On the Implementation of Emergency Safety Measures at Other Power Plants drawn from the 2011 Accident at Fukushima Dai-ichi and Dai-ni Nuclear Power Stations
(Minister's Instructions, Released on March 30th)

Nuclear and Industrial Safety Agency
April 4th , 2011

Summary

- While continuing to do our utmost to take every possible measure to deal with the accident, NISA will launch an effort to understand every aspect of the accident, including the onset mechanism of the tsunami that struck the area, and to analyze and assess the situation so as to take drastic and fundamental corrective measures.
- NPPs other than Fukushima Dai-ichi and Fukushima Dai-ni will implement emergency safety measures to enable the recovery of cooling functions while preventing, to the extent possible, the release of radioactive materials. This activity will be based on the currently available scientific knowledge.
- Electric utility companies are to appropriately undertake these emergency safety measures which would then be verified through NISA inspections, thereby preventing the possible damage to reactor core due to tsunami-induced loss of all AC power supply and preventing the subsequent nuclear disaster.

Measures drawn from Fukushima Dai-ichi Nuclear Power Accident

Phase	Emergency Safety Measures	Drastic measures
	Short term	Medium-to-Long term
Expected completion	Approx. 1 month （around mid-April）	Decide as per debate at Accident Investigation Commission, etc.
Target（Required standard）	Depending on tsunami, prevent core damage and occurrence of spent-fuel damage even when 1) all alternate-current power sources, 2) seawater cooling function, and 3) spent-fuel pool cooling function are lost.	Prevent occurrence of disasters taking into account “anticipated tsunami height” to be set by referencing tsunami that caused recent disaster.
Examples of specific measures	Securing equipment: ・Deploy power-supply vehicles (to cool reactors and spent-fuel pools). ・Deploy fire engines (to supply coolant water). ・Deploy fire hoses (to secure water-feeding path from fresh-water tank, sea-water pit, etc.). Developing manual: ・Develop implementation procedures for emergency measures utilizing above-mentioned equipment. Training: ・Implementation of training on emergency measures based on implementation procedures manual.	Securing equipment ・Build seawalls. ・Deploy watertight doors. ・Devise other necessary equipment-related measures. *To be followed by implementation of equipment-related improvements as necessary (e.g.: secure spare air-cooled diesel generators, sea water pump motors). Develop manual Conduct training
Confirmation by NISA, etc.	・Approval of amendment of ministerial ordinance to ensure effectiveness of emergency safety measures as well as operational safety program that incorporates those measures. ・Rigorous vetting of implementation status of emergency safety measures by means of inspection, etc.	
Operators’ response	・Efforts under way to procure equipment. (Locations to set them up also being secured). ・Manual compiled anew drawing on recent accident. Training being implemented. ・Strive to improve emergency safety measures continuously, even after their confirmation, to ensure their reliability.	

Series of Events and Countermeasures in case of TSUNAMI, for BWR

⑤

Fuel Pool

②

①

Reactor Containment

Emergency
Diesel Power
Generator

External Power Supply

DC Power Supply
（Battery）

Reactor
Pressure Vessel

Alternative Water Injection

Reactor Core
Isolation
Cooling System

Emergency Reactor
Cooling System

Pressure Suppression Chamber
Cooling Pump

③

④

Ventilation
Stack

Sea Water Pump

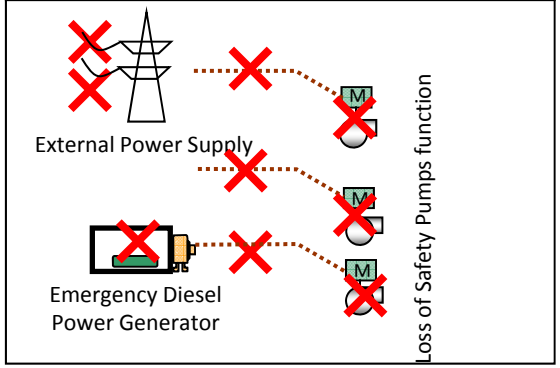
Pressure Suppression Chamber

Pressure Suppression Chamber

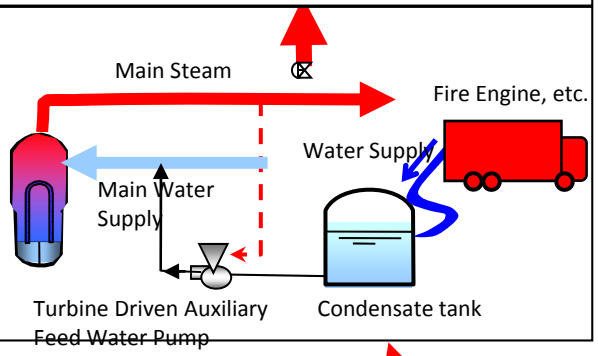
Series of Events and Countermeasures in case of TSUNAMI, for PWR

機密性2

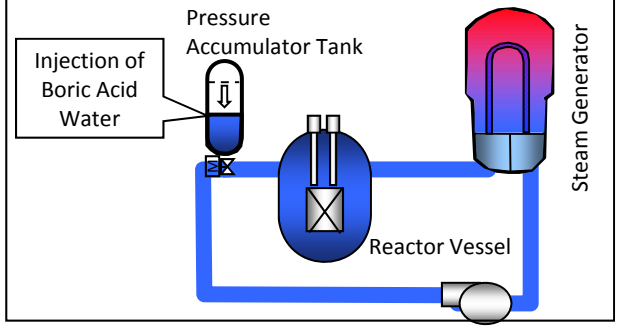
(1) Loss of External Power Supply

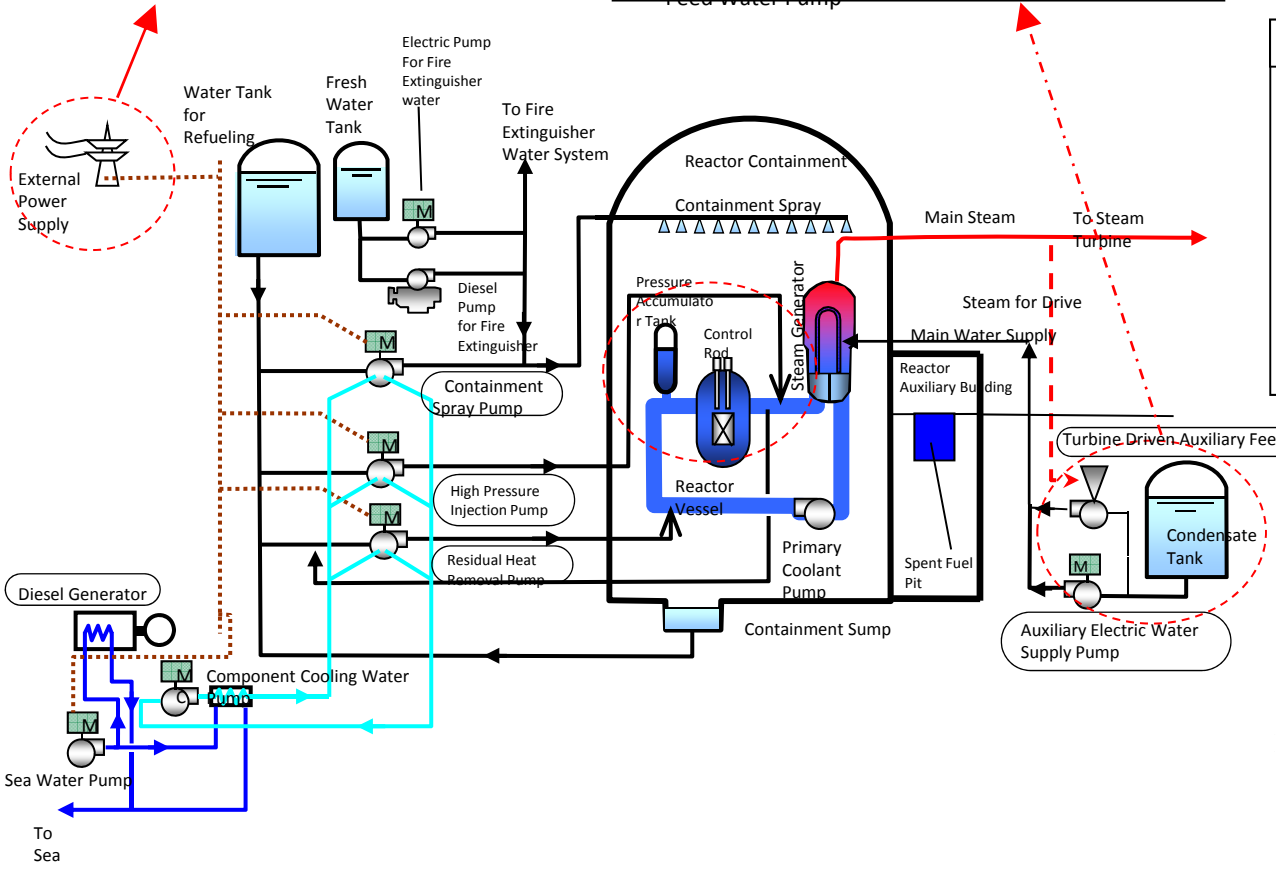


(2) & (5) Water supply / cooling of steam generator, supply water to condensate tank



(3) & (4) Injection of Boric Acid Water from Pressure Accumulator tank, shut-off of the valve





(6) Connection of Power Supply Car

(7) Water Injection to Spent Fuel Pit