

Information on the earthquake in Japan on 11 March 2011

Compilation by GRS

as at: 17 March 2011, 06:00 h (CET)

All times local time unless otherwise indicated

(CET = local time minus 8 hours)

Updated compilation of information

Changes compared with the previous state in Chapter 2 are given in Section 1. The accident sequence so far can be found in Chapter 2. A short description in tabular form of the safety-related situation can be found in Chapter 4. This also includes further specifications and supplementations of events and conditions reported over the past couple of days.

1 Changes compared with the previous state

1.1 Fukushima Daiichi

Information was added in Chapter 4 about the number of fuel assemblies per core

1.1.1 Unit 1

According to TEPCO, a fire engine with a pump has been deployed for cooling the reactor. (16-3-2011, no time given)

According to JAIF (Japan Atomic Industrial Forum), as at 9:00 h on 17-03-2011, there is no information about the integrity of the fuel assemblies in the fuel pool of Unit 1.

1.1.2 Unit 2

According to JAIF (Japan Atomic Industrial Forum), as at 9:00 h on 17-03-2011, there is no information about the integrity of the fuel assemblies in the fuel pool of Unit 2.

1.1.3 Unit 3

As containment damage is assumed, the personnel from the common main control room of Units 3 and 4 was evacuated on 16-03-2011 at 10:45 h. At 11:30 h, the operating personnel returned to resume the injection of water. (source: NISA)

According to JAIF (Japan Atomic Industrial Forum), as at 9:00 h on 17-03-2011, the water level in the fuel pool of Unit 3 is low.

TV images on 17-03-2011 from 9:48 h show water being dumped from helicopters on four occasions within about 20 minutes. This was later confirmed by the Japanese government spokesman.

1.1.4 Unit 4

Water injection was stopped on 16-03-2011 at 14:00 h (NISA). At this point in time, the IAEA gives no details about the water temperature in the fuel pool (last information had been on 15-03-2011 at 19:00 h).

The roof of the reactor building is damaged.

Data by IAEA on water temperature in the fuel pool (normal levels below 25 °C):

14-03-2011, 19:08 h: 84 °C

15-03-2011, 19:00 h: 84 °C

16-03-2011, 14:00 h: no data

According to JAIF (Japan Atomic Industrial Forum), as at 9:00 h on 17-03-2011, the water level in the fuel pool of Unit 4 is low.

1.1.5 Unit 5

Data by IAEA on water temperature in the fuel pool (normal levels below 25 °C):

14-03-2011, 19:08 h: 59.7 °C

15-03-2011, 19:00 h: 60.4 °C

16-03-2011, 14:00 h: no data

1.1.6 Unit 6

Data by IAEA on water temperature in the fuel pool (normal levels below 25 °C):

14-03-2011, 19:08 h: 58.0 °C

15-03-2011, 19:00 h: 58.5 °C

16-03-2011, 14:00 h: 60.0 °C

1.1.7 Interim storage facility at the Fukushima Daiichi site

IRSN (Institut de Radioprotection et the Sûreté Nucléaire) estimates that there are approx. 6000 fuel assemblies in the interim storage facility pool. The radioactive material of these fuel assemblies there has been decaying for longer that that of the fuel assemblies in the fuel pools of the 6 units and therefore produce less decay heat. There is no information available about the cooling status.

1.2 Fukushima Daini

No changes in these units.

1.3 Onagawa 1-3 and Tokai

No changes in these units.

1.4 Radiological situation

See Chapter 3. Changes are underlined.

2 Summary of the plant situation so far

On 11-03-2011 at 14:46h (6:46 CET), an earthquake struck Japan. This earthquake and the subsequent tsunami also affected the nuclear power plant sites Fukushima I (Daiichi), Fukushima II (Daini), Onagawa and Tokai.

2.1 Fukushima Daiichi

At this site, Units 1-3 were in power operation mode at the time of the onset of the accident. Units 4-6 were shut down when the event set in. At the site, the emergency diesel generators failed as a consequence of the tsunami. Mobile emergency diesel generators were taken to the plant.

Due to the high levels of radiation, the plant was evacuated completely on 16-03-2011 at 10:45 h (2:45 h CET). It is only entered to carry out important measures or record measurements (government press conference at 12:00 h (4:00 h CET)). The local dose rate at the main gate lies within a range of 2.5 – 6.5 mSv/h. In the meantime, part of the personnel have returned as radiation levels have fallen.

According to media information, attempts are made to re-establish electricity supply by a further mobile generator and the external grid.

2.1.1 Unit 1

According to media information, pressure inside the containment of Unit 1 rose during the course of 12-03-2011. Filtered containment venting was carried out as from 14:30 h on 12-03-2011. A hydrogen explosion occurred inside the reactor building, but outside the containment, at 15:36 h on 12-03-2011. Borated sea water was pumped into the reactor pressure vessel (it remains unclear whether the containment was flooded as well). Injection was begun on 12-03-2011 at 20:20 h.

On 13-03-2011 at 11:13 h, the Kyodo news agency reported that the authority suspected a leak in Unit 1. Government spokesman Edano said that there may have been a core meltdown. According to TBS (Japanese TV station), approx. 70 % of the fuel assemblies are damaged. According to IAEA information, electricity supply by mobile generators is ensured. There followed an injection of sea water.

According to information of 16-03-2011, the number of damaged fuel assemblies is said to have risen from 43% to 70% (source: German Federal Foreign Office).

According to information of 16-03-2011, the fuel rods inside the reactor pressure vessel are uncovered along 1.8 metres of their length (17:00 h).

According to TEPCO, a fire engine with a pump has been deployed for cooling the reactor. (16-3-2011, no time given)

According to JAIF (Japan Atomic Industrial Forum), as at 9:00 h on 17-03-2011, there is no information about the integrity of the fuel assemblies in the fuel pool of Unit 1.

INES classification by the authority

Due to the release to the outside of the plant, the authority provisionally classified the event in Unit 1 as INES 4. This INES classification was made on 12-03-2011 and has since then not been adapted to the current situation.

2.1.2 Unit 2

The coolant level in the reactor pressure vessel of Unit 2 was below the normal level until 14-03-2011. Initially, it did not drop any further. Injection was by means of an emergency cooling system. It was reported by NISA that on 13-03-2011 at 11:55 local time, the electrical power supply was secured (IAEA: via mobile generators) and that injection into the reactor was maintained.

On 14-03-2011 at 13:25 h, cooling in Unit 2 failed. For some time, cooling was re-established with sea water. The fuel assemblies were temporarily not covered by water. On 14-03-2011 at about 20:00 h, containment pressure rose to approx. 4.15 bar (corresponds to about design pressure). At 20:37 h, containment venting was begun. According to TEPCO an opening was made in the reactor building to prevent an explosion of the hydrogen in the reactor building.

On 15-3-2011 at 06:20 h, an explosion occurred in Unit 2. According to the IAEA, up to 400 mSv/h were measured on the plant premises. JAIF reports 30 mSv/h between Units 2 and 3, 400 mSv/h next to Unit 3 and 100 mSv/h next to Unit 4. According to

press reports, the assumption – based on the fact that containment pressure is falling - is that the pressure suppression pool is damaged.

According to Kyodo, TEPCO says that approx. 33% of the fuel assemblies are damaged. NISA assumes that the high levels of radiation measured since approx. 10:00 h originate from Unit 2. However, it may also be that there is a link between the high radiation levels and the vapour plume emanating from Unit 3.

According to TBS (TV station), pressure levels inside the containment and the reactor pressure vessel are falling. The water level is said to be constant despite injection.

The fuel rods inside the reactor pressure vessel are uncovered along 1.4 metres of their length.

According to JAIF (Japan Atomic Industrial Forum), as at 9:00 h on 17-03-2011, there is no information about the integrity of the fuel assemblies in the fuel pool of Unit 2.

2.1.3 Unit 3

In Unit 3, the emergency cooling system failed on 13-03-2011 at around 5:30 h. There followed a depressurisation of the reactor pressure vessel, and borated water was pumped into the reactor from 13:12 h onwards on 13-03-2011. Sea water was injected with the help of fire extinguishing pumps. Containment venting was carried out.

On 14-03-2011 at 11:00 a hydrogen explosion occurred in Unit 3. According to IAEA information, the containment was not damaged. According to TEPCO, containment pressure is stable.

It was tried on 16-03-2011 to pour water from a helicopter into the fuel pool. This measure was abandoned without success due to the high activity levels in the surroundings. On 16-03-2011, the fuel rods inside the reactor pressure vessel are uncovered along approx. 2.30 metres of their length.

According to information given by JAIF on 16-03-11 at 19:00 h CET, water is presumably evaporating from the fuel pool.

As containment damage is assumed, the personnel from the common main control room of Units 3 and 4 was evacuated on 16-03-2011 at 10:45 h. At 11:30 h, the operating personnel returned to resume the injection of water. (source: NISA)

According to JAIF (Japan Atomic Industrial Forum), as at 9:00 h on 17-03-2011, the water level in the fuel pool of Unit 3 is low.

TV images on 17-03-2011 from 9:48 h show water being dumped from helicopters on four occasions within about 20 minutes. This was later confirmed by the Japanese government spokesman.

2.1.4 Block 4

In Unit 4, there were a fire and an explosion in the reactor building in the area of the fuel pool on 15-03-2011 at around 6:00 h. The IAEA confirmed that the fire was extinguished at about 11.14 h. The fire/explosion created two holes in the reactor building, both approx. 8 m² wide. Press reports say that it has so far not been possible to refill the pool. Attempts are made to pour water into the fuel pool by means of a helicopter or fire engines.

According to TEPCO (as reported in media reports) and NISA, another fire broke out in the area of the fuel pool at about 5:45 h (16-03-2011). In this connection, the roof of the reactor building was also severely damaged. The TV station NHK reported that following attempts to extinguish the fire, no flames were visible any more. Media reports say that two workers have been missing since the fire broke out.

Kyodo Breaking News reported at 8:45 h local time that spraying with boric acid is to prevent criticality (presumably in the fuel pool).

On a photo of Unit 4 published by TEPCO, a hole in the outer wall of the reactor building is visible, measuring approx. 8 m². The outer shell of the reactor building facing Unit 3 is damaged severely, also near the ground. The roof of the reactor building is damaged.

There are furthermore reports saying that the reactor core had been completely unloaded into the fuel pool during the refuelling outage. There are thus no fuel assemblies inside the RPV.



Photo of the Fukushima Daiichi plant, Units 1-4 (from right to left) of 16-03-2011

The fuel assemblies in the fuel pool are presumably damaged. According to JAIF (12:30 h), the reactor building is also damaged. The fuel pool is to be injected with the help of fire fighting equipment (fire engine).

According to media information of 16-03-11, 19:00 h CET, the water in the fuel pool is boiling. A police water cannon has arrived at the site but cannot be used yet as rubble first has to be cleared.

Water injection was stopped on 16-03-2011 at 14:00 h (NISA). At this point in time, the IAEA gives no details about the water temperature in the fuel pool (last information had been on 15-03-2011 at 19:00 h).

Data by IAEA on water temperature in the fuel pool (normal levels below 25 °C):

14-03-2011, 19:08 h: 84 °C

15-03-2011, 19:00 h: 84 °C

16-03-2011, 14:00 h: no data

According to JAIF (Japan Atomic Industrial Forum), as at 9:00 h on 17-03-2011, the water level in the fuel pool of Unit 4 is low.

2.1.5 Units 5 and 6

The IAEA reports about Unit 5 that on 15-03-2011 at 21:00 h (13:00 h CET), the water level in the fuel pool has dropped to 201 cm above the fuel assemblies. This was a drop of 40 cm since 16:00 h (8:00 h CET). It is planned to use an available emergency diesel generator from Unit 6 for water injection.

According to JAIF (8:00 h, 16-3-2011), the water level in the fuel pools of both units is sinking. At 14:00 h, TEPCO reports a fuel pool temperature of approx. 60 °C in both units. The fuel pool temperature is rising.

Further sources say on 16-03-2011 that venting of the reactor building is under preparation to prevent a hydrogen explosion.

Data by IAEA on water temperature in the fuel pool of Unit 5 (normal levels below 25 °C):

14-03-2011, 19:08 h: 59.7 °C

15-03-2011, 19:00 h: 60.4 °C

16-03-2011, 14:00 h: 62.7 °C

Data by IAEA on water temperature in the fuel pool of Unit 6 (normal levels below 25 °C):

14-03-2011, 19:08 h: 58.0 °C

15-03-2011, 19:00 h: 58.5 °C

16-03-2011, 14:00 h: 60.0 °C

2.1.6 Interim storage facility at the Fukushima Daiichi site

IRSN (Institut de Radioprotection et the Sûreté Nucléaire) estimates that there are approx. 6000 fuel assemblies in the interim storage facility pool. The radioactive material of these fuel assemblies there has been decaying for longer that that of the fuel assemblies in the fuel pools of the 6 units and therefore produce less decay heat. There is no in-formation available about the cooling status.

2.2 Fukushima Daini

A small fire in the auxiliary building of Unit 1 was extinguished within 2 hours (source: European Clearinghouse).

Initially, residual-heat removal from the pressure suppression pools of Units 1, 2 and 4 was not possible. In Units 1, 2 and 4, the pressure suppression pool temperature of 100°C was exceeded. There is no such information about Unit 3. There are reports that Unit 3 reached a cold subcritical condition on 12-03-2011.

Coolant levels in the reactor pressure vessels of the four units did not drop. Electricity supply from an external grid is available in these units.

According to TEPCO, containment venting was being prepared for all 4 units. It was, however, not carried out.

Following repairs of the auxiliary service water pumps that had been inundated by sea water, all units reached cold subcritical conditions on 14-3-2011.

According to information by the operator, the residual-heat removal system was turned off for approx. 1 hour on 15-03-2011. It was subsequently made operational again.

2.3 Onagawa and Tokai

According to current information, the Onagawa and Tokai sites have no acute safety-related problems. At the Onagawa plant, a fire in the turbine building was detected and extinguished. All three units at Onagawa are in shutdown condition and cold. The plant is currently being inspected.

According to media reports, two diesel generators failed at the Tokai plant, with one diesel generator remaining operable. Of two pumps provided for cooling, one was not available. Other press reports quote the operator as saying that cooling of the reactor is ensured.

3 Radiological situation

On 12-03-2011 between 04:00 h and 04:40 h, the operator and the supervisory authority NISA reported an increase of the local dose rate in two locations near the plant gate of Daiichi from background values (approx. 70 nSv/h) to initially more than 10 times this level (approx. 0.9 μ Sv/h at 04:40 h) and to up to about 5 μ Sv/h at approx. 06:30 h. This increase could possibly be related to the beginning of containment venting at that point in time, although there is no corresponding confirmation.

According to further information by NISA, the local dose rate readings in the vicinity of Unit 1 of the Fukushima Daiichi plant increased during the course of containment venting until the explosion in the reactor building at 15:36 h (Japan local time) on 12-03-2011 to about 1000 μ Sv/h. Within approx. three hours after the explosion, the local dose rate readings in the vicinity of the plant dropped to \sim 70 μ Sv/h. According to TEPCO, the local dose rate increased until 8:00 h on 13-03-2011 to a maximum of 8.5 μ Sv/h. Presumably in connection with the pressure relief of Unit 3, the measured values at the main gate rose between 9:00 h and 9:30 h to up to approx. 280 μ Sv/h. At 10 h, the measured values dropped again below 10 μ Sv/h in this measuring location.

According to the authority (quoted by the Kyodo news agency), local dose rates of more than 1200 μ Sv/h were measured again in the vicinity of Unit 1 at 11:13 h on 13-03-2011. At around 14:00 h, TEPCO recorded an increase of the measured values to up to 900 μ Sv/h. After that, the values dropped again to below 100 μ Sv/h. On 15-03-2011 at 10:20 h, local dose rates of 400000 μ Sv/h were measured in the vicinity of Unit 3, 100000 μ Sv/h in the vicinity of Unit 4, and 30000 μ Sv/h between Units 2 and 3.

NISA has confirmed that caesium-137 and iodine-131 were detected in the vicinity of Unit 1 of the Fukushima Daiichi plant. GRS assumes that radioactive materials were released into the containment and were mainly retained there.

On 17-03-2011 at approx. 10:00 h, local dose rate measurements were carried out by a helicopter flying over the plant. At a height of about 300 m above ground (240 m above the roof level of the reactor units), a local dose rate of 4.13 mSv/h was measured; at approx. 100 m height above ground (40 m above roof level), the local dose rate was 87.7 mSv/h. The readings correlate with the hypothesis that the local dose rate is caused by the direct radiation emanating from the uncovered nuclear material.

Within the evacuation radius of Daiichi (20 km) and of Daini (10 km), a total of 210,000 people have been evacuated.

Within a radius of 30 km around the Daiichi evacuation zone, the population was recommended to stay indoors. According to the IAEA, a no-fly area was established in a radius of 30 km around the plant. Also according to the IAEA, the Japanese coast guard ordered coastal waters to be cleared within a radius of 10 km around Daiichi and 3 km around Daini.

According to the German Meteorological Service, a flow situation characterised by the passage of a weak low-pressure area with its centre to the southeast of the Japanese coast prevailed during the first half of the day of 15-03-2011, transporting the radioactive materials released with low winds in south-westerly direction along the coast. During the second half of the day, weather stations reported dominating weak circulating winds. During the night from 15-03-2011 to 16-03-2011, the wind freshened from north-easterly direction, so that there is now again a transport of the airborne materials released at the Fukushima site in easterly direction. For the coming days, a stable wind direction is expected. Measuring data from the Ibaraki province bordering on Fukushima in the south show until 17-03-2011 prevailing north-westerly to westerly winds with wind speeds of between 3 and 7 m/s.

In the neighbouring province of Ibaraki, the national local dose rate measuring network registers increased local dose rate levels between approx. 200 and 900 nSv/h, presumably caused by the radioactive materials that deposited with the emissions on 15-03-2011. The maximum at the Horiguchi Hitachinaka City measuring station (located at approx. 100 km from Fukushima 1) has only been decreasing very slowly over the last 12 hours.

The illustration below shows the local dose rate measurements at the Fukushima I (Daiichi) site in different measuring locations for the period between 12-03-2011, 10:00 h and 16-03-2011, 15:50 h.

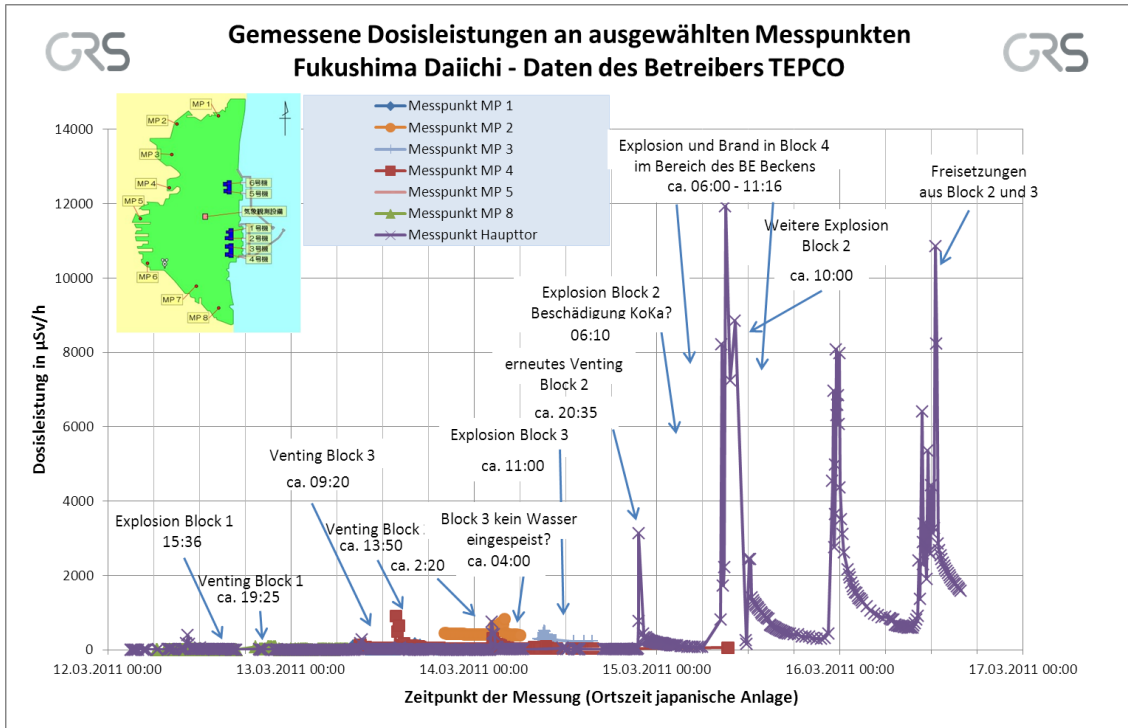
The measured values show unsteady distributions with values between 60 nSv/h (background radiation) up to about 12000 μ Sv/h. some of the maximum values can be correlated to confirmed measures at the plant (e.g. venting), especially the venting at Unit 2 on 14-03-2011 between 21:20 h and 23:00 h and the fire in the fuel pool in Unit 4 on 15-03-2011. The data relating to the fire affecting the fuel pool show an exponential

decrease. This could be caused by short-lived radioactive materials deposited on the ground.

According to information by the operator, the measuring location MP 1 was shifted to the position of MP 2 on 13-03-2010 at around 20:10 h. This is near Unit 1. In this location, values between 400 and 500 $\mu\text{Sv/h}$ are measured. Since 14-03-2011, approx. 15:30 h, there have been no data from measuring locations MP3 and MP4. The local dose rates communicated by the authority (NISA) at the time of the explosion in Unit 1 are not contained in the data provided by the operator. On 15-03-2011 after approx. 6:20 h, the values measured at the measuring location at the main gate rise up to a maximum of approx. 12000 $\mu\text{Sv/h}$ at around 09:00 h. This rise is presumably linked to the fire in the fuel pool of Unit 4. The values drop again after 09:00 h. This decrease continues until 18:00 h, when a level of approx. 450 $\mu\text{Sv/h}$ is reached. The data provided by the operator for the measuring location at the main gate show renewed increases around 23:00 h to up to 8000 $\mu\text{Sv/h}$ at 23:00 h (15-03-2011) and around 11:00 h (16-03-2011), with a maximum of 10850 $\mu\text{Sv/h}$ at 12:30.

At the Daini site, local dose rate measurements are available until 16-03-2011 15:00 h and on 17-03-2011 between 2:00 h and 3:00 h. Here, on 14-03-2011 from 22:00 h onwards, measuring location MP 4 records a rise of up to approx. 920 $\mu\text{Sv/h}$ at 03:10 h and 03:50 h on 15-03-2011, with a subsequent fall to levels of around 10 $\mu\text{Sv/h}$ until 18:00 h. The measured values of this peak between 03:10 h and 03:50 h were later (16-03-2011) revised downwards by the operator to approx. 92 $\mu\text{Sv/h}$.

Since 16-03-2011 at around 02:10 h, a renewed rise has been recorded, with a maximum of 39 $\mu\text{Sv/h}$ at 02:20 h, followed by a fall to 18 $\mu\text{Sv/h}$ at 09:00 h and a renewed maximum of 31 $\mu\text{Sv/h}$ at 11:10 h. The increased values are presumably linked to a transport of radioactive materials from Daiichi. In the early hours of the morning on 17-03-2011, the values lie at 17 $\mu\text{Sv/h}$.



4 Brief overview of the current safety situation

Name	Power	Current status Confirmed: report by operator or NISA – unconfirmed: more detailed press report
Fukushima I (Daiichi 1)	460 MWe, 1380 MW _{therm}	<p>- Condition of core and building structures: Core damage assumed, containment intact. Depressurisation of reactor carried out. Containment venting carried out. Hydrogen explosion on 12-03-2011 at 15:36 h. Severe structural damage to reactor building. According to TBS (Japanese TV station), presumably 70% of fuel assemblies damaged.</p> <p>- Condition of feeding/injection: Electrical power supply via mobile generators. Flooding of reactor with sea water. Sea water injection into containment via pipes of fire water system since 13-03-2011, 11:55 h (temporarily interrupted on 14-03-2011 at 1:10 due to water shortage in the sea water pool).</p> <p>- Important plant parameters (time of measurement always 16-03-2011, 12:25 h): Reactor pressure : 0.207 MPa (measuring location A), 0.171 MPa (measuring location B) Water level in the reactor: 1750 mm below upper core edge (measuring locations A and B) Containment pressure: unknown Pressure suppression pool water temperature and pressure unknown</p> <p>- Information on fuel pool: Internationally available information on estimates and figures relating to the number of fuel assemblies vary between 1+1/3 cores and 292 fuel assemblies (1 core consists of 400 fuel assemblies (source: TEPCO))</p>
Fukushima I (Daiichi 2)	784 MWe, 2381 MW _{therm}	<p>- Condition of core and building structures: Core damage assumed. According to information by NISA, an evaluation by TEPCO on 14-03-2011 at 22:14 h shows core damage to be "less than 5%", according to Kyodo on 15-03-2011, TEPCO reports that approx. 33% of the fuel assemblies are damaged. Containment damaged (pressure suppression pool). Depressurisation of</p>

		<p>reactor carried out. Containment venting carried out. Hydrogen explosion on 15-03-2011 at 6:20 h. Structural damage to reactor building.</p> <p>- Condition of feeding/injection: Electrical power supply via mobile generators. Sea water injection into containment via pipes of fire water system since 14-03-2011, 22:50 h.</p> <p>- Important plant parameters (time of measurement always 16-03-2011, 12:25 h): Reactor pressure: unknown due to loss of battery voltage Water level in the reactor: 1400 mm below upper core edge (measuring location A, measuring location B not available) Containment pressure: 40 kPa Pressure suppression pool water temperature: unknown Pressure suppression pool pressure: below measuring range</p> <p>- Information on fuel pool: Internationally available information on estimates and figures relating to the number of fuel assemblies vary between 1+1/3 cores and 587 fuel assemblies (1 core consists of 584 fuel assemblies (source: TEPCO))</p>
Fukushima I (Daiichi 3)	784 MWe, 2381 MW _{therm}	<p>- Condition of core and building structures: Core damage assumed. Depressurisation of reactor carried out. Containment venting carried out. Hydrogen explosion on 14-03-2011 at 11:00 h. Severe structural damage to reactor building. Containment presumably damaged. White smoke or vapour visible since 16-03-2011, 11:45 h.</p> <p>- Condition of feeding/injection: Electrical power supply via mobile generators. Flooding with sea water. Freshwater injection into the containment via pipes of fire water system since 13-03-2011, 11:55 h. Since 13:12 h on 13-03-2011, sea water has been injected (temporarily interrupted on 14-03-2011 from 1:10 h until 3:20 h due to water shortage in the sea water pool).</p> <p>- Important plant parameters (time of measurement always 16-03-2011, 12:40 h): Reactor pressure: 0.059 MPa (measuring location A), 0.065 MPa (measuring location B)</p>

		<p>Water level in the reactor: 1900 mm (measuring location A) and 2300 mm (measuring location B), respectively, below upper core edge</p> <p>Containment pressure: 230 kPa</p> <p>Pressure suppression pool water temperature: unknown</p> <p>Pressure suppression pool pressure: below measuring range</p> <p>- Information on fuel pool:</p> <p>Evaporation of water in the fuel pool</p> <p>Low water level on 17-03-2011, 9:00 h (source: JAIF)</p> <p>Internationally available information on estimates and figures relating to the number of fuel assemblies vary between 1+1/3 cores and 514 fuel assemblies (1 core consists of 548 fuel assemblies (source: TEPCO))</p>
Fukushima I (Daiichi 4) shut down before earthquake	784 MWe, 2381 MW _{therm}	<p>Unit was shut down before the earthquake, according to information by ENSI on 30-11-2010. Core had been fully unloaded from the reactor. Hydrogen explosion in the reactor building (fuel pool). Damage to the reactor building (15-03-2011 at 6:40 h) First fire in reactor building on 15-03-2011 at 9:38 h, ending at 11:00 h. Second fire on 15-03-2011 at 5:45 h, no longer visible from the plant premises at 6:15. According to press reports, the pool could not yet be refilled again. Attempts to do so by means of helicopter and fire engines.</p> <p>Roof of reactor building damaged.</p> <p>- Information on fuel pool:</p> <p>Fuel pool temperature on 16-03-2011 at 14:00 h: no information</p> <p>Low water level on 17-03-2011, 9:00 h (source: JAIF)</p> <p>Core damage in fuel pool assumed</p> <p>Internationally available information on estimates and figures relating to the number of fuel assemblies vary between 2+1/3 cores and 514 fuel assemblies (1 core consists of 548 fuel assemblies (source: TEPCO))</p>
Fukushima I (Daiichi 5)	784 MWe, 2381 MW _{therm}	<p>Unit was shut down before the earthquake, according to information by ENSI on 03-01-2011. Core in the reactor.</p> <p>Water level in fuel pool sinking, pool temperature rising</p> <p>Pool temperature on 16-03-2011 at 14:00 h: 62.7 °C</p> <p>Information on fuel pool:</p> <p>Internationally available information on estimates and figures relating to the number of fuel assemblies vary between 2*1/3 cores (365 fuel assemblies) and 826 fuel assemblies (1 core consists of 548 fuel assemblies (source: TEPCO))</p>

Fukushima I (Daiichi 6)	1100 MWe, 3293 MW _{therm}	<p>Unit was shut down before the earthquake, according to information by ENSI on 12-08-2010. Core in the reactor. Water level in fuel pool sinking, pool temperature rising Pool temperature on 16-03-2011 at 14:00 h: 60 °C</p> <p>Information on fuel pool: Internationally available information on estimates and figures relating to the number of fuel assemblies vary between 2*1/ 3 cores (498 fuel assemblies) and 876 fuel assemblies (1 core consists of 746 fuel assemblies (source: TEPCO))</p>
Fukushima II (Daini 1)	1100 MWe, 3293 MW _{therm}	<p>No containment venting. External electricity supply, plant state subcritical cold since 14-03-2011. Reactor pressure: 0.1 MPa Reactor water temperature: 55.6 °C Water level in the reactor: 10.996 m above upper core edge Pressure suppression pool water temperature: 39 °C Pressure suppression pool pressure: 147 kPa (time of each measurement 16-03-2011 13:00 h)</p>
Fukushima II (Daini 2)	1100 MWe, 3293 MW _{therm}	<p>No containment venting. External electricity supply, plant state subcritical cold since 14-03-2011. Reactor pressure: 0.03 MPa Reactor water temperature: 52.3 °C Water level in the reactor: 11.396 m above upper core edge Pressure suppression pool water temperature: 34 °C Pressure suppression pool pressure: 137 kPa (time of each measurement 16-03-2011 13:00 h)</p>
Fukushima II (Daini 3)	1100 MWe, 3293 MW _{therm}	<p>No containment venting. External electricity supply, plant state subcritical cold since 12-03-2011. Reactor pressure: 0.04 MPa Reactor water temperature: 27.9 °C Water level in the reactor: 7.547 m above upper core edge Pressure suppression pool water temperature: 44 °C Pressure suppression pool pressure: 131 kPa (time of each measurement 16-03-2011 13:00 h)</p>

Fukushima II (Daini 4)	1100 MWe, 3293 MW _{therm}	No containment venting. External electricity supply, plant state subcritical cold since 15-03-2011. Reactor pressure: 0.08 MPa Reactor water temperature: 55.4 °C Water level in the reactor: 8.615 m above upper core edge Pressure suppression pool water temperature: 56 °C Pressure suppression pool pressure: 174 kPa (time of each measurement 16-03-2011 13:00 h)
Onagawa 1	524 MWe	According to information on the Japanese homepage of the operator of Onagawa, all 3 units are in shutdown and cold (below 100 °C) condition. The plant is currently being inspected.
Onagawa 2	825 MWe	
Onagawa 3	825 MWe	
Tokai 2	1100 MWe, 3293 MW _{therm}	Press: partial failure of diesel and pump, cooling ensured

MWe: electrical power, MW_{therm}: thermal power

GRS, kre, mil, sog 17-03-2011, 6:00 h