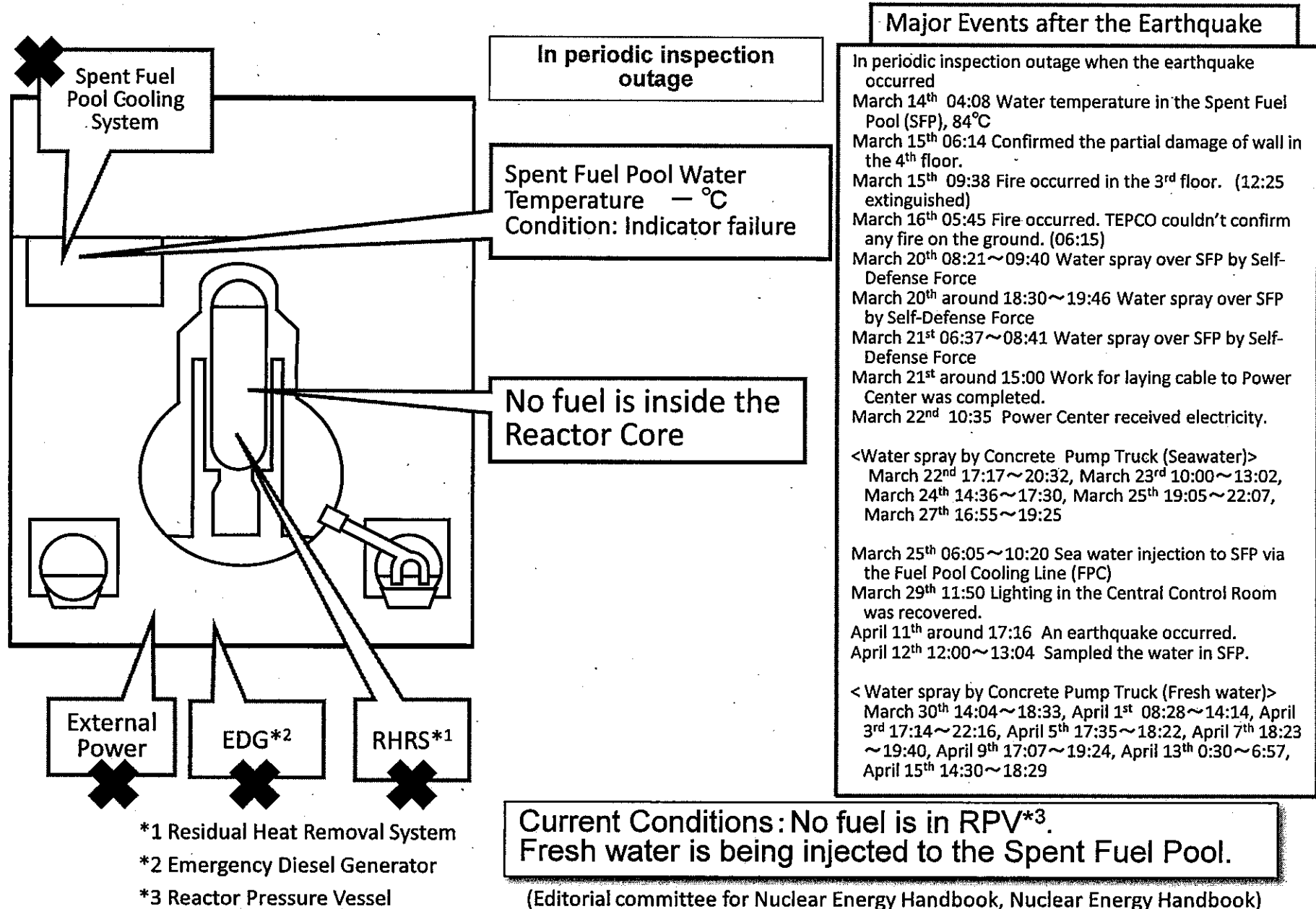


March 11<sup>th</sup> 14:46 Under operation, Automatic shutdown by the earthquake  
 March 11<sup>th</sup> 15:42 Report based on the Article 10 (Total loss of A/C power)  
 March 13<sup>th</sup> 05:10 Occurrence of the Article 15 event (Inability of water injection of the Emergency Core Cooling System)  
 March 13<sup>th</sup> 08:41 Started to vent.  
 March 13<sup>th</sup> 13:12 Started to inject seawater and borated water to the Reactor Core.  
 March 14<sup>th</sup> 05:20 Started to vent.  
 March 14<sup>th</sup> 07:44 Occurrence of the Article 15 event (Unusual rise of the pressure in PCV)  
 March 14<sup>th</sup> 11:01 Sound of explosion  
 March 16<sup>th</sup> around 08:30 White smoke generated.  
 March 17<sup>th</sup> 09:48~10:01 Water discharge by the helicopters of Self-Defense Force  
 March 17<sup>th</sup> 19:05~19:15 Water spray from the ground by High pressure water-cannon trucks of Police  
 March 17<sup>th</sup> 19:35~20:09 Water spray from the ground by fire engines of Self-Defense Force  
 March 18<sup>th</sup> before 14:00~14:38 Water spray from the ground by 6 fire engines of Self-Defense Force  
 March 18<sup>th</sup> ~14:45 Water spray from the ground by a fire engine of the US Military  
 March 19<sup>th</sup> 00:30 ~01:10 Water spray by Hyper Rescue Unit of Tokyo Fire Department  
 March 19<sup>th</sup> 14:10 ~ 20<sup>th</sup> 03:40 Water spray by Hyper Rescue Unit of Tokyo Fire Department  
 March 20<sup>th</sup> 11:00 Pressure of PCV rose(320kPa).Afterward fell.  
 March 20<sup>th</sup> 21:36 ~ 21<sup>st</sup> 03:58 Water spray by Hyper Rescue Unit of Tokyo Fire Department  
 March 21<sup>st</sup> around 15:55 Grayish smoke generated and was confirmed to be died down at 17:55.  
 March 22<sup>nd</sup> 15:10 ~ 16:00 Water spray by Hyper Rescue Unit of Tokyo Fire Department and Osaka City Fire Bureau.  
 March 22<sup>nd</sup> 22:46 Lighting in the Central Control Room was recovered.  
 March 23<sup>rd</sup> 11:03 ~ 13:20 Injection of about 35 ton of sea water to the Spent Fuel Pool (SFP) via the Fuel Pool Cooling Line (FPC)  
 March 23<sup>rd</sup> around 16:20 Black smoke generated and was confirmed to be died down at around 23:30 and 24<sup>th</sup> 04:50.  
 March 24<sup>th</sup> 05:35~16:05 Injection of around 120 ton of sea water to SFP via FPC  
 March 25<sup>th</sup> 13:28~16:00 Water spray by Kawasaki City Fire Bureau supported by Tokyo Fire Department  
 March 25<sup>th</sup> 18:02 Started fresh water injection to the core.  
 March 27<sup>th</sup> 12:34~14:36 Water spray by Concrete Pump Truck  
 March 28<sup>th</sup> 17:40~31<sup>st</sup> around 8:40 Transferring the water from the Condensate Storage Tank (CST) to the Surge Tank of Suppression Pool Water (SPT)  
 March 28<sup>th</sup> 20:30 Switched to the water injection to the core using a temporary motor-driven pump.  
 April 3<sup>rd</sup> 12:18 The power supply to the temporary motor-driven pump was switched from the temporary power supply to the external power supply.  
 April 11<sup>th</sup> around 17:16 Loss of external power supply of Unit 1 and 2 occurred and water injection to the Reactor Core was suspended.  
 April 11<sup>th</sup> 18:04 External power supply of Units 1 and 2 recovered (April 11<sup>th</sup> 17:56). Resumed injecting water to the Reactor Core.  
 <Water spray by Concrete Pump Truck (Fresh water)>  
 March 29<sup>th</sup> 14:17~18:18, March 31<sup>st</sup> 16:30~19:33, April 2<sup>nd</sup> 09:52~12:54, April 4<sup>th</sup> 17:03~19:19, April 7<sup>th</sup> 06:53~08:53, April 8<sup>th</sup> 17:06~20:00, April 10<sup>th</sup> 17:15~19:15, April 12<sup>th</sup> 16:26~17:16, April 14<sup>th</sup> 15:56~16:32

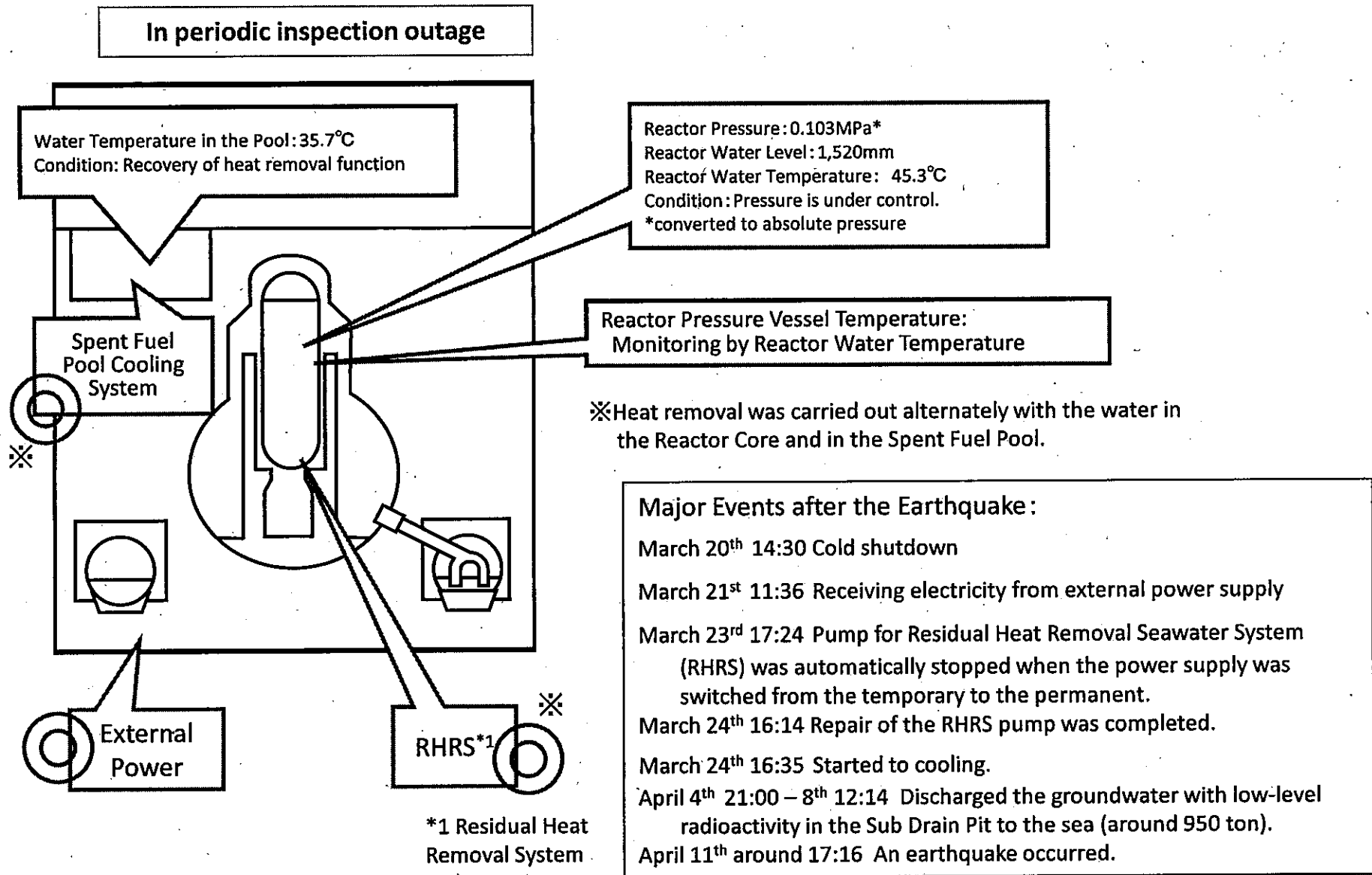
**Current Conditions: Fresh water is being injected to the Spent Fuel Pool and the Reactor Core**

\*1 Residual Heat Removal System  
 \*2 Emergency Diesel Generator  
 \*3 Primary Containment Vessel  
 \*4 Suppression Pool  
 (Editorial committee for Nuclear Energy Handbook, Nuclear Energy Handbook)

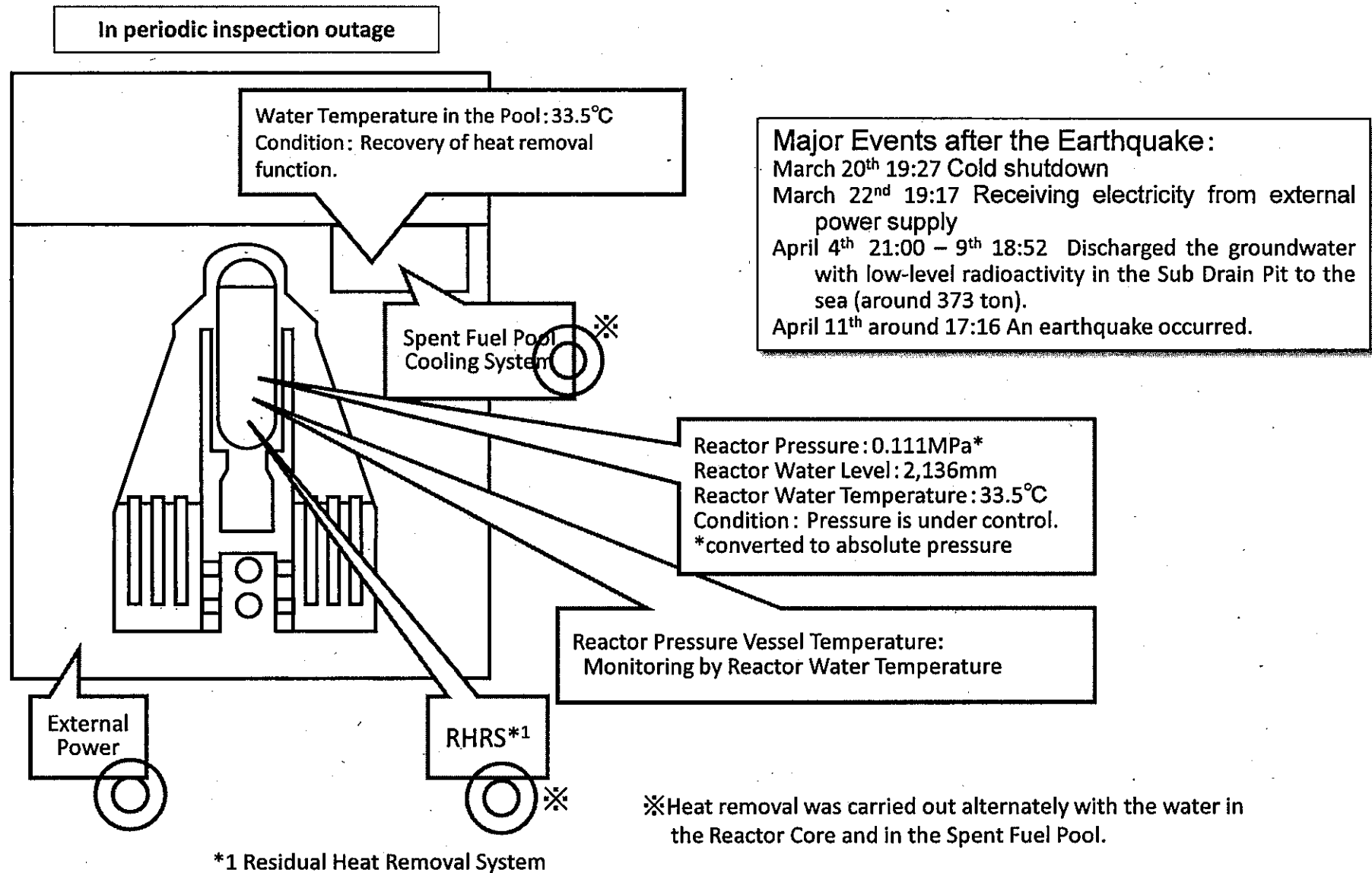
# Conditions of Fukushima Dai-ichi Nuclear Power Station Unit 4 ( As of 14:00 April 16th, 2011 )



# Conditions of Fukushima Dai-ichi Nuclear Power Station Unit 5 ( As of 14:00 April 16th, 2011 )



# Conditions of Fukushima Dai-ichi Nuclear Power Station Unit 6 ( As of 14:00 April 16th, 2011 )



April 15, 2011

Nuclear and Industrial Safety Agency

**Seismic Damage Information (the 95th Release)**  
(As of 15:00 April 15th, 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 spray over the Spent Fuel Pool of Unit 4 using Concrete Pump Truck (50t/h) was started. (14:08 April 15th).
- The temperature of water in the Common Spent Fuel Pool was around 33°C at 06:20 April 15th.
- Videotaping using an unmanned helicopter was carried out in order to grasp the situations of reactor buildings for Units 1 to 4. (From 08:02 till 09:55 April 15th)

2. Actions taken by NISA

(April 15th)

NISA strictly alerted TEPCO and directed it orally to prepare the measures for preventing the recurrence regarding the delay in the notification of the dismissal of Nuclear Emergency Preparedness Manager, accompanied with the personnel changes dated on 1 April, in accordance with Article 9, paragraph 5 of the Act on Special Measures Concerning Nuclear Emergency Preparedness.



April 16, 2011

Nuclear and Industrial Safety Agency

**Seismic Damage Information (the 96th Release)**  
(As of 08:00 April 16th, 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 spray of around 140t for Unit 4 using Concrete Pump Truck (50t/h) was started (From 14:30 till 18:29 April 15th)
- 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 15th)
- Temporary boards to stop water (4 steel plates out of 7) were installed on the ocean-side of the Inlet Bar Screen of Unit 2. (From 9:00 till 14:15 April 15th)
- 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 1,900 m<sup>2</sup> on the mountain-side of the Common Pool. (From 11:30 till 13:00 April 15th)
- Removal of rubble (Amount equivalent to a container) using remote-control heavy machineries was carried out. (From 09:00 till 15:45 April 15th)
- As a countermeasure for tsunami, the distribution boards, etc. for the pumps injecting water to the reactors of Units 1 to 3 were transferred to a hill. (From 10:19 till 17:00 April 15)

## 2. Actions taken by NISA

- NISA directed General Electricity Utilities and other organizations concerned to consider the measures to ensure reliability on external power supply due to the temporary loss of external power supply at NPSs, etc. caused by ground faults in part of electric power system when the earthquake off the coast of Miyagi Prefecture occurred on April 7, 2011.

April 16, 2011

Nuclear and Industrial Safety Agency

## Seismic Damage Information (the 97th Release)

(As of 15:00 April 16th, 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

- From 11:00, 16 April, 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 1,800 m<sup>2</sup> on the mountain-side of the Common Pool. It was finished at 13:00 on the same day.

April 17, 2011

Nuclear and Industrial Safety Agency

Seismic Damage Information (the 98th Release)  
(As of 15:00 April 17th, 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 injection (Around 45t) to the Spent Fuel Pool via the Spent Fuel Pool Cooling Line of Unit 2 was carried out. (From 10:13 till 11:54 April 16th. Due to the occurrence of earthquake at around 11:19, the temporary motor-driven pump was stopped at 11:39. The Spent Fuel Pool was confirmed to be filled with water by the increase of Skimmer Level at 11:54.)
- Regarding the Common Spent Fuel Pool, power supply was stopped due to short-circuiting of the end of the power supply circuit. (14:34 April 17th)
- As of 06:10 April 16th, water temperature of the Common Spent Fuel Pool was around 33°C.
- 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 17th)
- Removal of rubble (Amount equivalent to 8 containers) using remote-control heaving machineries was carried out. (From 9:00 till 16:00 April 16th)

<Directives regarding foods and drinks>

Items under the suspension of shipment and restriction of intake were updated. (As of 15:00 April 17th)

For more information:

NISA English Home Page

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