

# 3rd International Symposium on Innovation Strategy (ISIS-2012)



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## Essential Cause of the Fukushima Nuclear Plant Accident

**9:45 - 10:25** Eiichi YAMAGUCHI (Doshisha University)

“The actual reason why this accident could not have been avoided”



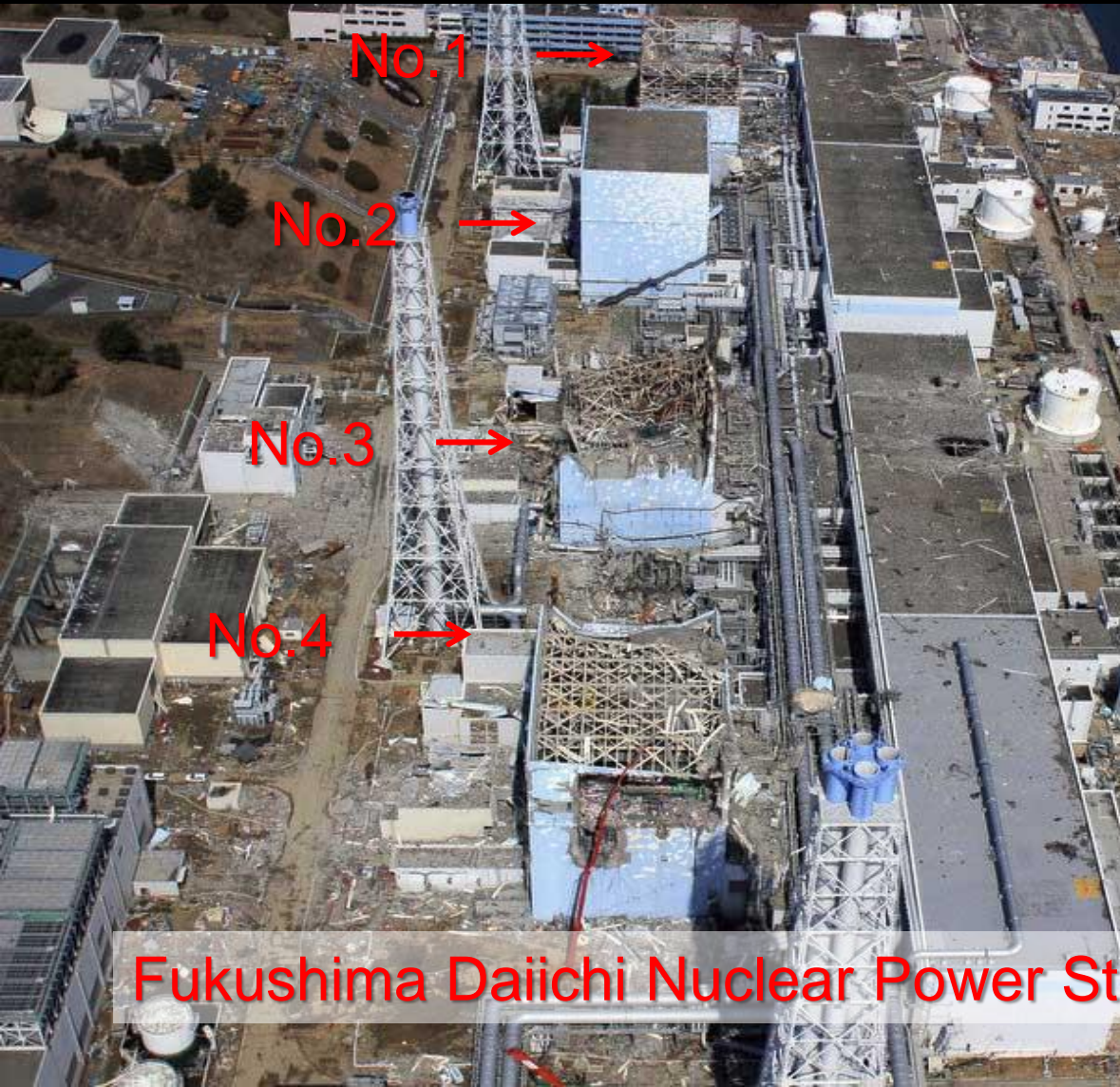
**10:25 - 11:05** Taku HIRANO and Shuzo FUJIMURA (Tokyo Inst. Technology), “The engineering ethics as the key to bind the business and scientific knowledge - Case of two nuclear power plants: Fukushima and Onagawa” (invited)

**11:05 - 11:20** Coffee Break (Photo will be taken outside)

**11:20 - 12:00** Sabine ROESER (Delft University of Technology), “Fukushima, risk and moral emotions” (invited)



# The actual reason why this accident could not have been avoided



Eiichi YAMAGUCHI  
Doshisha University

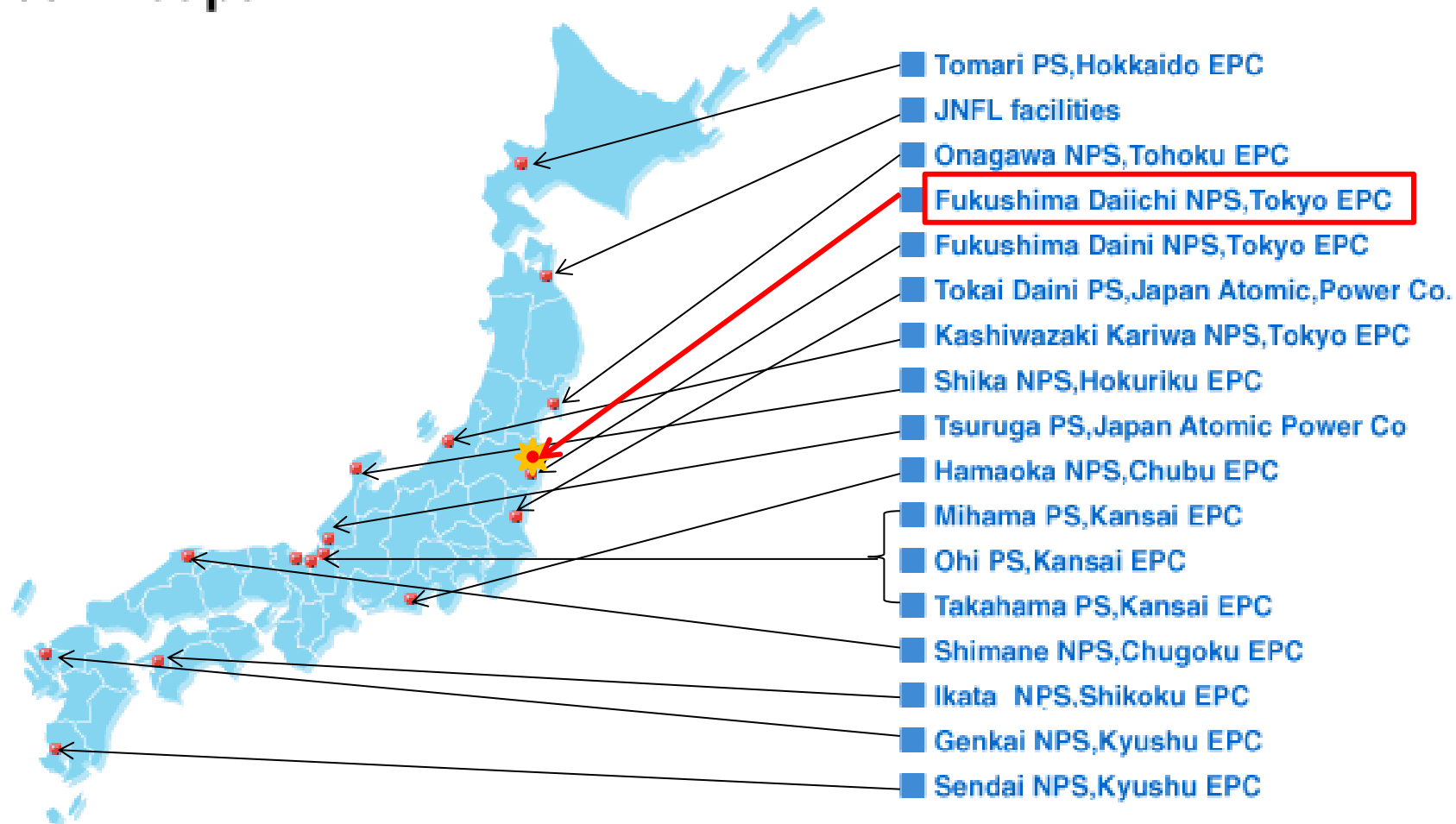
Chairperson of  
Fukushima Project

Fukushima Daiichi Nuclear Power Station



# Where the nuclear accident occurred

## Commercial Nuclear Power Facilities in Japan



[Note] EPC: Electric Power Company JNFL: Japan Nuclear Fuel Limited (N)PS: (Nuclear) Power Station



# Where the nuclear accident occurred



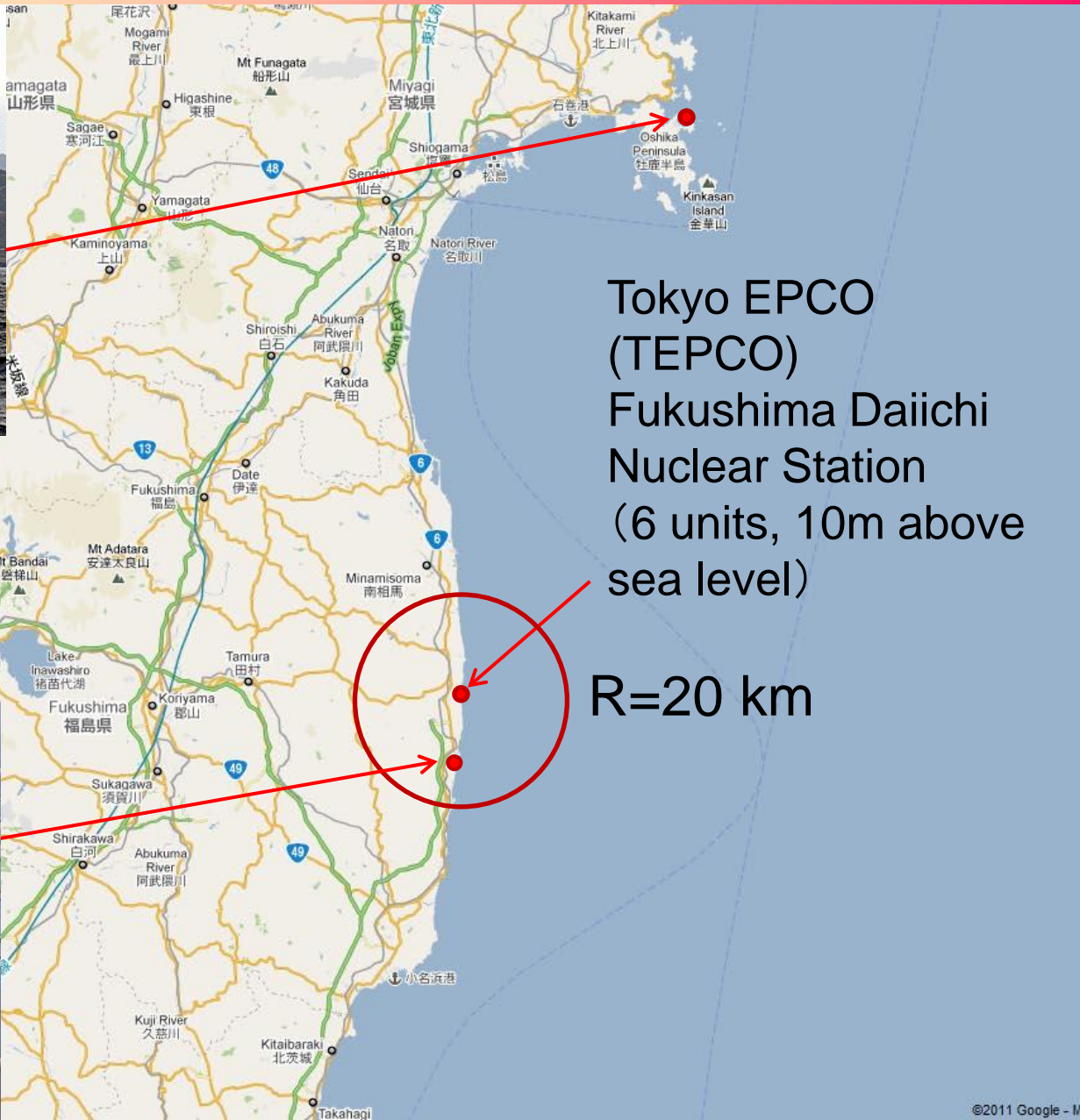
# Where the nuclear accident occurred



Tohoku EPCO Onagawa Nuclear Station (3 units, 15m above sea level)



Tokyo EPCO (TEPCO) Fukushima Daiichi Nuclear Station (6 units, 10m above sea level)



Tokyo EPCO  
(TEPCO)  
Fukushima Daiichi  
Nuclear Station  
(6 units, 10m above  
sea level)

R=20 km



# How the nuclear accident began



Earthquake at 14.46 March 11, 2011



# How the nuclear accident began



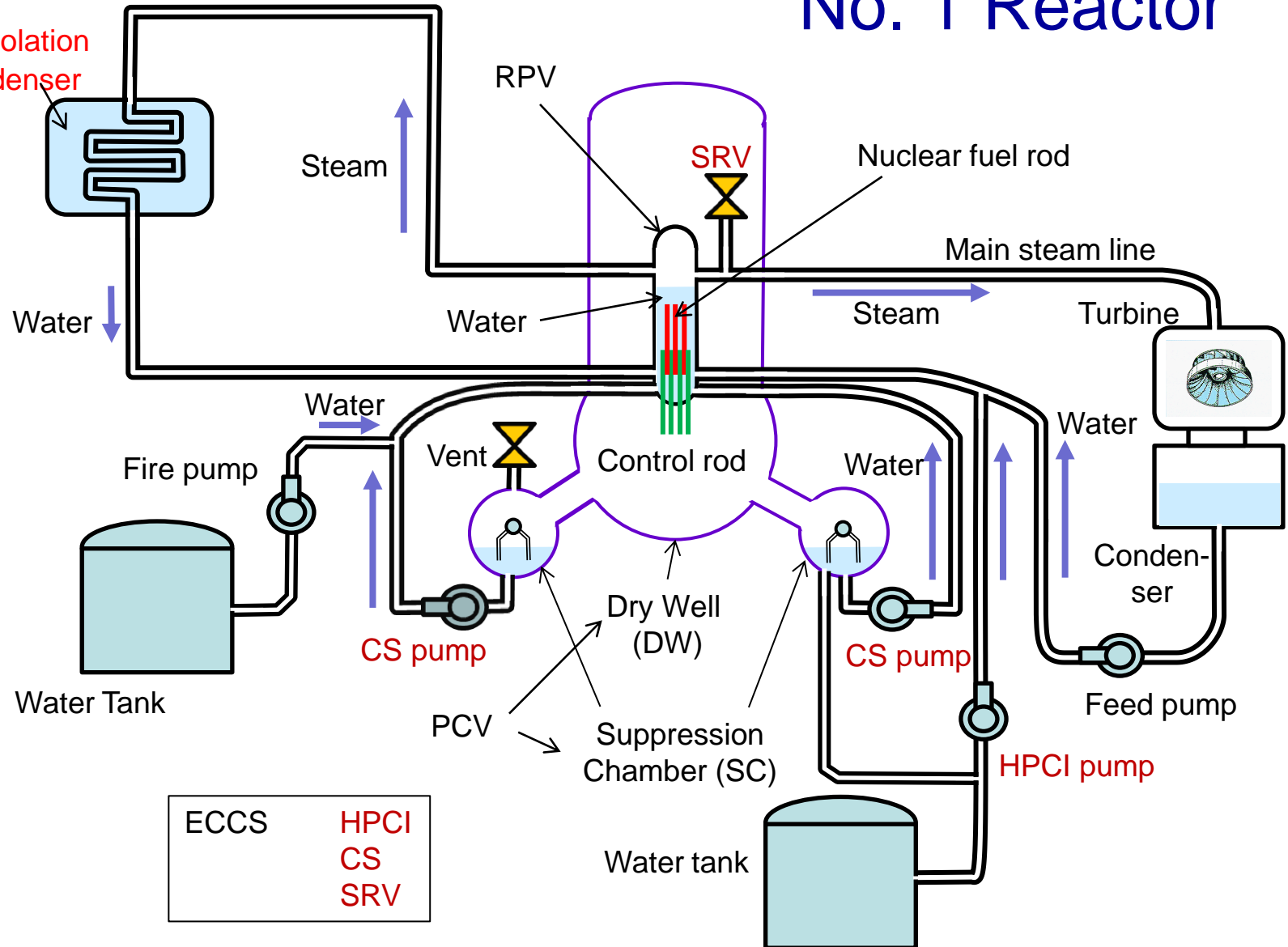
14m Tsunami at 15.42 March 11, 2011



# Existence of the “Last Fortification”

The last fortification

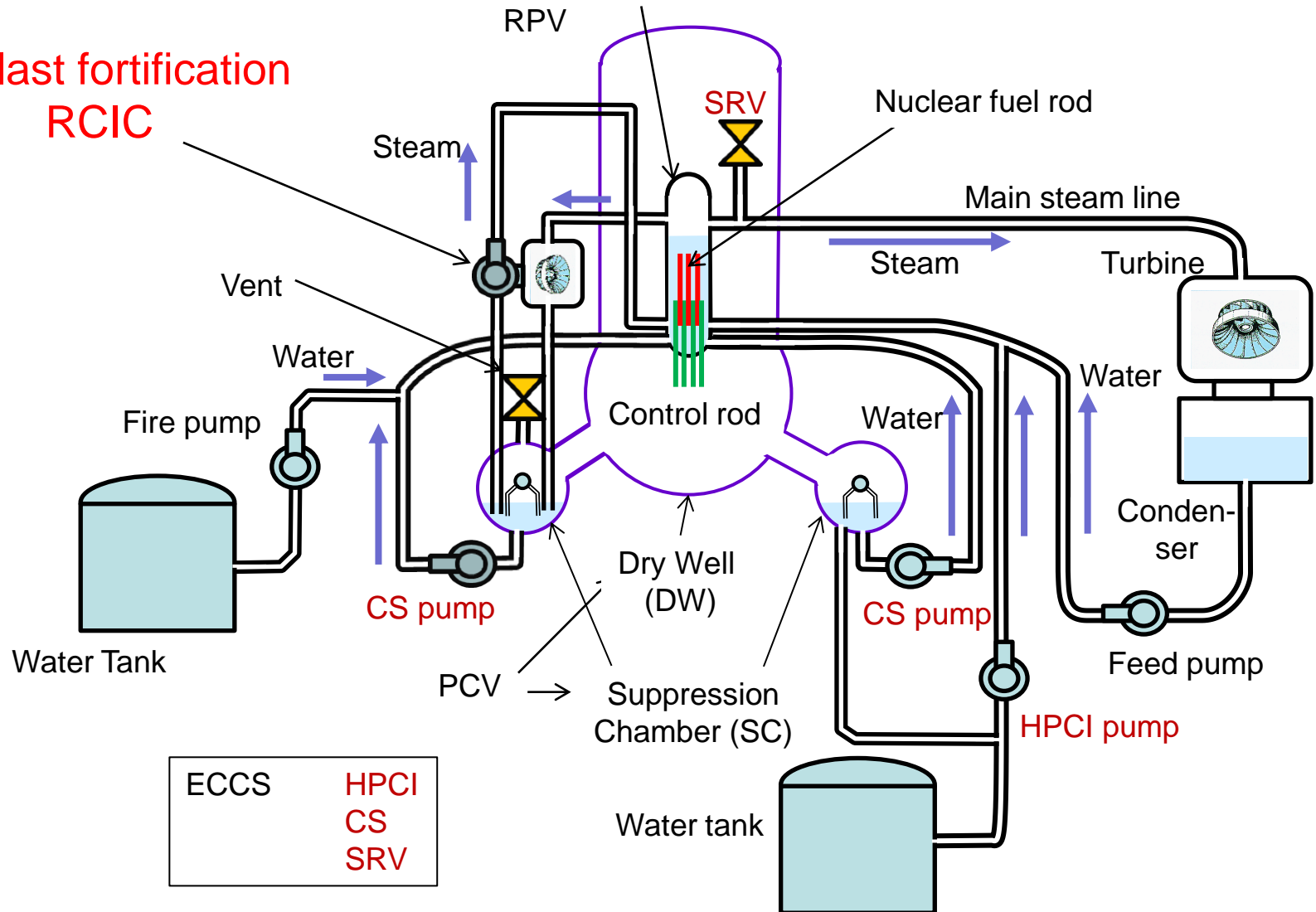
No. 1 Reactor



# Existence of the “Last Fortification”

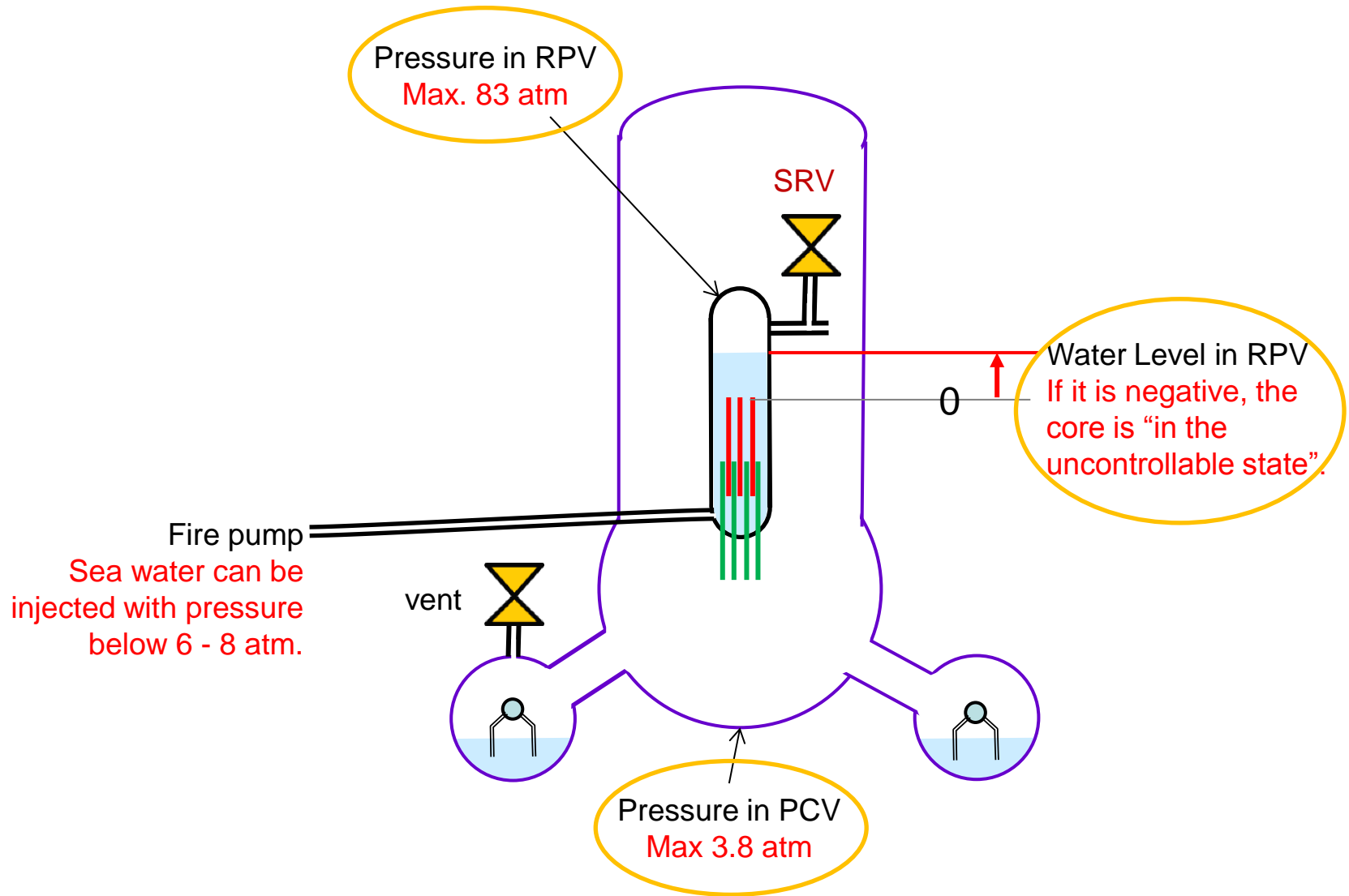
## No. 2&3 Reactors

The last fortification  
RCIC

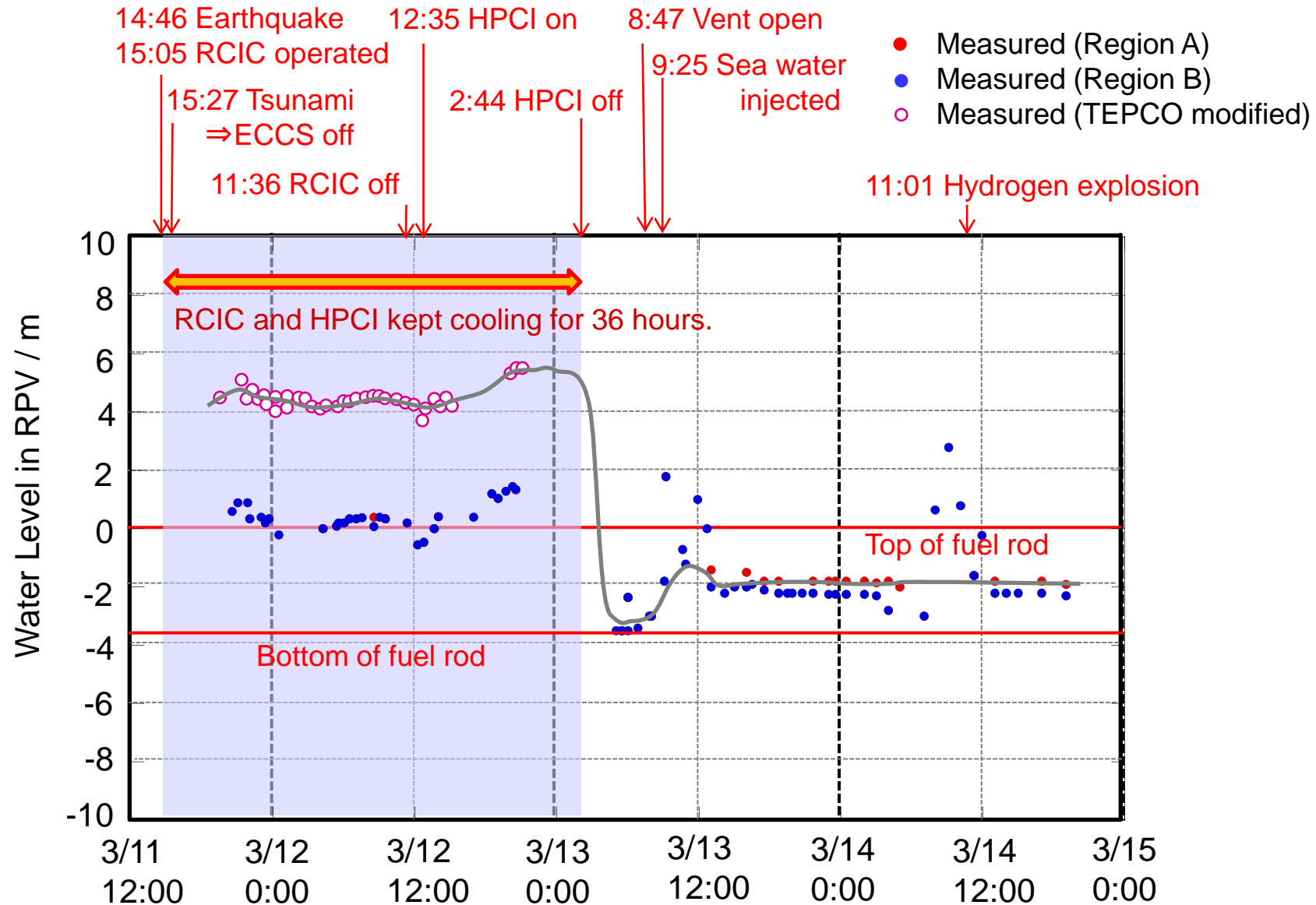




# Please remember three Physical Quantities

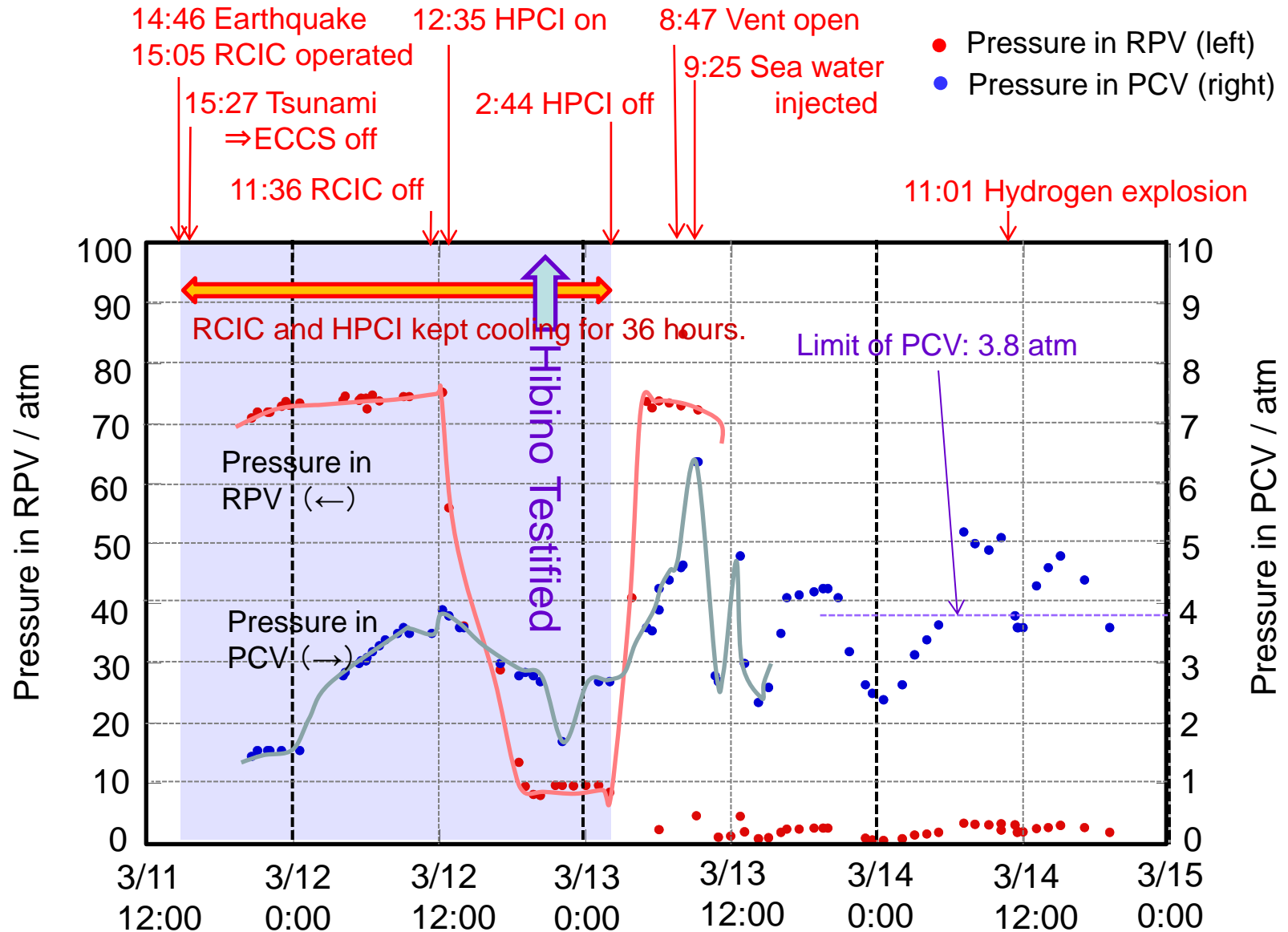


# No. 3 Reactor: Water Level

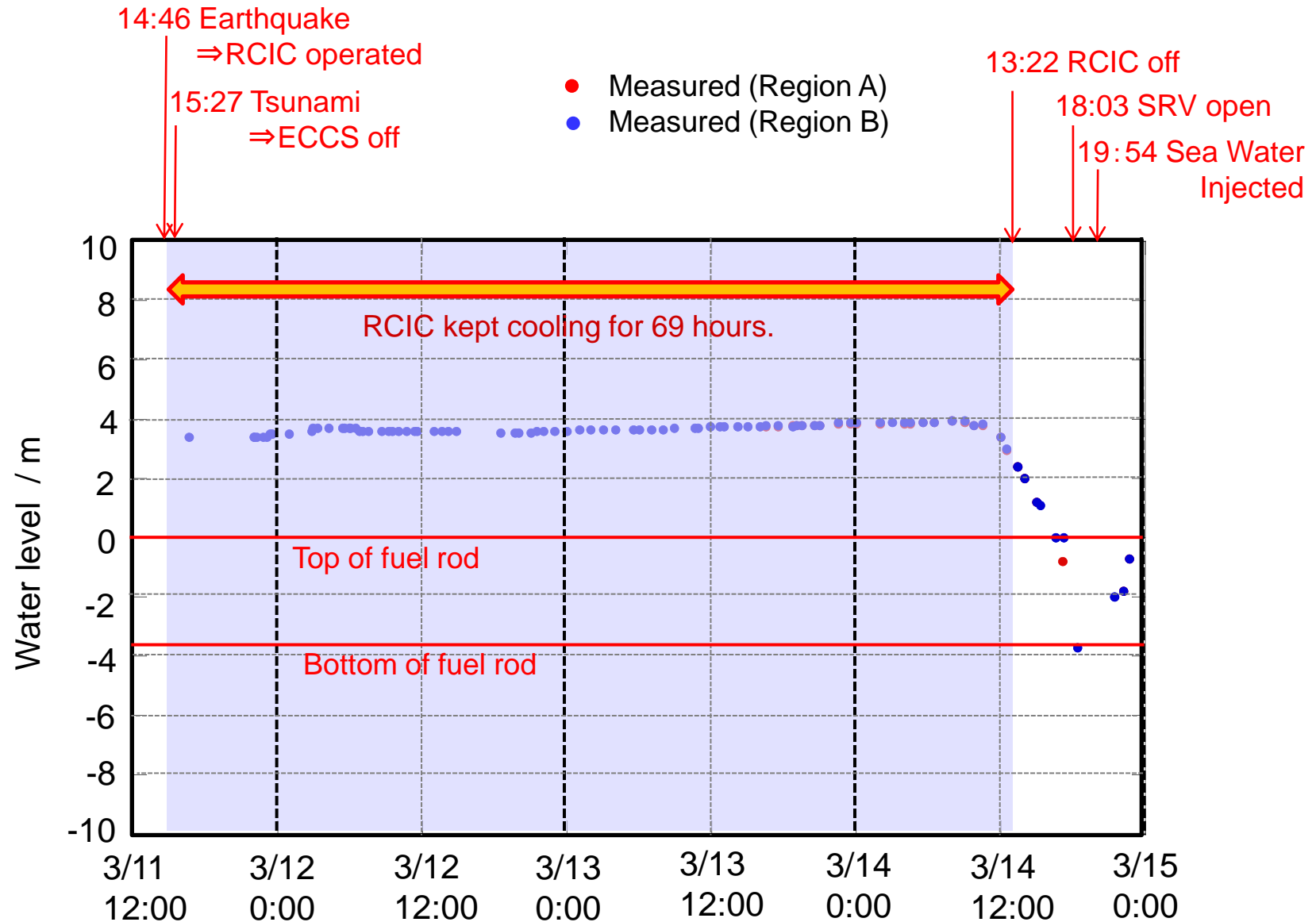




# No. 3 Reactor: Pressures

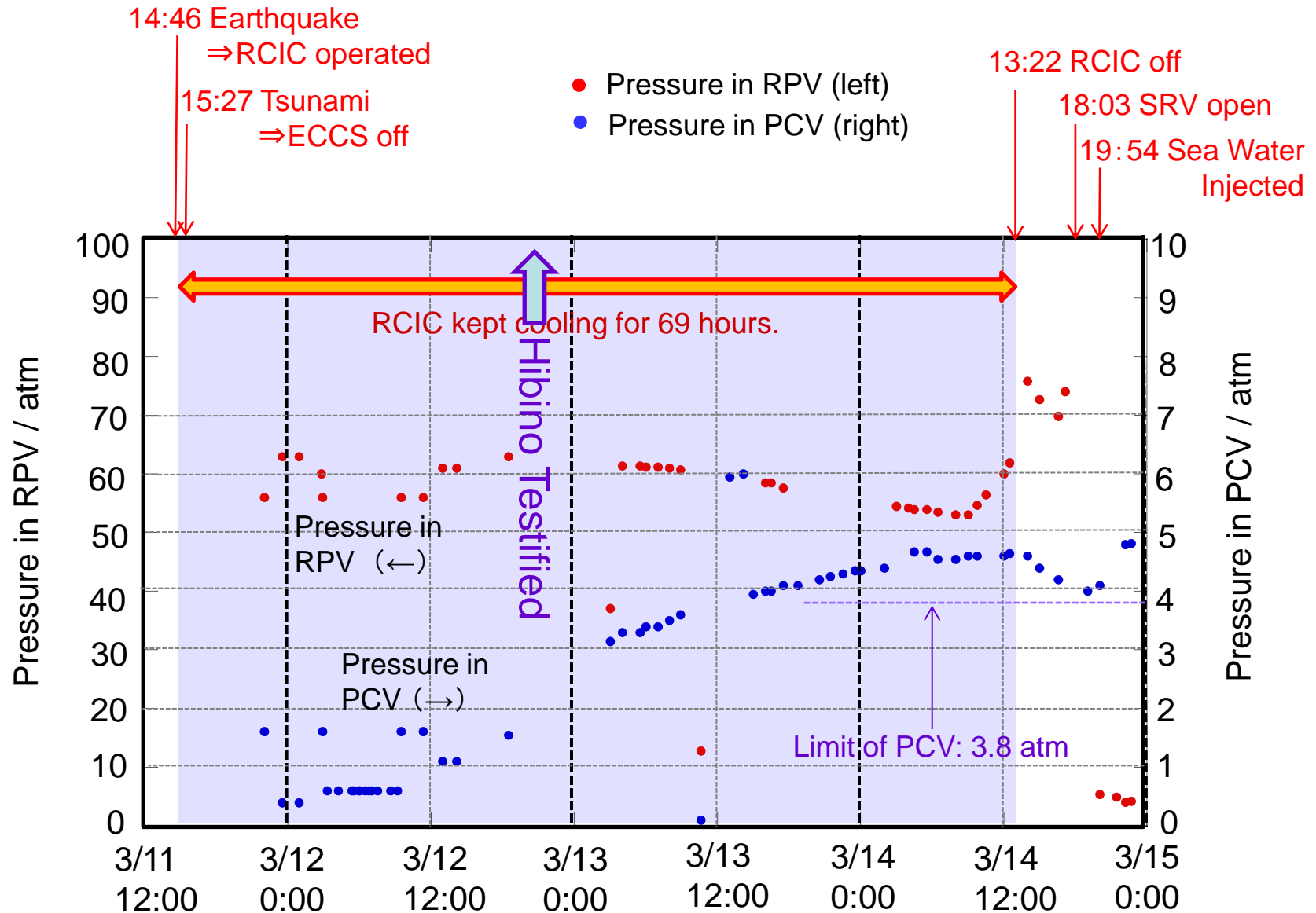


# No. 2 Reactor: Water Level





# No. 2 Reactor: Pressures



# Dr. Hibino's Testimony

*When I arrived at the Prime Minister's Official Residence (Kantei) at 21:00 on March 12, Prime Minister Kan had started to get the feeling that the same thing might possibly happen to reactors No.2 and No.3 as No.1. And, Kan has frequently instructed that TEPCO should forestall the situation. However, TEPCO stalled the vents and sea water injection with the reason that the RCIC was still working.*

*So, on the grounds that there was still working cooling system in place, they chose to delay opening the vent and inject sea water into the reactor vessels.*

*Prime Minister Kan asserted that even if we were to say that the RCIC had indeed been functioning as intended, (as there was no heat coming out of the containment area), we can infer that the heat and pressure more than likely continued to gradually build up as it had nowhere to escape. Which is exactly why they should have quickly opened up the vents and inject sea water into the reactors immediately to cool down the out of control reactors. However, Representative of TEPCO refused.*

# In conclusion, we proved:

1. The final cooling system, RCIC and HPCI of No.3 and RCIC of No.2 Nuclear Reactor were correctly operated even without AC power even though Tsunami had destroyed the emergency power system.
2. Therefore, the No.3 and No.2 nuclear reactors were in controllable states, while the final cooling system were operated (35 hours for No.3, and 70 hours for No.2). If TEPCO opened the vent and injected the sea water during the controllable dimension, the reactors would never be out of control. Then, the radiation pollution produced by No. 3 could be avoided.
3. However, in reality, the management of TEPCO kept refusing the sea water injection, although TEPCO could inject the sea water during the controllable dimension.
4. The reason why the management refused it is that they cannot understand the “Physics Limit” of nuclear reactor.
5. The occurrence of the uncontrollable situation was 100% predictable while the final cooling system was operated. Thus, the root cause of this accident is NOT the technology BUT the technology management. The criminal liability of the TEPCO management cannot be escaped.



# In the last January, we published

## FUKUSHIMA Report – Root Cause of the Nuclear Plant Accident !

The assertion is completely different from

- 1) ICANPS (Investigation Committee on the Accident at the Fukushima Nuclear Power Stations: Chair=Dr. Yotaro Hatamura),
- 2) IICFNA (The Independent Investigation Commission on the Fukushima Nuclear Accident: Chair=Dr. Koichi Kitazawa), and
- 3) NAIIC (The National Diet of Japan Fukushima Nuclear Accident Independent Investigation Commission: Chair=Dr. Kiyoshi Kurokawa).

Here, to publish the analysis report without any ideological bias, FUKUSHIMA Project experimentally raised funds from any citizens for publication. More than 3 million yen have been donated for eight months, so that the Project was able to publish the report, by unit price of 900 JPYen (7 GBPound).

We have also accomplished English translation, and is looking for a suitable publisher of the English version.