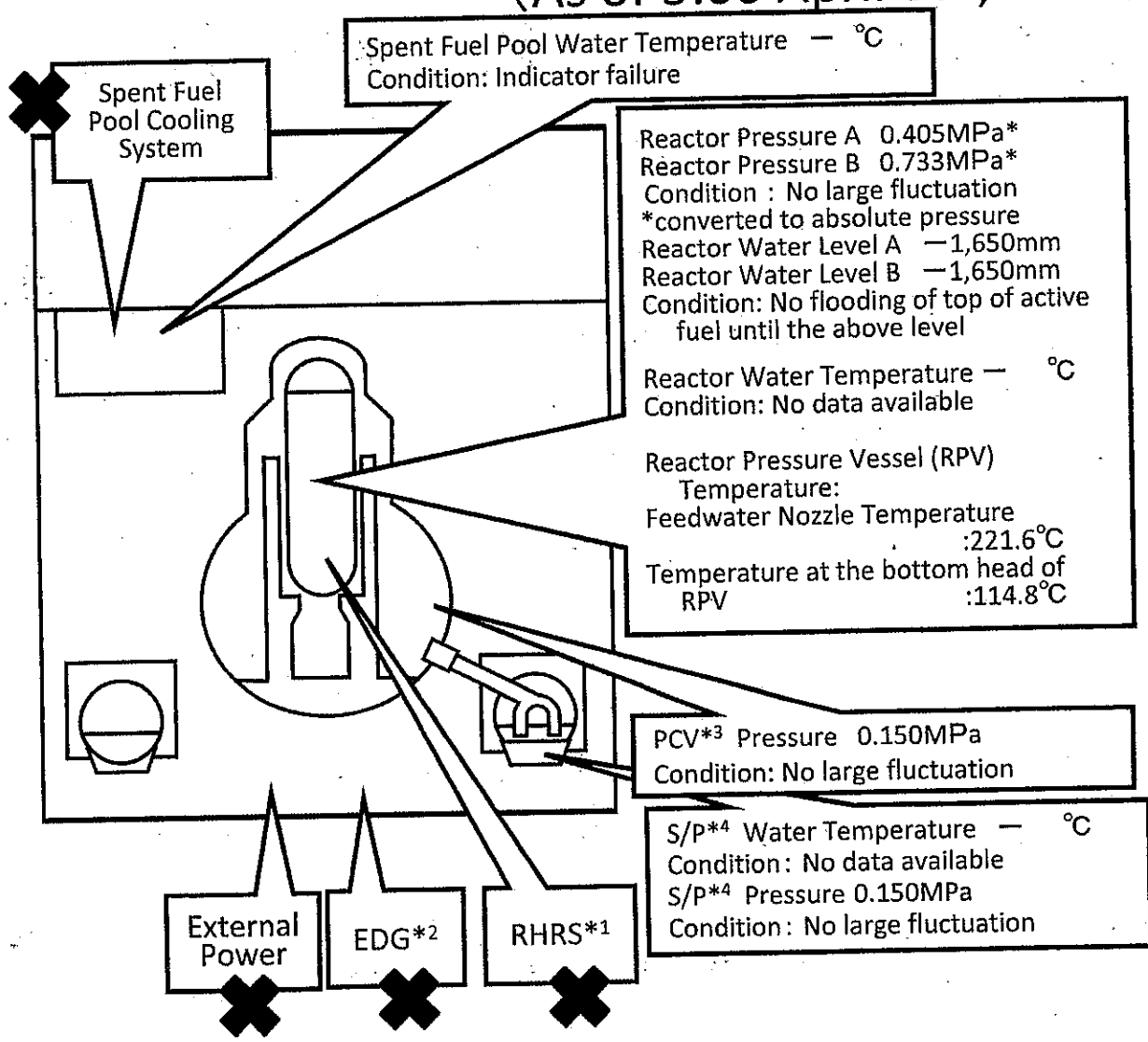
Conditions of Fukushima Dai-ichi Nuclear Power Station Unit 1

(As of 5:00 April 6th, 2011)



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

Major Events after the earthquake

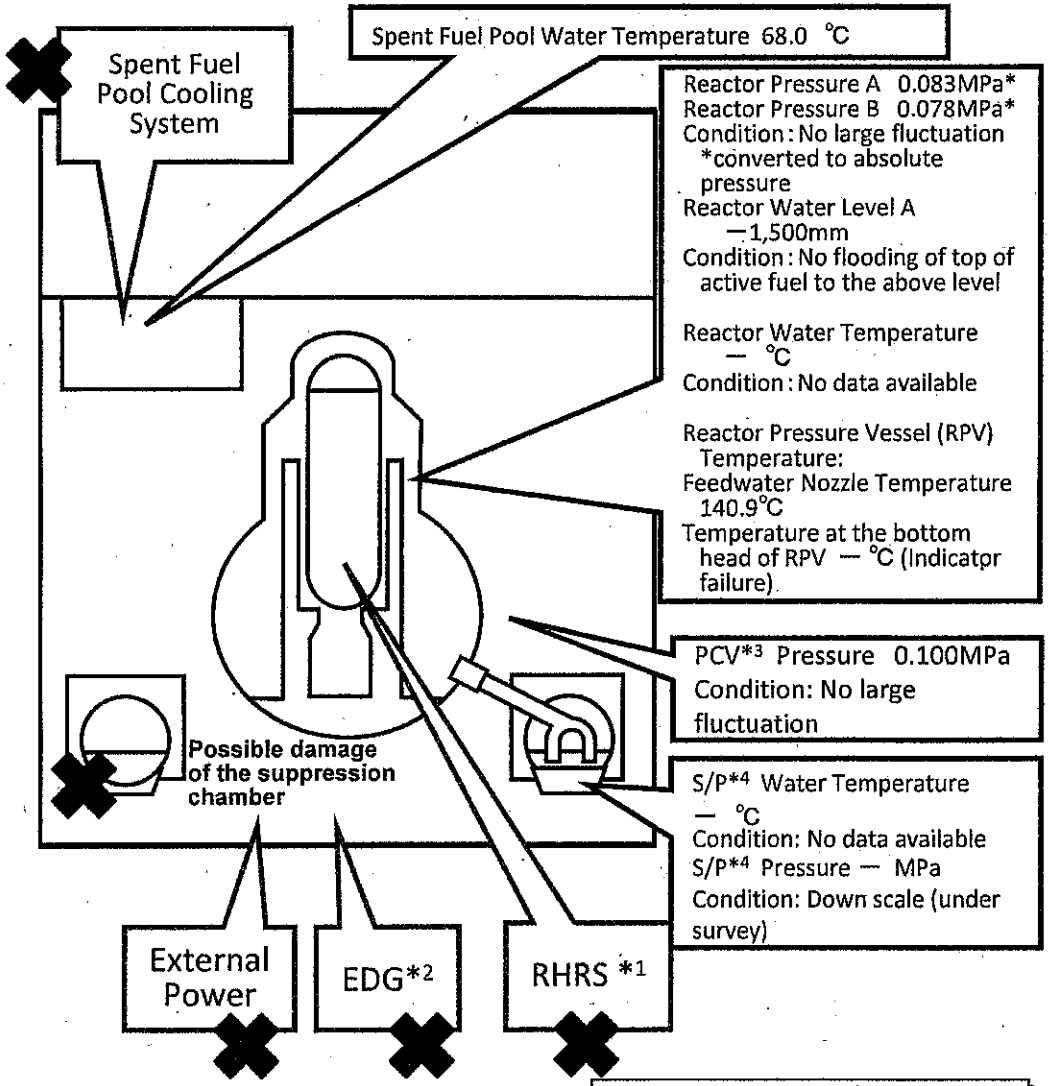
- 11th 14:46 Under operation, Automatic shutdown by the earthquake
- 11th 15:42 Report based on the Article 10 (Total loss of A/C power)
- 11th 16:36 Occurrence of the Article 15 event (Inability of water injection of the Emergency Core Cooling System)
- 12th 01:20 Occurrence of the Article 15 event (Unusual rise of the pressure in PCV)
- 12th 10:17 Started to vent.
- 12th 15:36 Sound of explosion
- 12th 20:20 Started to inject seawater and borated water to core.
- 23rd 02:33 The amount of injected water to the Rector Core was increased utilizing the Feedwater Line in addition to the Fire Extinguish Line. ($2m^3/h \rightarrow 18m^3/h$)
  09:00 Switched to the Feedwater Line only.($18m^3/h \rightarrow 11m^3/h$)
- 24th 11:30 Lighting in the Central Control Room was recovered.
- 25th 15:37 Started fresh water injection.
- 29th 08:32 Switched to the water injection to the core using the temporary motor-driven pump.
- 31st 12:00 ～2nd 15:26 Started to transfer the stagnant water from the Condensate Storage Tank (CST) to the Surge Tank of Suppression Pool Water (SPT)
- 31st 13:03～16:04 Water spray by Concrete Pump Truck (Fresh water)
- 3rd 12:02 The power supply to the temporary motor-driven pump was switched from the temporary power supply to the external power supply.
- 3rd 13:55 Started to transfer the water from the condenser to CST.

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

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

Conditions of Fukushima Dai-ichi Nuclear Power Station Unit 2

(As of 5:00 April 6th, 2011)



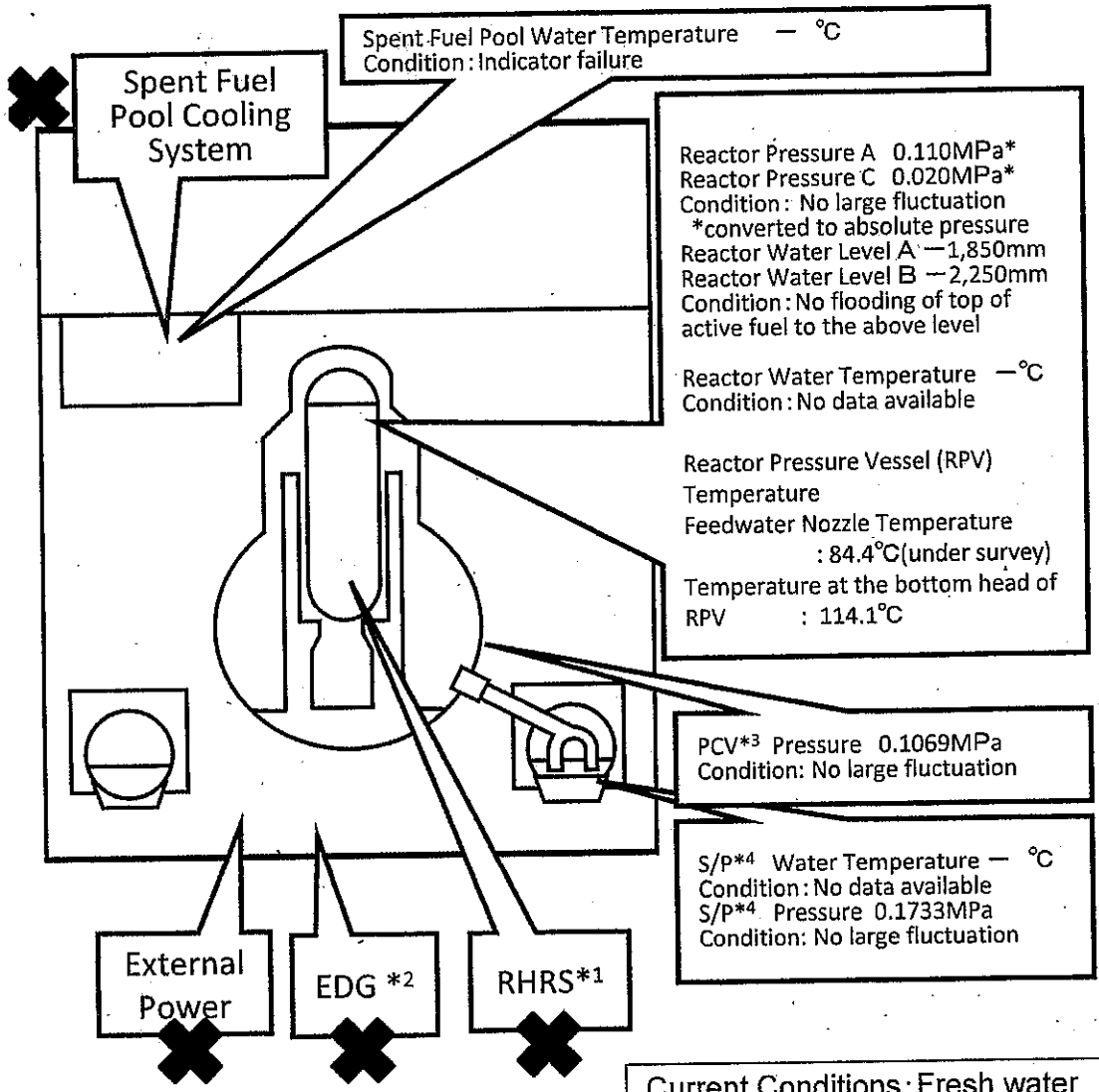
(Editorial committee for Nuclear Energy Handbook, Nuclear Energy Handbook)

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.

Conditions of Fukushima Dai-ichi Nuclear Power Station Unit 3

(As of 5:00 April 6th, 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 core

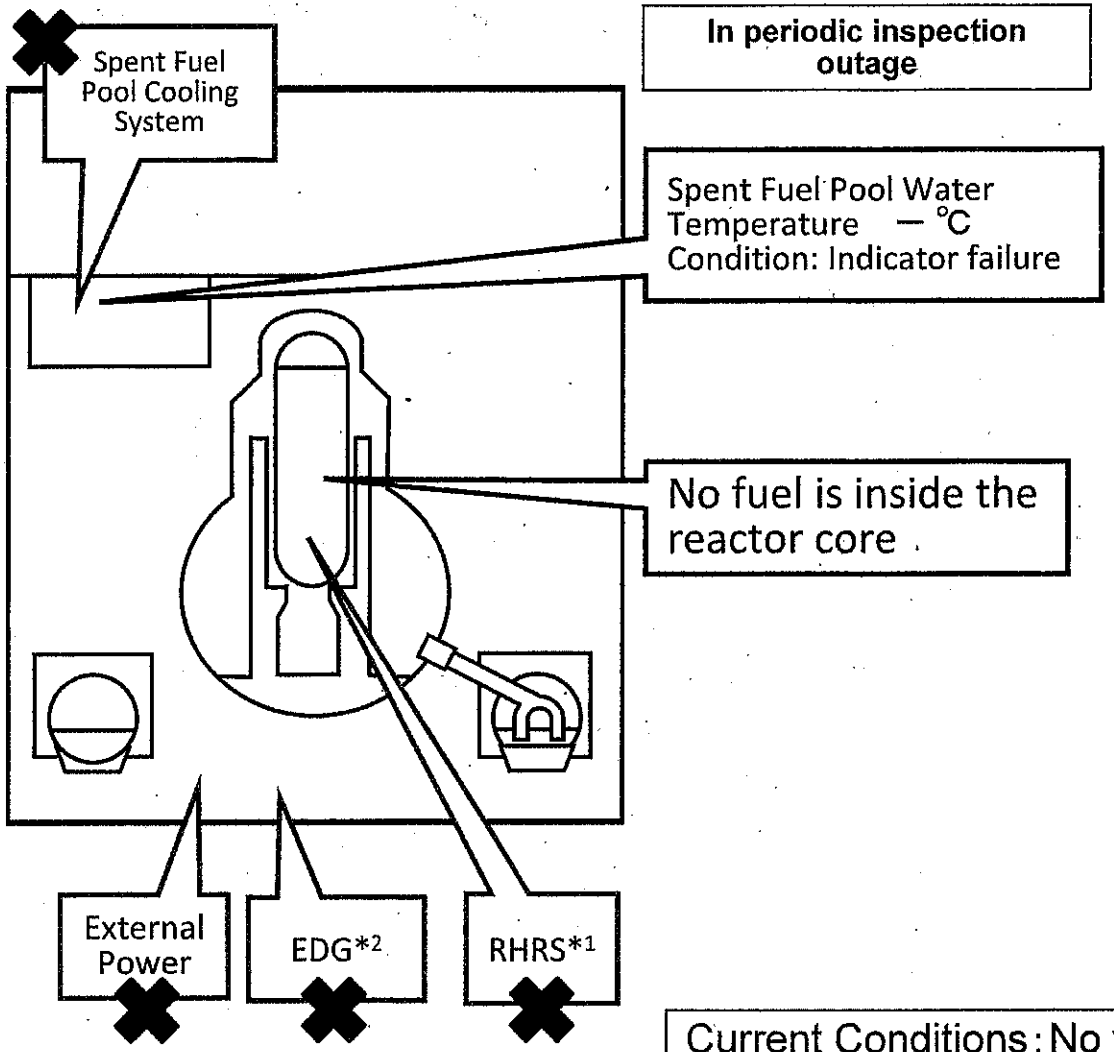
Major Events after the earthquake

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 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 35ton 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.
29th 14:17～18:18, 31st 16:30～19:33, 2nd 09:52～12:54, 4th 17:03～19:19 Water spray by Concrete Pump Truck (Fresh water)
3rd 12:18 The power supply to the temporary motor-driven pump was switched from the temporary power supply to the external power supply.

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

Conditions of Fukushima Dai-ichi Nuclear Power Station Unit 4

（As of 5:00 April 6th, 2011）



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

Major events after the earthquake

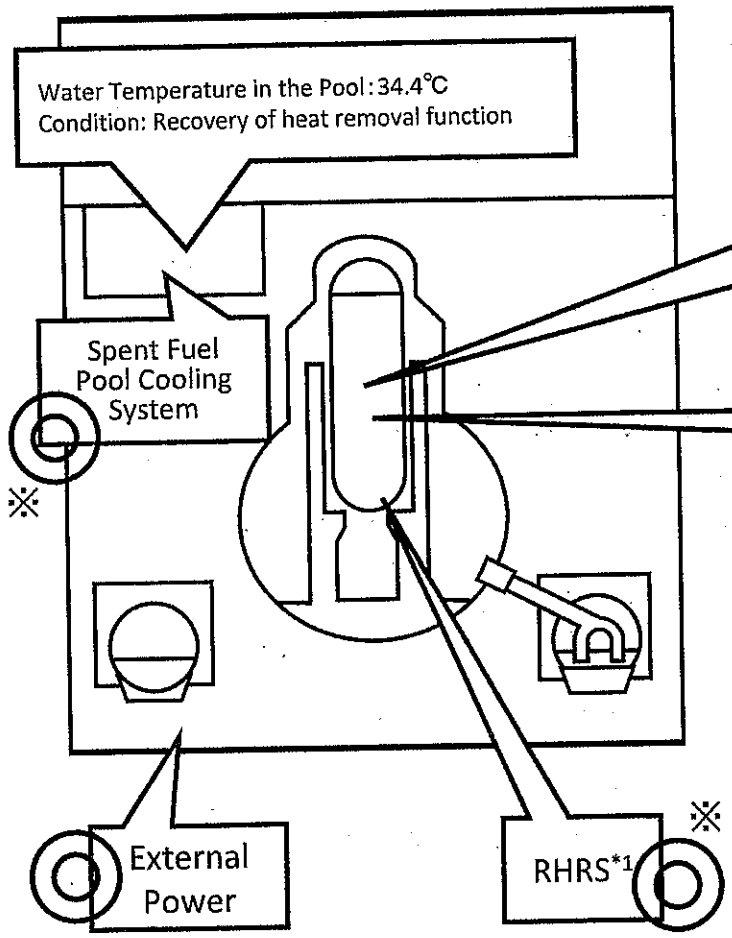
In periodic inspection outage when the earthquake occurred
14th 04:08 Water temperature in the Spent Fuel Pool (SFP), 84℃
15th 06:14 Confirmed the partial damage of wall in the 4th floor.
15th 09:38 Fire occurred in the 3rd floor. (12:25 extinguished)
16th 05:45 Fire occurred. TEPCO couldn't confirm any fire on the ground. (06:15)
20th 08:21～09:40 Water spray over SFP by Self-Defense Force
20th around 18:30～19:46 Water spray over SFP by Self-Defense Force
21st 06:37～08:41 Water spray over SFP by Self-Defense Force
21st around 15:00 Work for laying cable to Power Center was completed.
22nd 10:35 Power Center received electricity.
22nd 17:17～20:32, 23rd 10:00～13:02, 24th 14:36～17:30, 25th 19:05～22:07, 27th 16:55～19:25
Water spray by Concrete Pump Truck
25th 06:05～10:20 Sea water injection to SFP via the Fuel Pool Cooling Line (FPC)
29th 11:50 Lighting in the Central Control Room was recovered.
30th 14:04～18:33, 1st 8:28～14:14, 3rd 17:14～22:16, 5th 17:35～18:22
Water spray by Concrete Pump Truck (Fresh water)

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 5:00 April 6th, 2011)

In periodic inspection outage



*1 Residual Heat Removal System

Reactor Pressure : 0.106MPa*
Reactor Water Level : 1,988mm
Reactor Water Temperature : 33.3℃
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.

Current Conditions :

20th 14:30 Cold shutdown

21st 11:36 Receiving electricity from external power supply

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.

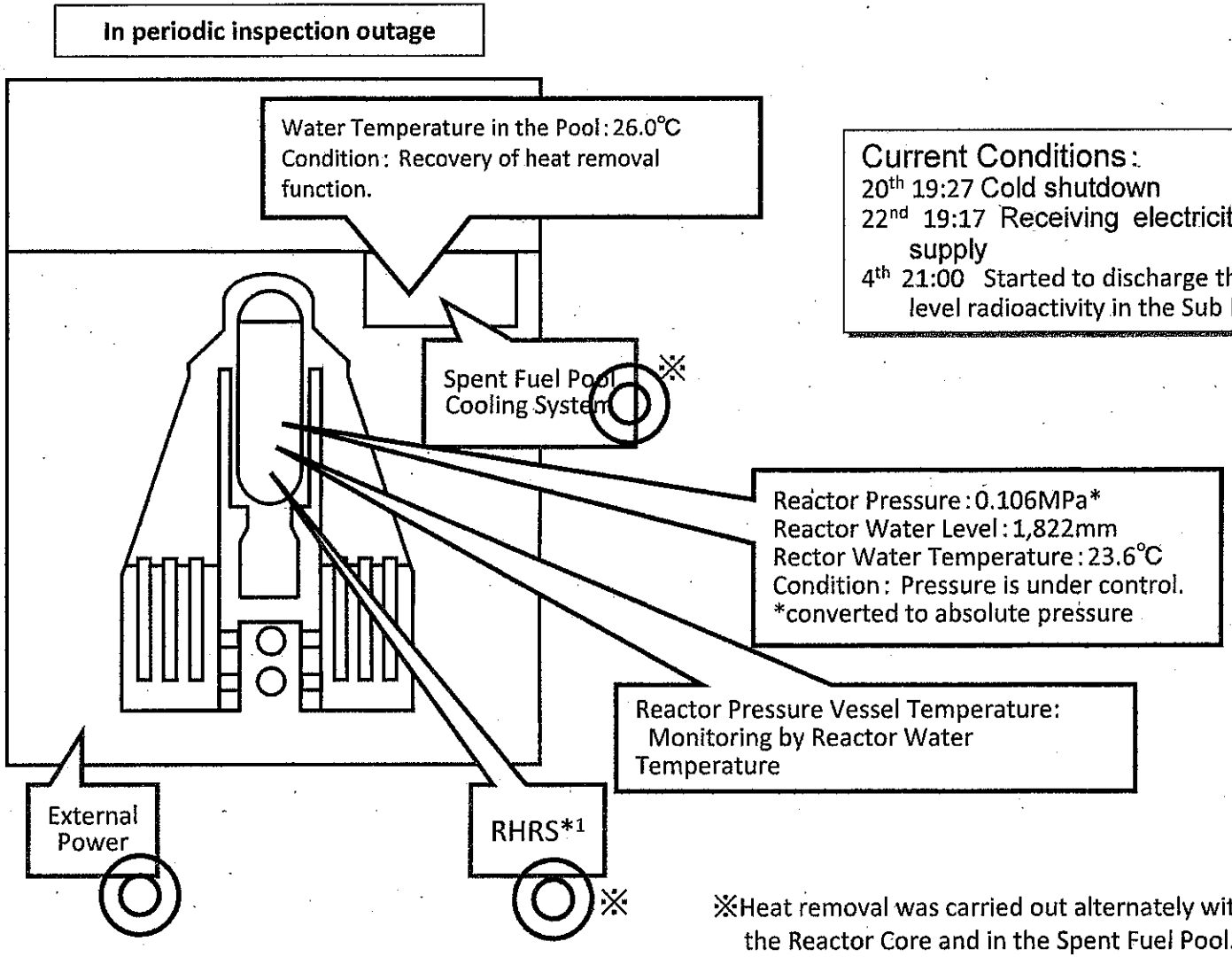
24th 16:14 Repair of the RHRS pump was completed.

24th 16:35 Started to cooling.

4th 21:00 Started to discharge the groundwater with low-level radioactivity in the Sub Drain Pit to the sea.

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

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



Current Conditions :

20th 19:27 Cold shutdown

22nd 19:17 Receiving electricity from external power supply

4th 21:00 Started to discharge the groundwater with low-level radioactivity in the Sub Drain Pit to the sea.

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

*1 Residual Heat Removal System

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

Discharge of the Wastewater with the Concentration of
Radioactive Materials above the Regulation Limit

April 4, 2011
Nuclear and Industrial Safety Agency

1. Tokyo Electric Power Co. (TEPCO) has planned that they will take following emergency measures as stipulated in the Clause 1, Article 64 of the Nuclear Regulation Act.
   - The wastewater with high concentration of radioactive materials is trapped on the basement floor of the turbine building of Unit 2 and it will immediately be transferred to another location, as it is leaking out to the surrounding environment. TEPCO is planning to use the Main Building of Radioactive Waste Treatment Facilities, which already contains the wastewater with low-level radioactivity derived its origin from the seawater, to accommodate the wastewater with high-level radioactivity. The low-level wastewater already inside the facility will be discharged to the sea to secure storage capacity for the high-level wastewater, as they cannot secure any further storage capacity for this low-level wastewater.
   - Groundwater from the Sub Drains of Units 5 and 6 has increased its water-level and is beginning to leak out to the reactor building, turbine building and other buildings of the Unit 6, as the drainage from the Sub Drains has been stopped since the accident. The groundwater inside the Sub Drains includes low concentration radioactive materials. It will be discharged to the sea, because leaving the situation as it is will potentially sinks the critical safety facilities for Units 5 and 6 under the water.

2. In light of the situation, we have judged that there is no other option than to execute the aforementioned emergency measures based on the clause 1, Article 64 of Nuclear Regulation Act., to avoid substantial risks. We have also confirmed that the discharge will have no significant impact on human health. In so confirming we have demanded TEPCO to submit a report on the emergency measures (All the facts of the discharge to the sea, the evaluation of its impact, the concept behind it and so on) based on the Article 67 of Nuclear Regulation Act, and confirmed the following

points:

- It is indispensable to suppress the emission of the wastewater with high-level radioactivity trapped inside on the basement floor of the turbine building of Unit 2, out into the surrounding environment, and to use the Main Building of Radioactive Waste Treatment Facilities for that purpose. It is also indispensable to drain the Sub Drains of Units 5 and No.6 to protect the critical safety facilities of the reactors. There is no other option than to discharge the wastewater with low-level radioactivity currently inside the Main Building of Radioactive Waste Treatment Facilities and the Sub Drains to the sea, as there is no further capacity to accommodate it.
- The most optimal selection of the location for the discharge has been made taking the current situation into consideration as appropriately as possible. The discharge is planned to be made not into the bay where the contamination is expected to spread, but instead directly to outside the bay, to alleviate the impact of the discharge to sea.
- We believe that there is no problem, as the impact of this discharge of wastewater with low concentration radioactive materials to human health is measured to be 0.6mSv per year (Effective whole body dose), below 1mSv per year that is the dose limit as set forth by the Nuclear Regulation Act.

3. We have also forwarded the information as confirmed by the Agency to the Nuclear Safety Commission, to obtain their technical advice on the imperative execution of the discharge to the sea as an emergency measure.

4. We have directed TEPCO to survey and confirm the impact of the spread of radioactive materials caused by the discharge, by ensuring continuity of the sea monitoring currently underway and enhancing it (Increase of the frequency of measuring as well as the number of monitoring points), disclose required information, as well as to enhance the strategy to minimize the discharge amount.

News Release

Extract

経済産業省
Ministry of Economy, Trade and Industry

April 5, 2011
Nuclear and Industrial Safety Agency

Seismic Damage Information (the 75th Release)
(As of 16:00 April 5th, 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 tracer was put in from the two holes dug around the Pit for the Duct near the Inlet Bar Screen of Unit 2 and was confirmed to be flowed out from the crack to the sea. (14:15 April 5th) The coagulant (soluble glass) started to be injected from the holes around the Pit in order to prevent the outflowing of the water. (15:07 April 5th)

- One more pump for the transfer of the water in the Condenser of Unit 2 to the Condensate Storage Tank was installed. (Two pumps in total: 30 m^3/h) (15:40 April 5th)

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

News Release

Extract

経済産業省
Ministry of Economy, Trade and Industry

April 6, 2011
Nuclear and Industrial Safety Agency

Seismic Damage Information (the 76th Release)
(As of 08:00 April 6th, 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 tracer was put in from the two holes dug around the Pit for the Duct near the Inlet Bar Screen of Unit 2 and was confirmed to be flowed out from the crack to the sea. (14:15 April 5th) The coagulant (soluble glass) started to be injected from the holes around the Pit in order to prevent the outflowing of the water. (15:07 April 5th) The outflow of the water was confirmed to stop. (05:38 April 6th)
  - Fresh water spray for Unit 4 using Concrete Pump Truck (50t/h) was carried out. (From 17:35 till 18:22 April 5th)

2. Action taken by NISA

- Direction as to the implementation of advance notification and contact to the local governments with regard to taking measures related to discharge of radioactive materials from Fukushima Dai-ichi NPS, which have a possible impact on the environment, was issued.

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