The Fukushima Daiichi Nuclear Power Station Accident

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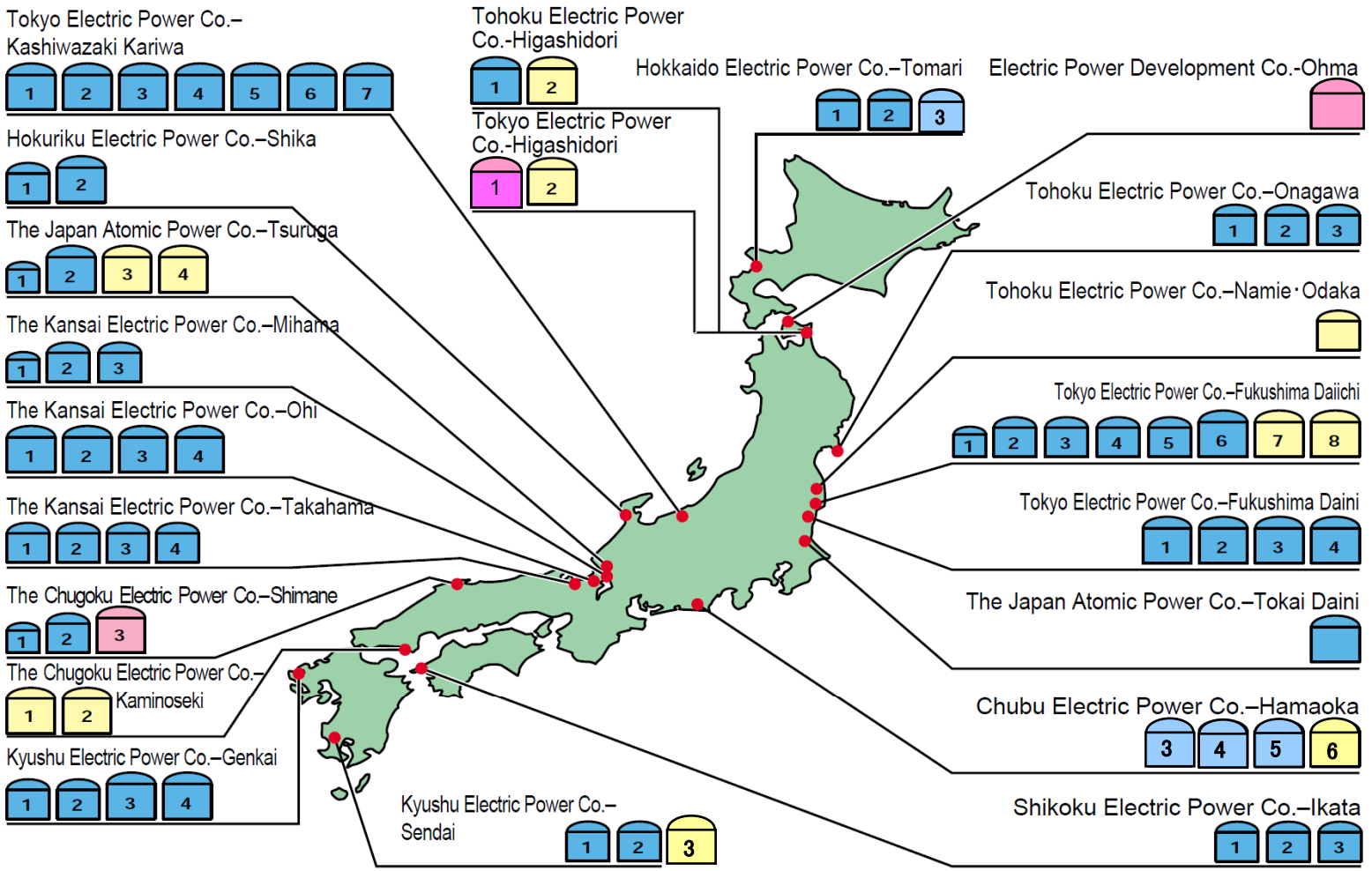
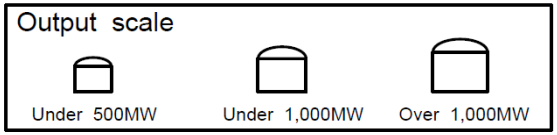
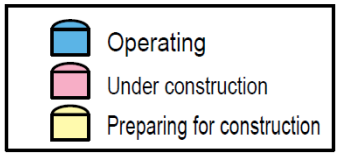
Cooperation with JEPIC (Japan an Electric Power Information Center)

Nuclear Power Plants in Japan



Cessation of Operation : The Japan Atomic Power Co. – Tokai (1998)
Chubu EP Co. – Hamaoka-1,2 (2009)





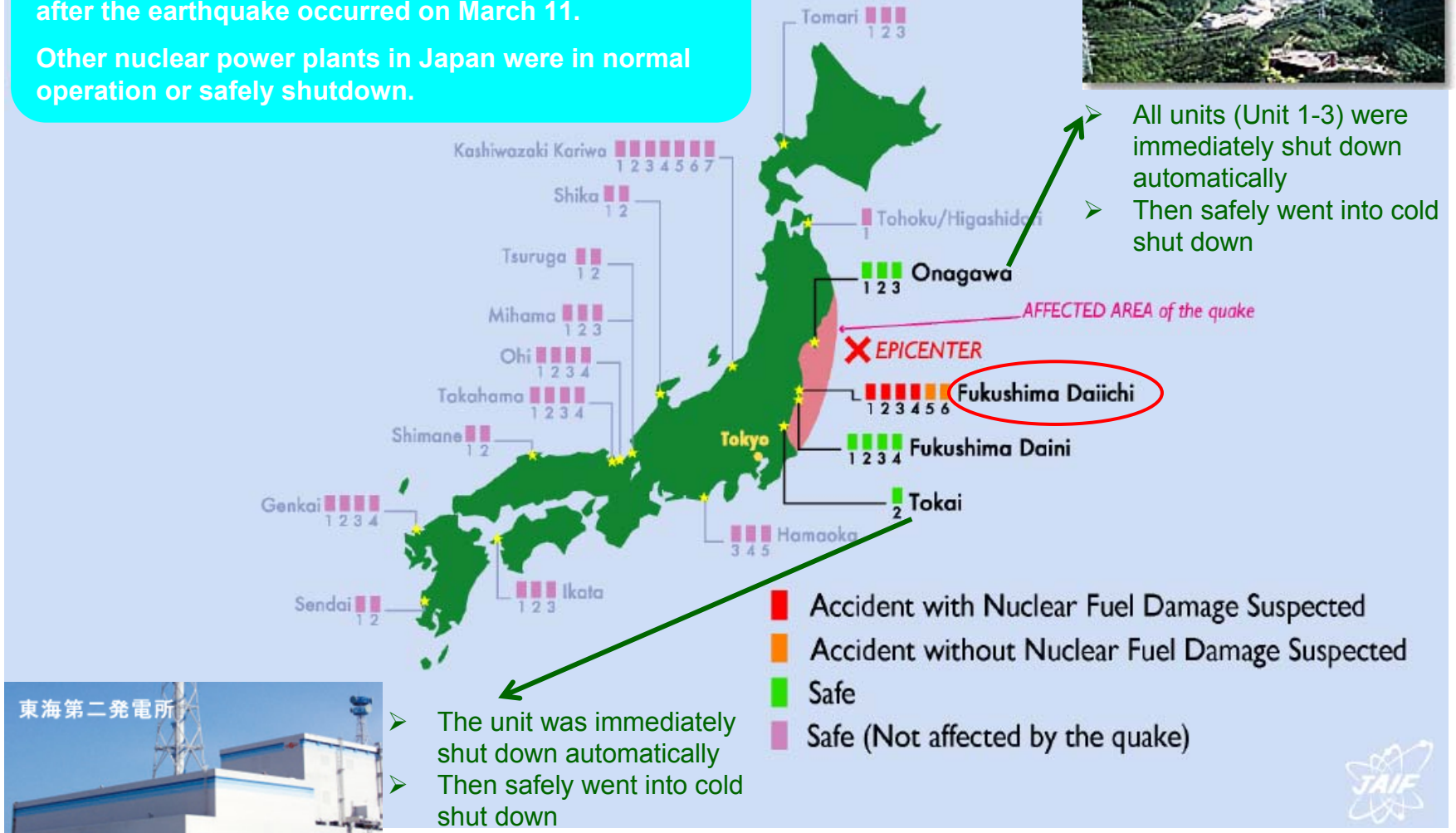
	Number of units	Total power (MW)
In operation	54	48, 847
Under construction	3	4, 141
Preparation for construction	11	15, 167
Total	68	68, 155

Status of Nuclear Power Plants after the Earthquake

The accident caused environmental damage at several units in the Fukushima Daiichi nuclear power Station after the earthquake occurred on March 11.

Other nuclear power plants in Japan were in normal operation or safely shutdown.

- All units (Unit 1-3) were immediately shut down automatically
- Then safely went into cold shut down



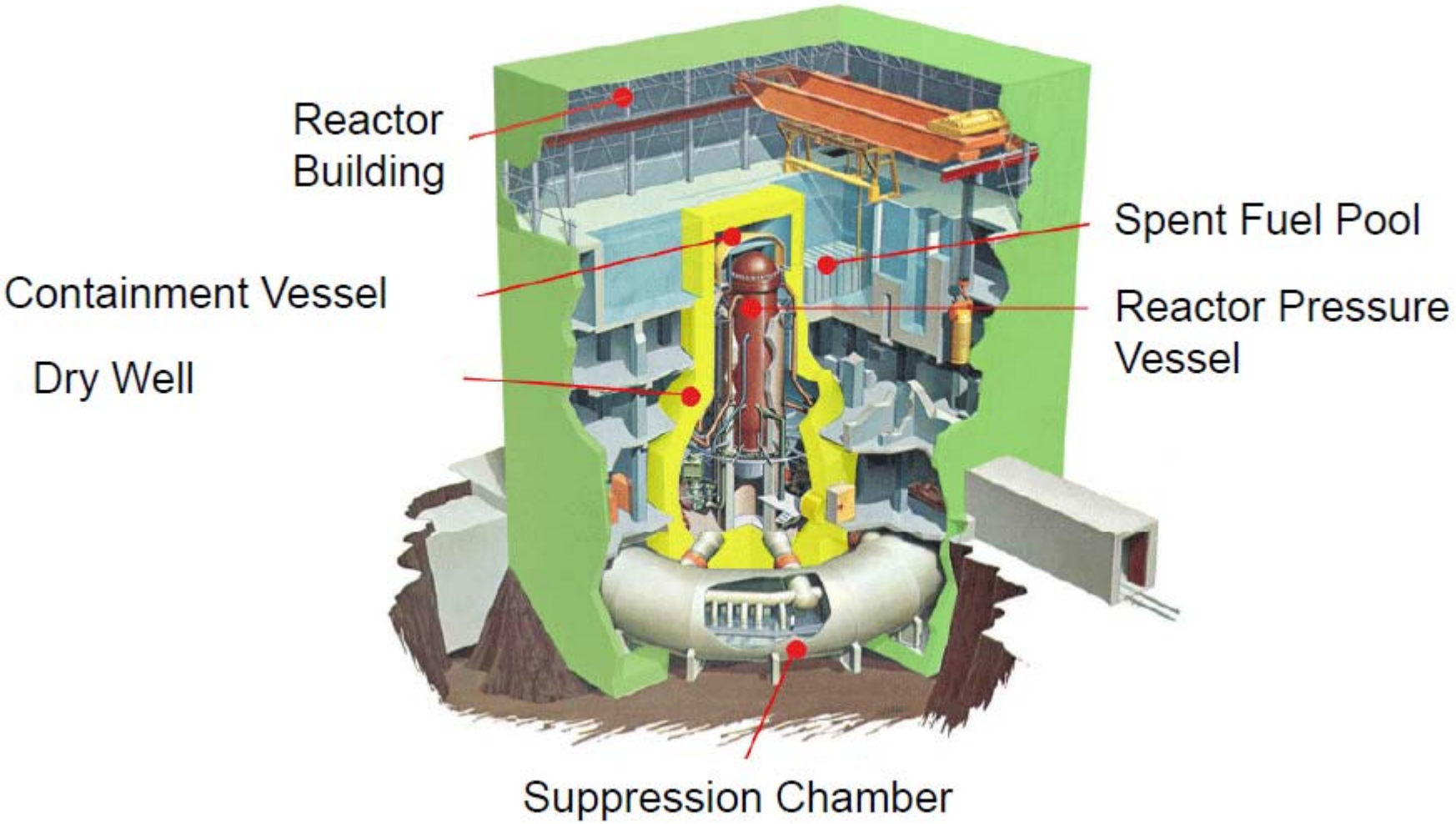
- The unit was immediately shut down automatically
- Then safely went into cold shut down

Source: Japan Atomic Industrial Forum, INC. (JAIF)

Before the earthquake

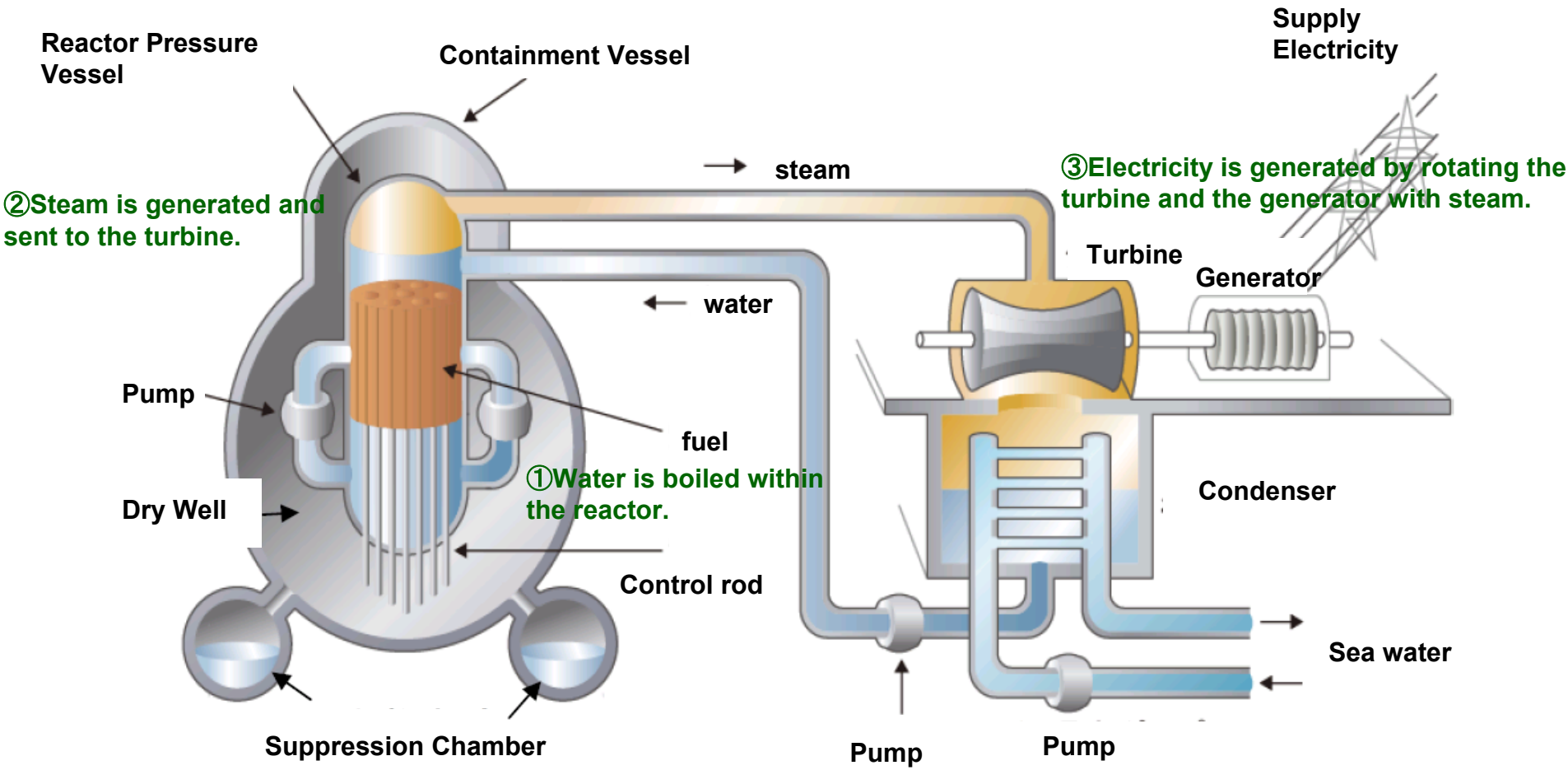
Overview of Boiling Water Reactor (BWR)

(Mark-I Type ;Fukushima Daiichi Unit 1,2,3,4 and 5)



Source: NISA (http://nei.cashfly.net/static/images/BWR_illstration.jpeg)

Mechanism of Boiling Water Reactor (BWR)



Accident Description: Fukushima Daiichi NPS

- Before the earthquake ,Unit 1,2 and 3 of the Fukushima Daiichi Power plant were operating .
- Unit 4,5 and 6 were under periodic inspection.

- After the earthquake , all control rods were inserted into the reactor as designed and Unit 1,2 and 3 automatically shutdown .

- Offsite power supply was lost because of the earthquake.

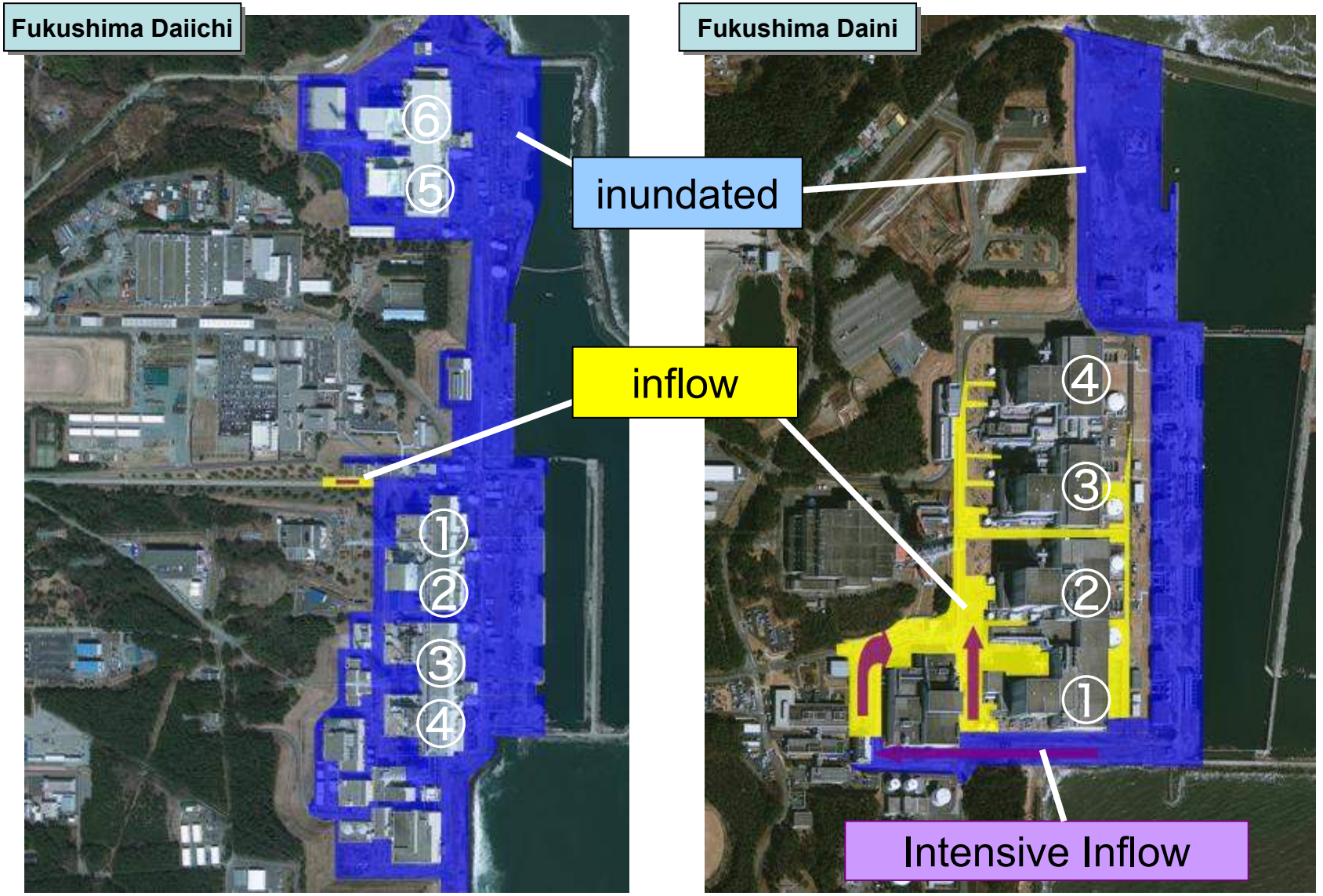
- The emergency diesel generators installed in each Unit started normally.

- Direct damage to the safety-related equipment due to the earthquake was not found.

- Seawater pumps, DGs, and power panels at all Units were flooded by the tsunami, then all AC power sources for Units 1 to 6,except for one air-cooled DG for Unit 6 lost their functionality.

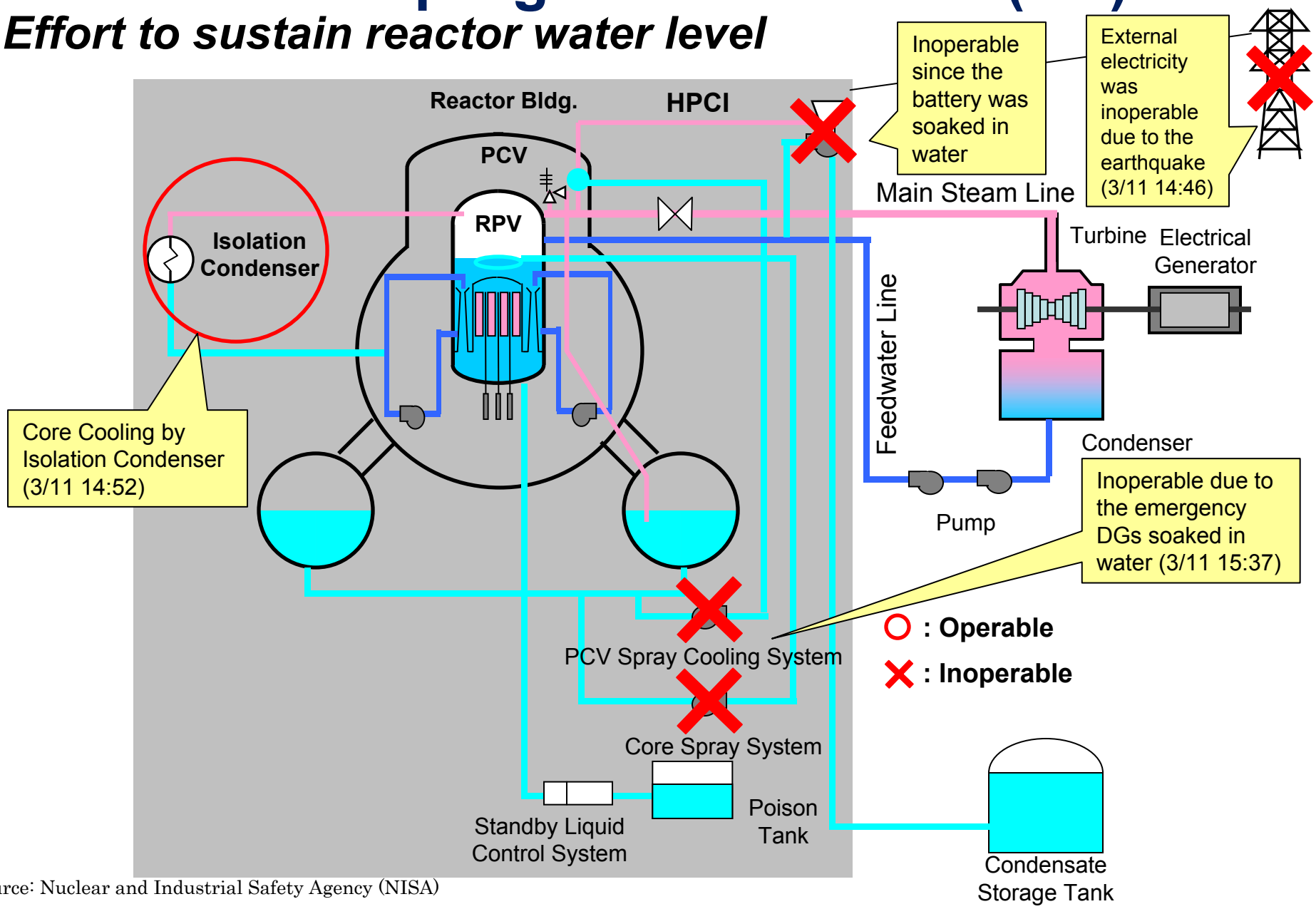
- All motor operated safety systems, water injection and cooling facilities at Units 1 to 5 became inoperable. This is the major cause of the Fukushima daiichi accident.

Inundated and Inflow Area at Fukushima Daiichi and Daini Site



Accident progression at Unit1(1/3)

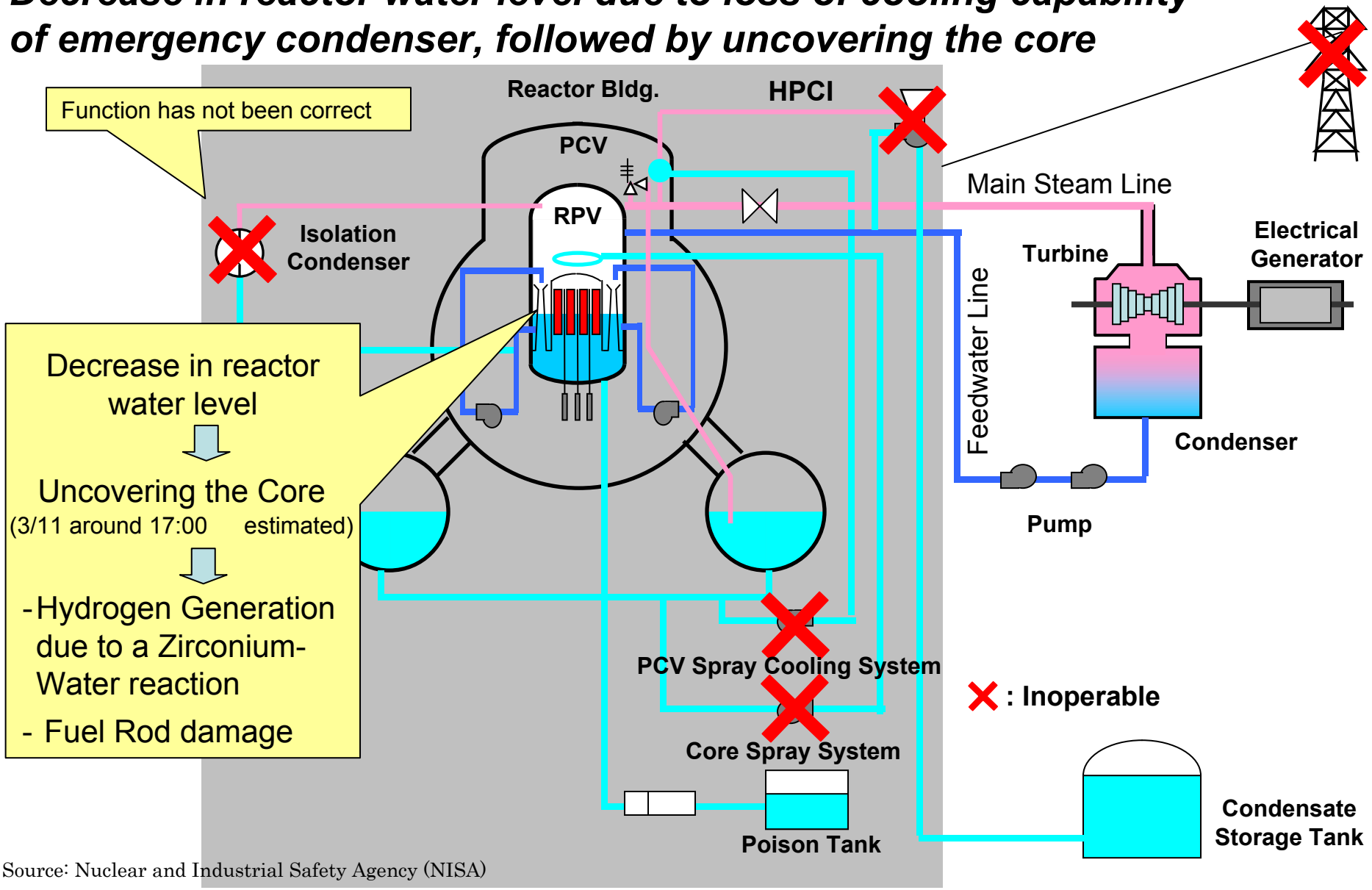
Effort to sustain reactor water level



Source: Nuclear and Industrial Safety Agency (NISA)

Accident progression at Unit1(2/3)

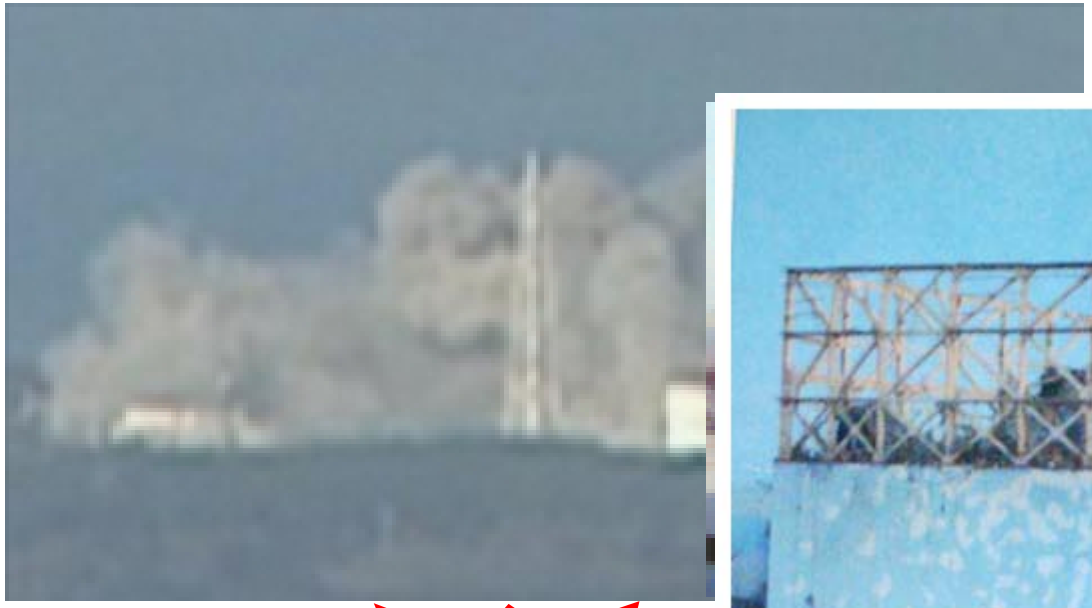
Decrease in reactor water level due to loss of cooling capability of emergency condenser, followed by uncovering the core

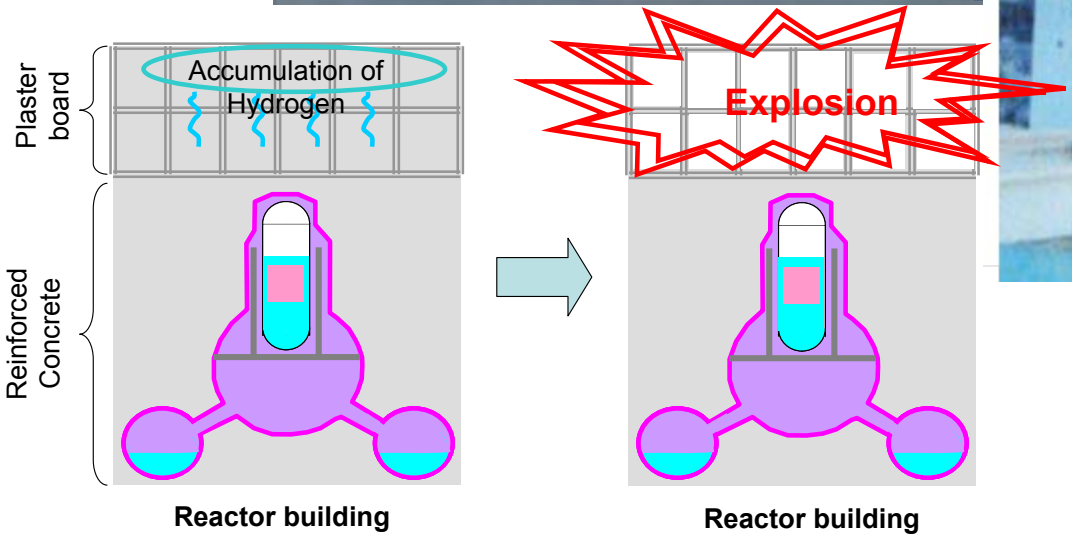


Source: Nuclear and Industrial Safety Agency (NISA)

Accident progression at Unit1(3/3)

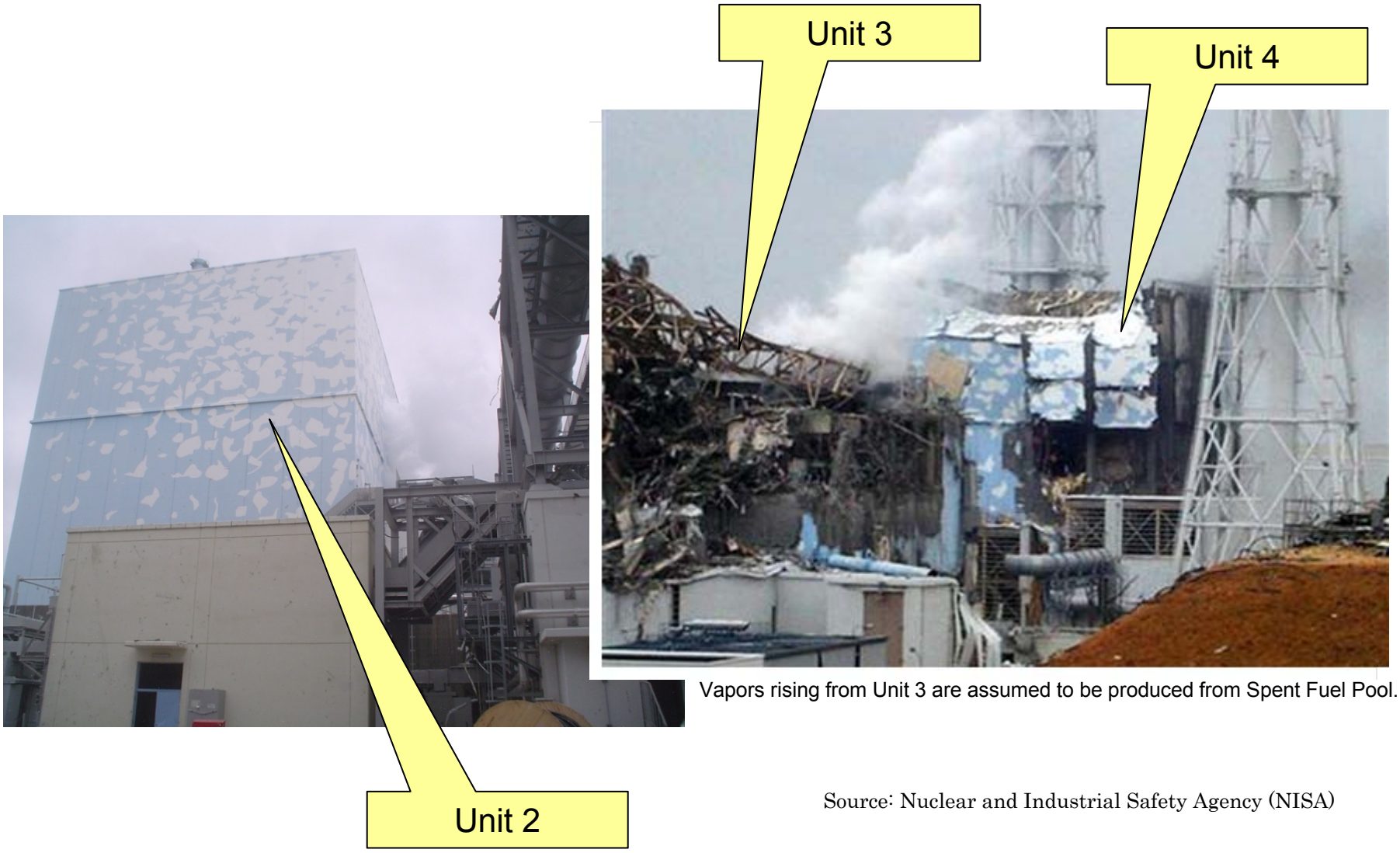
Hydrogen explosion in the operation floor





Source: Nuclear and Industrial Safety Agency (NISA)

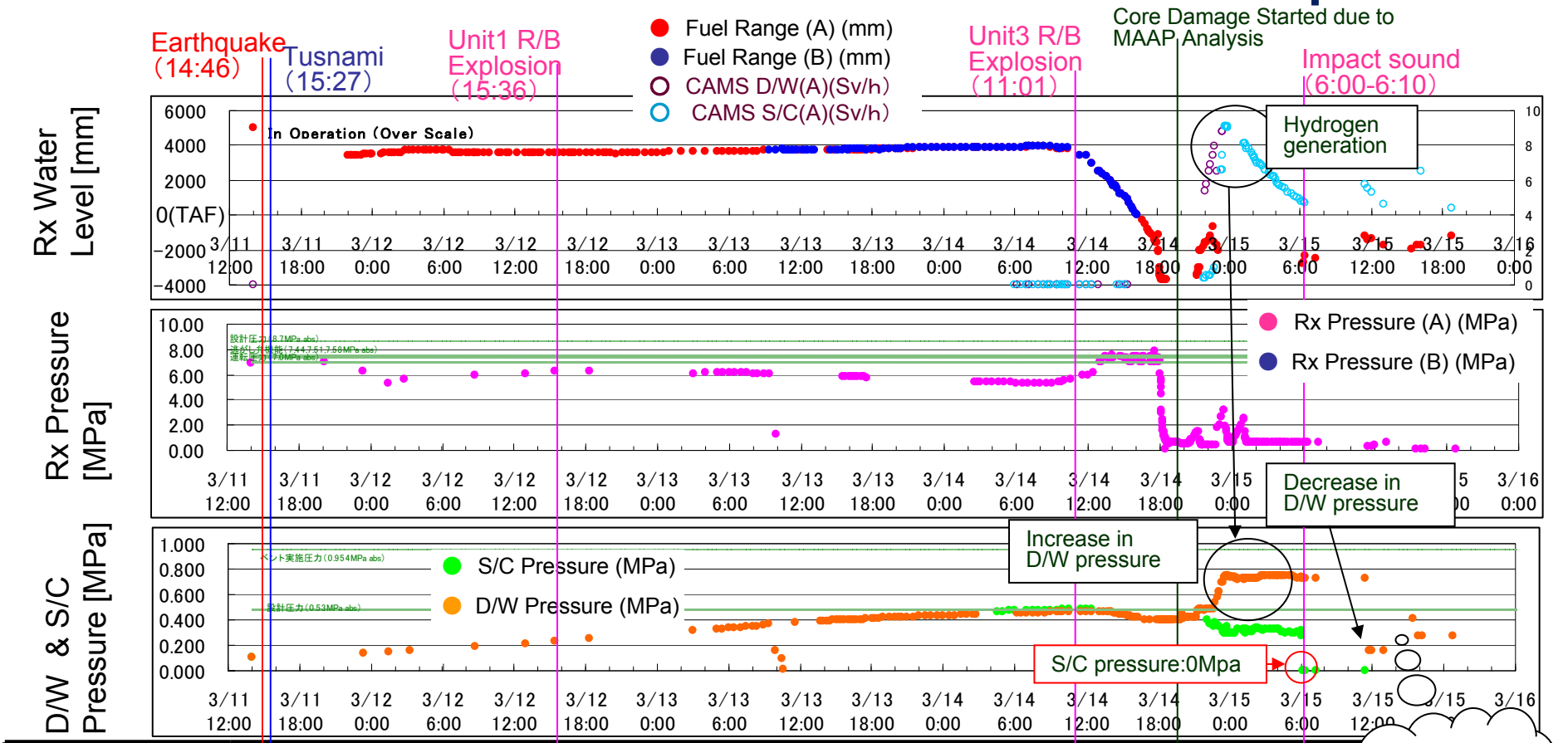
Accident Progression at Unit 2 through 4



Vapors rising from Unit 3 are assumed to be produced from Spent Fuel Pool.

Source: Nuclear and Industrial Safety Agency (NISA)

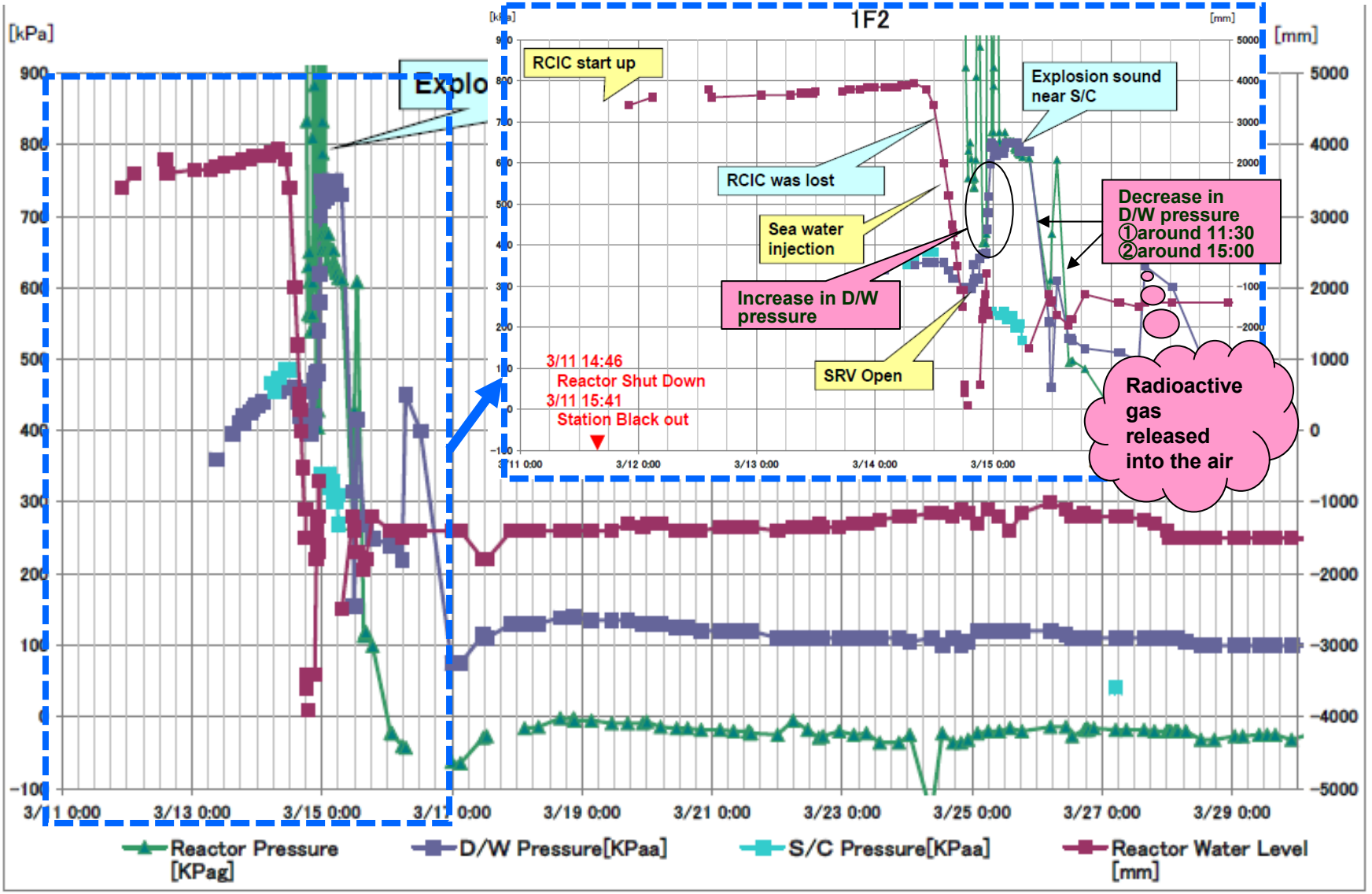
Fukushima Daiichi Unit 2 Plant Parameter and Operation



Source: The Tokyo Electric Power Company, Inc.

Plant Parameter: Fukushima Daiichi Unit 2

March 11 ～ March 30, 2011



Source: NISA and JNES