

*Information Report***Situation of the nuclear installations in Japan further to the major seism  
occurred March 11, 2011****March 24 2011 - Situation at 08h00****Fukushima I (Daiichi)**

Since the previous information dated March 23, 2011 at 6h00 on the situation of the Fukushima Daiichi nuclear power plant, the information forwarded to the technical emergency centre of IRSN makes it possible to establish the following state of the installations.

Reactors n°1, 2 and 3 remain in a particularly critical state because of the long lasting absence of Heat Sink.

The effect of salt crystallization due to the injections with sea water could impact the core cooling capability on the short term.

**Electrical power supply**

Today power supply is available on all units.

The electrical power supply of the control rooms of reactors 1 and 3 as well as a part of their Instrumentation and Control has been recovered.

Whether the equipment is in an operational condition or not is still being checked. Priority is given to the start up of the reactor cooling systems.

**State of the buildings**

The attached picture summarizes the state of the buildings on site.

**State of the spent fuel pools**

Because of the failure of the spent fuel pool cooling systems the pools need constant water supply.

**Spent fuel pool of reactor n° 1**

The residual heat to be removed is very low and does not need further water supply.

When necessary, extra water supply could come from the spent fuel pool cooling system. For the first time, a plume of white smoke was released from the spent fuel pool area of reactor n°1.

**Spent fuel pool of reactor n° 2**

No extra water injection was carried out on March 23. The spent fuel pool temperature was around 50°C on March 23.

**Spent fuel pool of reactor n° 3**

The water supply of this pool is periodically carried out by the spent fuel pool cooling systems.

## Spent fuel pool of reactor n° 4

The water supply of this pool has been efficiently carried out with the help of a tool carrier arm.

## Spent fuel pool of reactor n° 5

The heat sink pump in support of the spent fuel pool cooling system has automatically tripped. Repair actions are planned in order to recover the cooling capability.

## Spent fuel pool of reactor n° 6

The spent fuel pool temperature and water level are under control. The cooling systems are still working.

## The on site common spent fuel pool

This spent fuel pool would contain approximately 6500 fuel assemblies. Although the power released by each fuel assembly separately is definitely lower than those of the fuel assemblies present in the spent fuel pools of each reactor, they must nevertheless also be cooled. TEPCO has carried out a water injection into the pool as a preventive measure. Today this installation has still no electrical power supply.

## Reactor state

The IRSN remains worried by the salt crystallization risk due to the injections with sea water in the reactor vessels (corrosion, impact on the core cooling, risks of blocking the relieve valves, crystallisation risks in the heat exchangers of the normal cooling systems after start up).

Generally speaking clear water reserves have to be re-established on site.

### Reactor n° 1

The sea water flow rate injected in the vessel has been adjusted (10 m<sup>3</sup>/h) to control the temperature of above the core. The current flow should be sufficient to remove the residual heat. However the containment pressure was increasing therefore the injection flowrate has been reduced. If the containment pressure will continue to increase a new depressurization action will be necessary.

### Reactor n° 2

Sea water injection in the vessel is maintained in order to ensure the core cooling, the core remains however partially uncovered (1,2 m). The containment is most probably damaged. Today the situation seems stable operations to depressurize the containment seem not necessary any more.

### Reactor n° 3

Sea water injection in the vessel is maintained in order to ensure the core cooling, the core remains however partially uncovered (around 2 m). The steam produced in the vessel is removed directly into the containment which seems to have lost its leaktightness according to the pressure measurements the loss of leaktightness is at the origin of constant and not filtered releases of radio activity. A slight rise in temperature of the water in the vessel has been observed

Furthermore, a significant smoke release from reactor n°3 has been observed. IRSN is currently assessing the potential causes of the containment failure of reactor n°3. One of the assumptions considered is a possible vessel rupture followed by a corium-concrete interaction at the bottom of the containment.

## Reactor n° 4

The core of this reactor has no fuel.

## Reactor n° 5 and 6

The heat sink pump in support of the spent fuel pool cooling system of reactor n°5 has automatically tripped. Repair actions are planned in order to recover the cooling capability.

However reactor n°5 and n°6 are sufficiently cooled (core and spent fuel pool).

## Fukushima II (Daini)

### Reactors n° 1, 2, 3, 4

On this site the reactors n° 1, 2, 3 and 4 have reached a safe cold shutdown state. No fuel degradation occurred on these reactors.

## Onagawa and Tokai

There is nothing in particular to announce.

## STATE OF THE BUILDINGS

