

April 10, 2011

Nuclear and Industrial Safety Agency

Seismic Damage Information (the 85th Release)
(As of 15:30 April 10th, 2011)

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

Major updates are as follows.

1. Nuclear Power Stations (NPSs)

● Fukushima Dai-ichi NPS

- The transfer of the water in the Condenser to the Condensate Storage Tank of Unit 1 was completed. (09:30 April 10th)
- Fresh water injection (Around 60t) to the Spent Fuel Pool via the Spent Fuel Pool Cooling Line of Unit 2 was carried out. (From 10:37 till 12:38 April 10th)
- The test scattering of antiscattering agent to prevent the radioactive materials on the ground surface from being scattered was carried out in the area of about 550 m² on the mountain-side of the Common Pool. (April 10th)

For more information:

NISA English Home Page

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

April 10, 2011

Nuclear and Industrial Safety Agency

Seismic Damage Information (the 84th Release)
(As of 08:30 April 10th, 2011)

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

Major updates are as follows.

1. Nuclear Power Stations (NPSs)

● Fukushima Dai-ichi NPS

- Water spray (around 90t) over the Spent Fuel Pool of Unit 4 using Concrete Pump Truck was carried out. (From 17:07 till 19:24 April 9th)
- The discharge of the groundwater with low-level radioactivity in the Sub Drain Pit of Units 5 and 6 (around 1,300t) was carried out. (18:52 April 9th)
- At 09:19 April 9th, a subcontractor employee who was working for electric cable with full-face mask in the water treatment building got injured its leg due to getting sick feeling and walking in the manhole, which lid was shifted outside the building, and was transported to a hospital. As a result of medical examination, it was diagnosed as a right knee contusion and suspect of right knee medial collateral ligament injury. Furthermore, as a result of the body survey, it was confirmed to be free from contamination of radioactive materials.

For more information:

NISA English Home Page

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

April 9, 2011

Nuclear and Industrial Safety Agency

Information of the Situation Caused by the Earthquake Off the Coast of
Miyagi Prefecture (the 5th Release)

(As of 08:00 April 9th, 2011)

Around 23:32 (UTC 14:32) April 7th, 2011, Earthquake occurred off the coast of Miyagi Prefecture.

All units of Tomari Nuclear Power Station (NPS) (Hokkaido Electric Power Company Inc.) are in operation. All units of Higashidori NPS, Onagawa NPS (Tohoku Electric Power Company Inc.), Fukushima Dai-ichi NPS and Fukushima Dai-ni NPS (Tokyo Electric Power Company Inc.) have been shutdown since the 2011 Tohoku district - off the Pacific Ocean Earthquake occurred on March 11th 2011. As for the Rokkasho Reprocessing Plant (Japan Nuclear Fuel Limited) are under pre-service inspection or shutdown.

The current situation of each nuclear facility is as follows;

- Tomari NPS (According to Hokkaido Electric Power Company Inc.)

Units 1 and 2 was in operation with 90% output due to the captioned earthquake, but has recovered the operation at rated power.

- Higashidori NPS (According to Tohoku Electric Power Company Inc.)

Loss of external power supply happened once and electric power was supplied by using Emergency Diesel Generator (DG). There was no impact on the cooling function, etc. of the Spent Fuel Storage Pool. Thereafter one external power supply line was reported to be recovered at 03:30 April 8th. After that, as an oil leakage from the DG (B) was found out at around 13:55, it was shut off at 14:06. The other two DGs were in outage for inspection then. At 14:59, the other two external power supply lines were recovered. At 07:00 April 9th, the DG (B) was confirmed to be workable. There are no unusual data measured at the ventilation stack monitors and the monitoring posts.

- Onagawa NPS (According to the Nuclear Safety Inspector at the site and Tohoku Electric Power Company Inc.)

There are five external power lines, among which one line was under repair. Three lines out of the rest four lines shut off. Thereafter one line that shut off and one line under repair were recovered, and consequently, from the three lines out of five lines, external power was received. Furthermore, as a result of inspection by eyes, malfunction of an insulator was confirmed in one of the three lines. The line had shut off and at that time external power was received from the two lines. A third line was recovered at 14:01 April 8th and then a fourth line was recovered at 18:45. So currently external power is received from the four lines. There are no unusual data measured at monitoring posts. The Cooling System for the Spent Fuel Pool had shut down once, but everything recovered. The water of the Spent Fuel Storage Pool was overflowed but water stayed in the radiation controlled area.

- Fukushima Dai-ichi NPS (According to Tokyo Electric Company Inc.)
 - There are no unusual data measured at monitoring posts.
 - The water injection to the Reactor Pressure Vessels was reported to be being carried out continuously.
- Fukushima Dai-ni NPS (According to Tokyo Electric Company Inc.)
 - There is no unusual data in plant parameters
 - As the result of the inspection, no unusual event was confirmed for each Unit. (As of 16:00 April 8th)
- Tokai Dai-ni NPP (According to The Japan Atomic Power Company)
 - No unusual event has been confirmed.
- Rokkasho Reprocessing Plant:
 - Loss of external power supply,
 - Electric power is supplied by Emergency DG,
 - There is no impact on the cooling function of the Fuel Storage Pool, etc.
 - Thereafter the external power supply was received at 09:44 April 8th.

1. The status of operation at Nuclear Power Station

- Tomari NPS (Hokkaido Electric Power Company Inc.)
 - Unit 1: in operation
 - Unit 2: in operation
 - Unit 3: in operation
- Higashidori NPS (Tohoku Electric Power Company Inc.)
 - Unit 1: in outage
- Onagawa NPS (Tohoku Electric Power Company Inc.)
 - Unit 1: Shutdown since the 2011 Tohoku district - off the Pacific Ocean Earthquake
 - Unit 2: Shutdown since the 2011 Tohoku district - off the Pacific Ocean Earthquake
 - Unit 3: Shutdown since the 2011 Tohoku district - off the Pacific Ocean Earthquake
- Fukushima Dai-ichi NPS (Tokyo Electric Company Inc.)
 - Unit 1: Shutdown since the 2011 Tohoku district - off the Pacific Ocean Earthquake
 - Unit 2: Shutdown since the 2011 Tohoku district - off the Pacific Ocean Earthquake
 - Unit 3: Shutdown since the 2011 Tohoku district - off the Pacific Ocean Earthquake
 - Unit 4: in outage
 - Unit 5: in outage
 - Unit 6: in outage
- Fukushima Dai-ni NPS (Tokyo Electric Company Inc.)
 - Unit 1: Shutdown since the 2011 Tohoku district - off the Pacific Ocean Earthquake
 - Unit 2: Shutdown since the 2011 Tohoku district - off the Pacific Ocean Earthquake
 - Unit 3: Shutdown since the 2011 Tohoku district - off the Pacific Ocean Earthquake
 - Unit 4: Shutdown since the 2011 Tohoku district - off the Pacific Ocean Earthquake
- Tokai Dai-ni NPP (The Japan Atomic Power Company)
 - Shutdown since the 2011 Tohoku district - off the Pacific Ocean Earthquake

2. Japan Nuclear Fuel Limited (Rokkasho Village , Kamikita County, Aomori Prefecture)

▪ Rokkasho Reprocessing Plant

Reprocessing facility: in pre-service inspection

Uranium enrichment facility: in outage

(Reference)

Seismic Intensity in Japanese Scale of each area;

Max. 6+: Northern part of Miyagi Prefecture

Max. 5-: Hamadori in Fukushima Prefecture

(Contact Person)

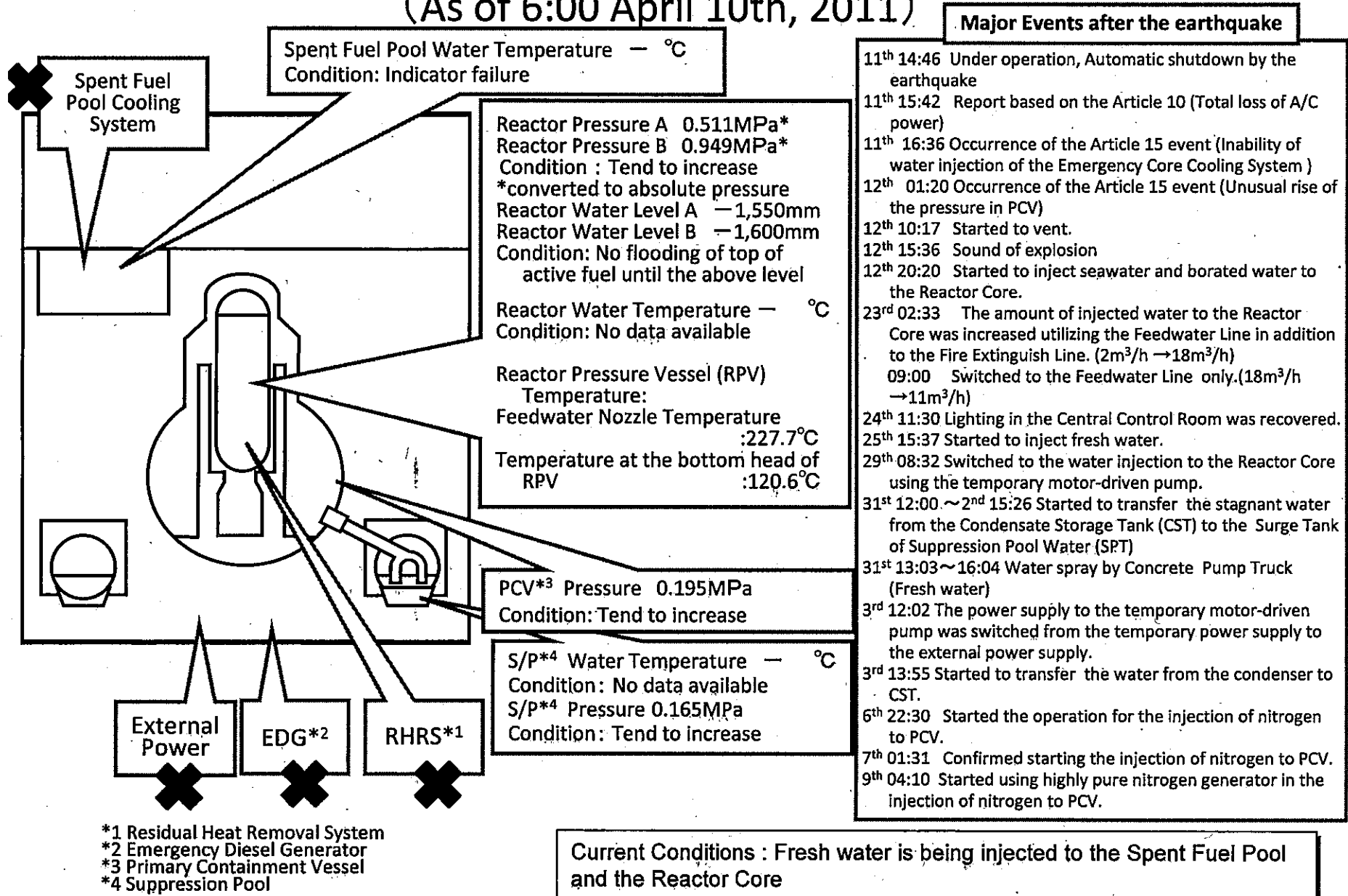
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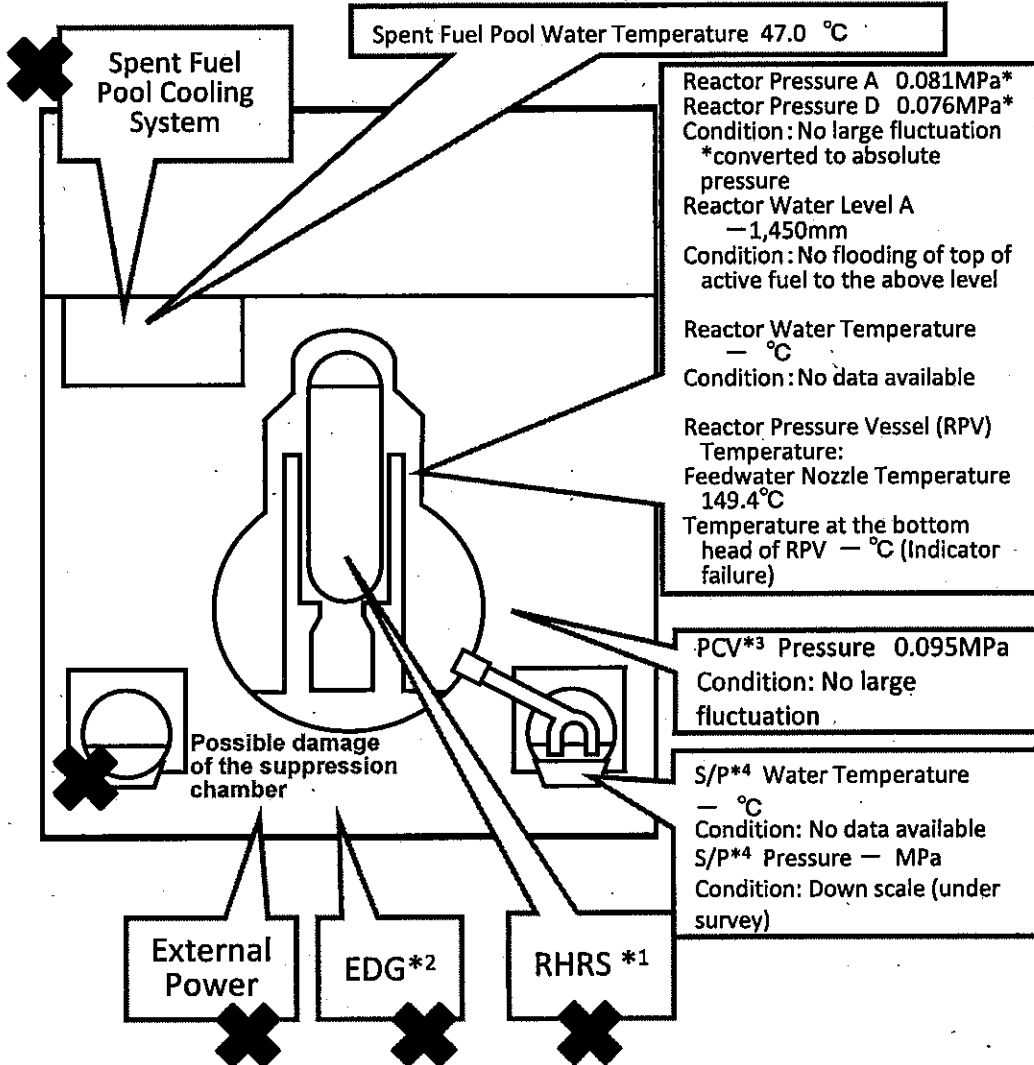
Conditions of Fukushima Dai-ichi Nuclear Power Station Unit 1 (As of 6:00 April 10th, 2011)



- *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 2

(As of 6:00 April 10th, 2011)



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

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

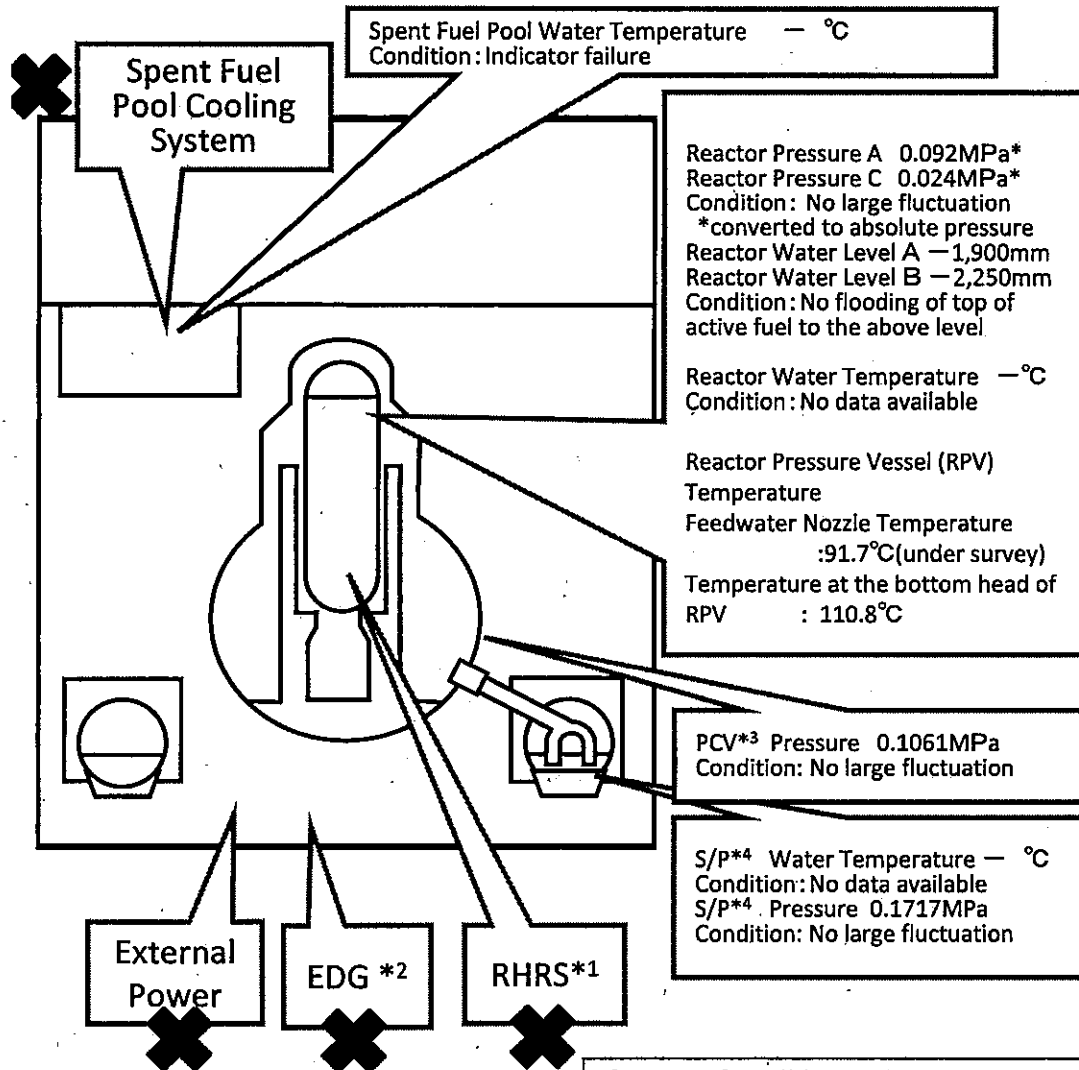
Major Events after the earthquake

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

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

Conditions of Fukushima Dai-ichi Nuclear Power Station Unit 3

(As of 6:00 April 10th, 2011)



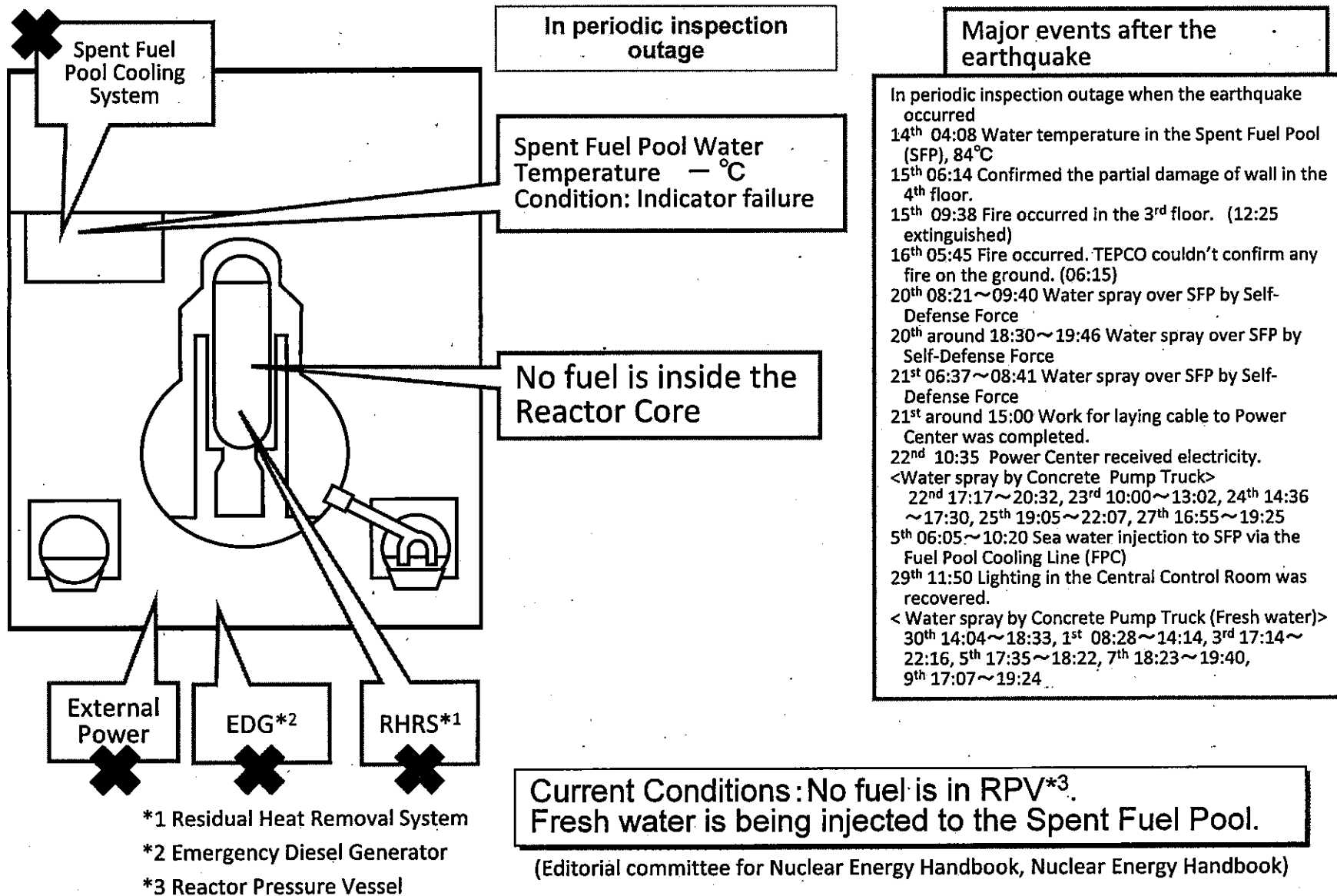
- *1 Residual Heat Removal System
- *2 Emergency Diesel Generator
- *3 Primary Containment Vessel
- *4 Suppression Pool

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

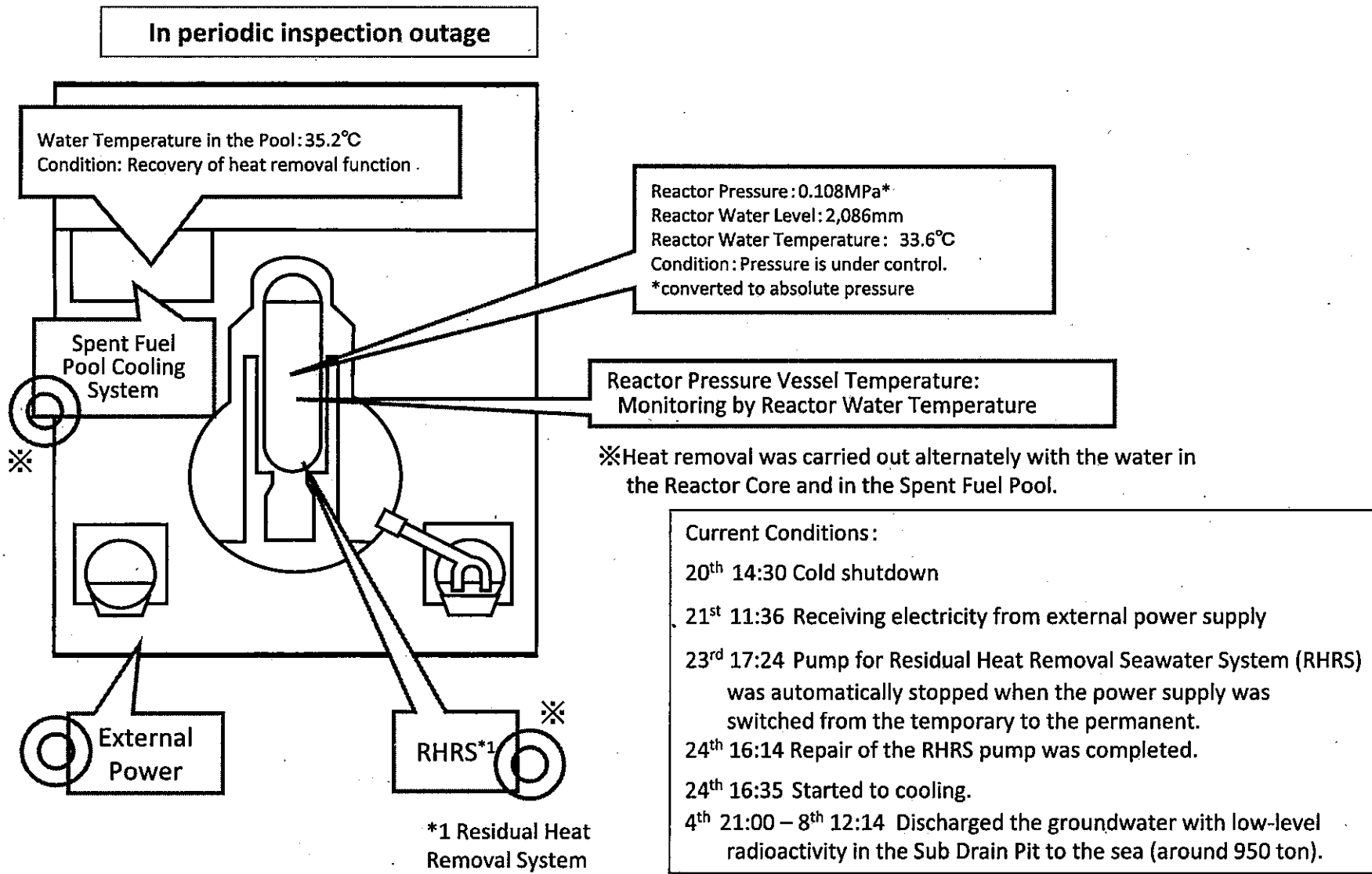
Major Events after the earthquake

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

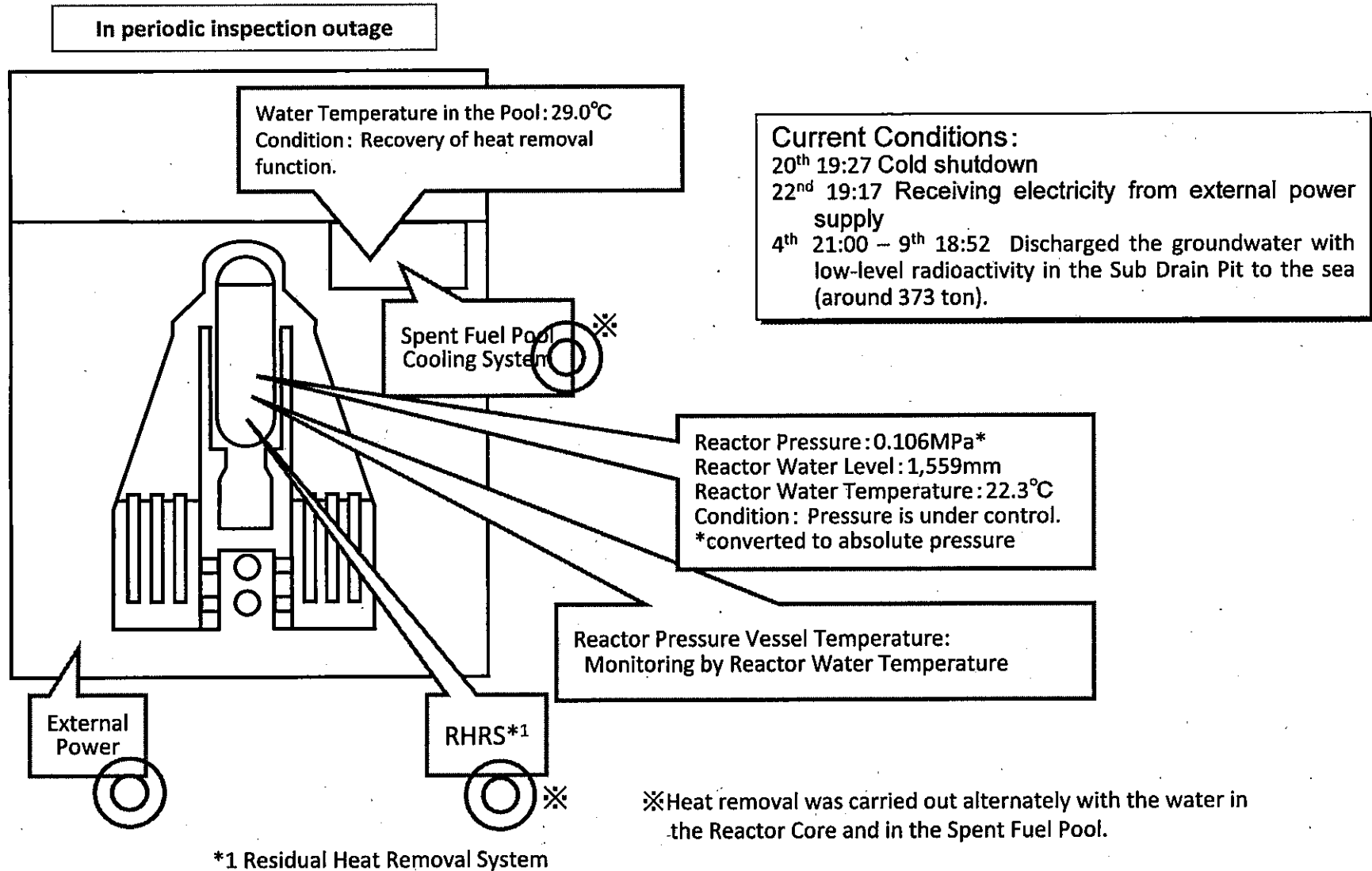
Conditions of Fukushima Dai-ichi Nuclear Power Station Unit 4 (As of 6:00 April 10th, 2011)



Conditions of Fukushima Dai-ichi Nuclear Power Station Unit 5 (As of 6:00 April 10th, 2011)



Conditions of Fukushima Dai-ichi Nuclear Power Station Unit 6 (As of 6:00 April 10th, 2011)



Current Conditions:
 20th 19:27 Cold shutdown
 22nd 19:17 Receiving electricity from external power supply
 4th 21:00 – 9th 18:52 Discharged the groundwater with low-level radioactivity in the Sub Drain Pit to the sea (around 373 ton).