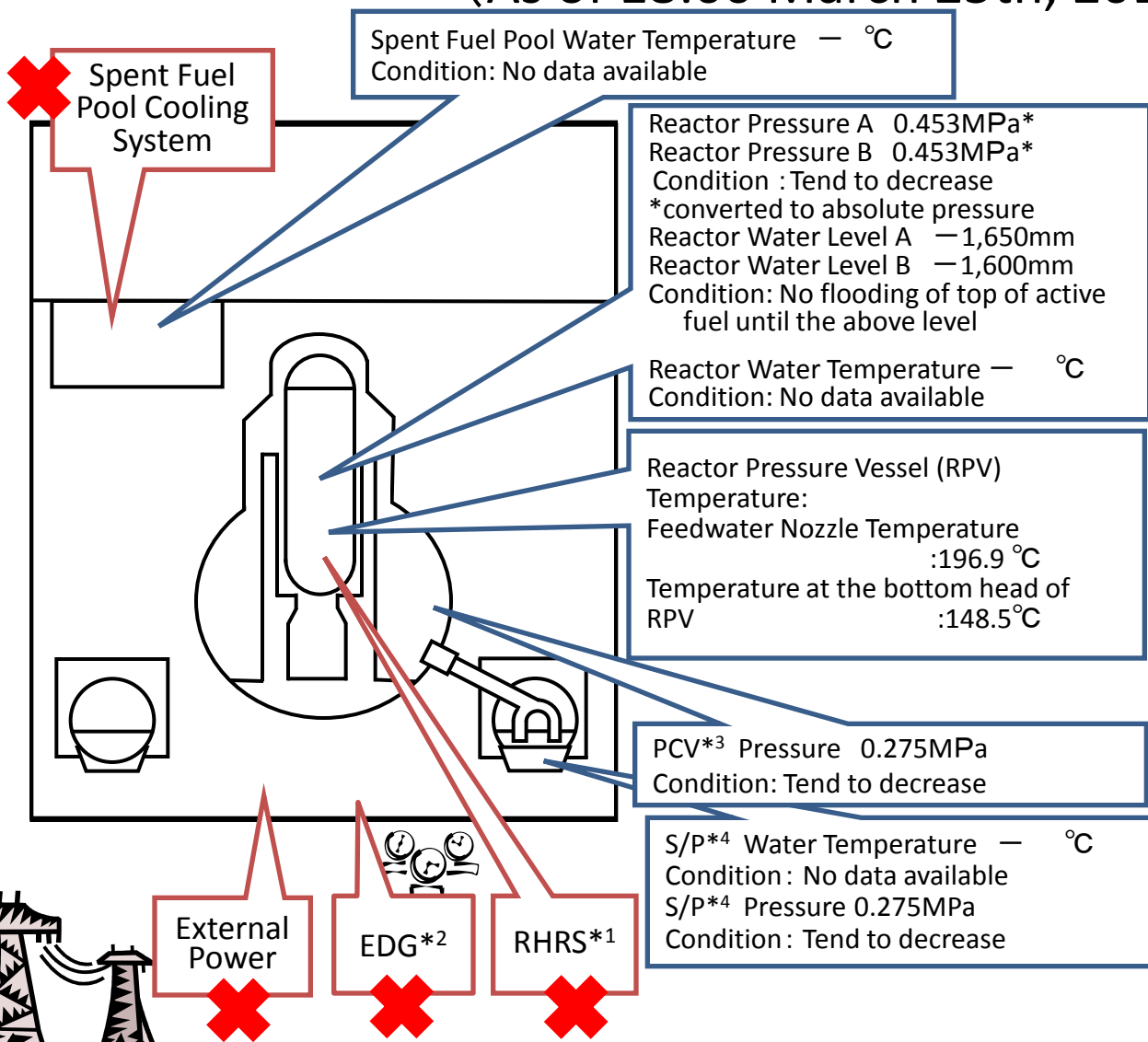


# Conditions of Fukushima Dai-ichi Nuclear Power Station **Unit 1**

(As of 18:00 March 25th, 2011)



## Major Events after the earthquake

- 11<sup>th</sup> 14:46 : Under operation, Automatic shutdown by the earthquake
- 11<sup>th</sup> 15:42 : Report based on the Article 10 (Total loss of A/C power)
- 11<sup>th</sup> 16:36: Occurrence of the Article 15 event (Inability of water injection of the Emergency Core Cooling System )
- 12<sup>th</sup> 1:20 Occurrence of the Article 15 event (Unusual rise of the pressure in PCV)
- 12<sup>th</sup> 10:17 Started to vent
- 12<sup>th</sup> 15:36 Sound of explosion
- 12<sup>th</sup> 20:20 Started to inject seawater and borated water to core
- 23<sup>rd</sup> 02:33 The amount of injected water to the Rector Core was increased utilizing water supply line in addition to the Fire Extinguish line. (2m<sup>3</sup>/h →18m<sup>3</sup>/h)  
09:00 Switched to water supply line only.(18m<sup>3</sup>/h →11m<sup>3</sup>/h)
- 24<sup>th</sup> 11:30 Lightning in the Central Control Room was recovered.
- 25<sup>th</sup> 15:37 Started fresh water injection

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

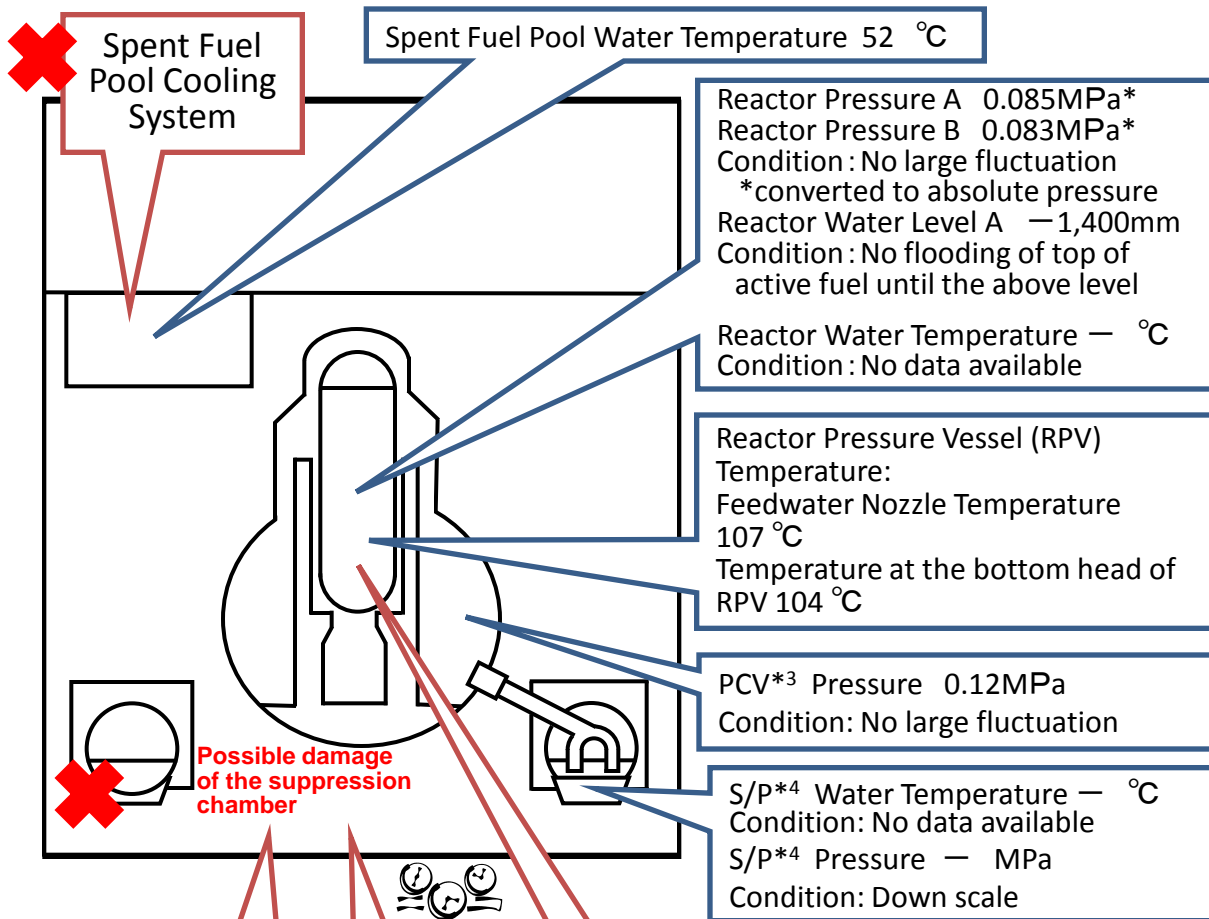
Current Conditions : Seawater is being injected to the core

# Conditions of Fukushima Dai-ichi Nuclear Power Station Unit 2

(As of 18:00 March 25th, 2011)

## Major Events after the earthquake

- 11<sup>th</sup> 14:46 Under operation, Automatic shutdown by the earthquake
- 11<sup>th</sup> 15:42 Report based on the Article 10 (Total loss of A/C power)
- 11<sup>th</sup> 16:36 Occurrence of the Article 15 event (Inability of water injection of the Emergency Core Cooling System)
- 13<sup>th</sup> 11:00 Started to vent
- 14<sup>th</sup> 13:25 Occurrence of the Article 15 event (Loss of reactor cooling functions)
- 14<sup>th</sup> 16:34 Started to inject water to the Reactor Core
- 14<sup>th</sup> 22:50 Occurrence of the Article 15 event (Unusual rise of the pressure in PCV)
- 15<sup>th</sup> 0:02 Started to vent
- 15<sup>th</sup> 6:10 Sound of explosion
- 15<sup>th</sup> around 6:20 Possible damage of the suppression chamber
- 20<sup>th</sup> 15:05~17:20 Approximately 40 ton seawater injection to the Spent Fuel Pool (SFP) via the Fuel Pool Cooling System (FPC)
- 20<sup>th</sup> 15:46 Power Center received electricity.
- 21<sup>st</sup> 18:22 White smoke generated. The smoke died down and almost invisible at 07:11 March 22<sup>nd</sup>.
- 22<sup>nd</sup> 16:07 Injection of around 18 tons of seawater to the Spent Fuel Pool
- 25<sup>th</sup> 10:30~12:19 Seawater injection to SFP via FPC



- External Power
- EDG\*2
- RHRS \*1

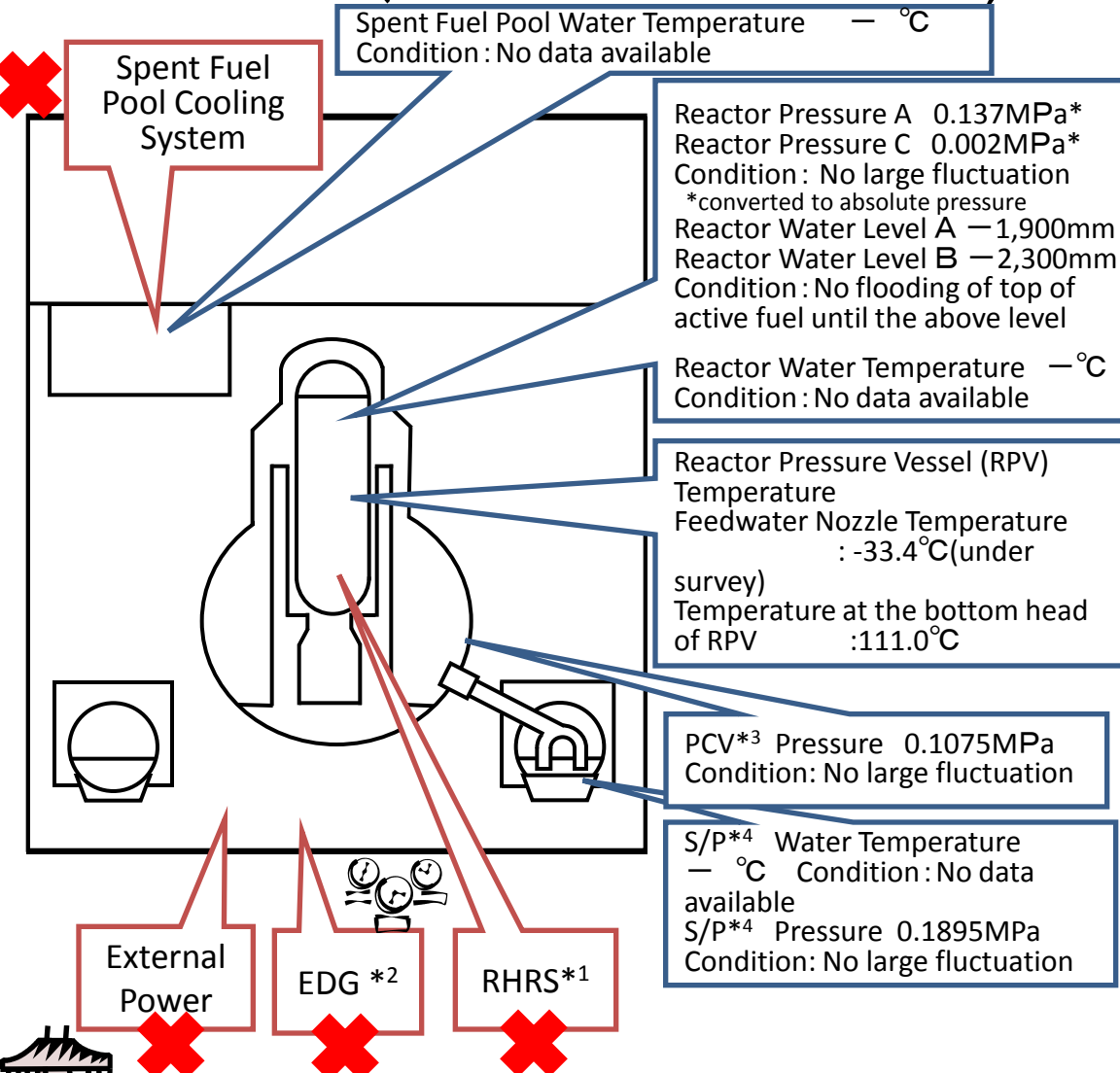
\*1 Residual Heat Removal System  
\*2 Emergency Diesel Generator  
\*3 Primary Containment Vessel  
\*4 Suppression Pool

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

# Conditions of Fukushima Dai-ichi Nuclear Power Station **Unit 3**

(As of 18:00 March 25th, 2011)

## Major Events after the earthquake



- 11<sup>th</sup> 14:46 Under operation, Automatic shutdown by the earthquake
- 11<sup>th</sup> 5:42 Report based on the Article 10 (Total loss of A/C power)
- 12<sup>th</sup> 20:41 Started to vent
- 13<sup>th</sup> 5:10 Occurrence of the Article 15 event (Inability of water injection of the Emergency Core Cooling System)
- 13<sup>th</sup> 9:20 Started to vent
- 13<sup>th</sup> 13:12 Started to inject seawater and borated water to core
- 14<sup>th</sup> 5:20 Started to vent
- 14<sup>th</sup> 7:44 Occurrence of the Article 15 event (Unusual rise of the pressure in PCV)
- 14<sup>th</sup> 11:01 Sound of explosion
- 16<sup>th</sup> around 8:30 White smoke generated.
- 17<sup>th</sup> 9:48~10:01 Water discharge by the helicopters of Self-Defense Force (4 times)
- 19:05~20:07 Water spray from the ground by High pressure water-cannon trucks (Police: once, Self-Defense Force: 5 times)
- 18<sup>th</sup> before 14:00~14:38 Water spray from the ground by 6 fire engines of Self-Defense Force
- ~14:45 Water spray from the ground by a fire engine of the US Military
- 19<sup>th</sup> 0:30 ~1:10 Water spray by Hyper Rescue Unit of Tokyo Fire Department
- 19<sup>th</sup> 14:10 ~ 20<sup>th</sup> 3:40 Water spray by Hyper Rescue Unit of Tokyo Fire Department
- 20<sup>th</sup> 11:00 Pressure of PCV rose(320kPa).Afterward fell.
- 20<sup>th</sup> 21:36 ~ 21<sup>st</sup> 3:58 Water spray by Hyper Rescue Unit of Tokyo Fire Department
- 21<sup>st</sup> about 15:55 Grayish smoke generated and was confirmed to be died down at 17:55.
- 22<sup>nd</sup> 15:10 ~ 16:00 Water spray by Hyper Rescue Unit of Tokyo Fire Department and Oosaka city Fire Bureau.
- 22<sup>nd</sup> 22:43 Lightening in the Central Control Room was recovered.
- 23<sup>rd</sup> 11:03 ~13:20 Injection of about 35ton of sea water to the Spent Fuel Pool (SFP) via the Fuel Pool Cooling System (FPC)
- 23<sup>rd</sup> around 16:20 Black smoke generated and was confirmed to died down at around 23:30 and 24<sup>th</sup> 4:50.
- 24<sup>th</sup> 5:35~16:05 Approximately 120 ton sea water injection to SFP via FPC
- 25<sup>th</sup> 13:28~16:00 Water spray by Kawasaki City Fire Bureau
- 25<sup>th</sup> 18:02 Started fresh water injection

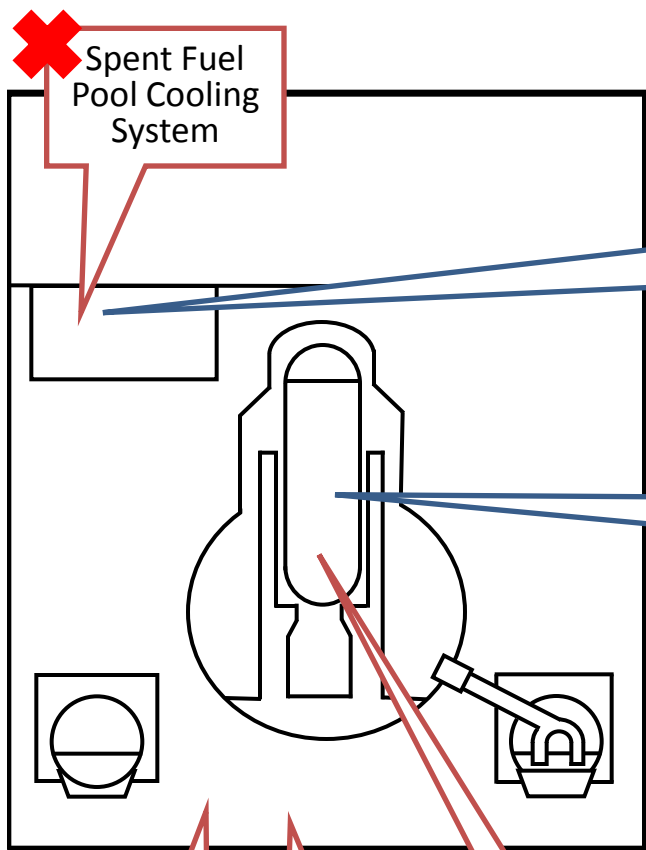
\*1 Residual Heat Removal System  
\*2 Emergency Diesel Generator  
\*3 Primary Containment Vessel  
\*4 Suppression Pool

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

# Conditions of Fukushima Dai-ichi Nuclear Power Station **Unit 4**

(As of 18:00 March 25th, 2011)

Major events after the earthquake

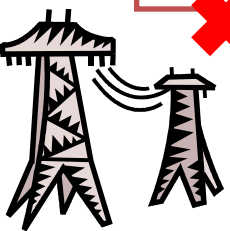


In periodic inspection outage

Spent Fuel Pool Water Temperature - °C  
Condition: Indication 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

In periodic inspection outage when the earthquake occurred.  
 11th 15:42 Report based on the Article 10 (Total loss of A/C power)  
 14<sup>th</sup> 4:08 Water temperature in the Spent Fuel Pool, 84°C  
 15<sup>th</sup> 6:14 Partial damage of wall in the 4<sup>th</sup> floor confirmed  
 15<sup>th</sup> 9:38 Fire occurred in the 3<sup>rd</sup> floor. (12:25 extinguished)  
 16<sup>th</sup> 5:45 Fire occurred. TEPCO couldn't confirm any fire on the ground. (6:15)  
 20<sup>th</sup> 8:21~9:40 Water spray over the Spent Fuel Pool (SFP) by Self-Defense Force  
 20<sup>th</sup> around 18:30~19:46 Water spray over the Spent Fuel Pool by Self-Defense Force  
 21<sup>st</sup> 6:37~8:41 Water spray over the Spent Fuel Pool by Self-Defense Force  
 21<sup>st</sup> about 15:00 Work for laying cable to Power Center was completed.  
 22<sup>nd</sup> 10:35 Power Center received electricity  
 22<sup>nd</sup> 17:17~20:32 Water spray by Concrete Pump Track  
 23<sup>rd</sup> 10:00~13:02 Water spray by Concrete Pump Track  
 24<sup>th</sup> 14:36~17:30 Water spray by Concrete Pump Track  
 25<sup>th</sup> 6:05~10:20 Sea water injection to SFP via the Fuel Pool Cooling System (FPC)  
 25<sup>th</sup> 18:00 Water spray using Concrete Pump Track

Current Conditions: No fuel is in RPV\*3.  
Started sea water injection to Spent Fuel Pool.

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

# Conditions of Fukushima Dai-ichi Nuclear Power Station Unit 5 (As of 18:00 March 25th, 2011)

In periodic inspection outage

Water Temperature in the Pool: 37.9°C  
Condition: Recovery of heat removal function

Reactor Pressure: 0.108MPa\*  
Reactor Water Level: 2,288mm  
Reactor Water Temperature: 43.2°C  
Condition: Pressure is under control.  
\*converted to absolute pressure

Reactor Pressure Vessel Temperature:  
Monitoring by Reactor Water Temperature

Spent Fuel Pool Cooling System

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

Current Conditions:

Cold shutdown at 14:30 March 20<sup>th</sup>.

Receiving electricity from external power supply from 11:36 March 21<sup>st</sup>.

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

Repair of the RHRS pump was completed at 16:14 March 24<sup>th</sup>.  
Cooling started at 16:35 March 24<sup>th</sup>.

External Power

RHRS \*1

\*1 Residual Heat Removal System



# Conditions of Fukushima Dai-ichi Nuclear Power Station Unit 6 (As of 18:00 March 25th, 2011)

In periodic inspection outage

Water Temperature in the Pool: 22.0°C  
Condition: Recovery of heat removal function.

Current Conditions:  
Cold shutdown at 19:27 March 20<sup>th</sup>.  
Receiving electricity from external power supply from 19:17 March 22<sup>nd</sup>.

Spent Fuel Pool Cooling System ※

Reactor Pressure : 0.109MPa\*  
Reactor Water Level : 2,216mm  
Reactor Water Temperature : 26.9°C  
Condition : Pressure is under control.  
\*converted to absolute pressure

Reactor Pressure Vessel Temperature:  
Monitoring by Reactor Water Temperature

External Power

RHRS\*1 ※

\*1 Residual Heat Removal System

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

