

## Safety regulations of nuclear power plant for tsunami after the 2011 great Tohoku-oki earthquake

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Due to large tsunamis caused by the 2011 great Tohoku-oki earthquake, at First Fukushima Nuclear Power plant, cores were melted and explosions were occurred. Many inhabitants are still evacuated now because of radioactive contamination on land. About four months after this accident, the Nuclear Safety Commission of Japan made the committee for earthquake and tsunami related regulation guidance. In the committee, the revision of the earthquake-resistant design examination guidance was discussed. Before the accident, tsunami was treated as "consideration for the earthquake accompanying phenomenon". In the new guidance, "the safe design policy for tsunami" became an item different from "the earthquake-resistant safe design policy". In March, 2012, a new examination guidance including the safe design policy for tsunami was made.

Then, in September, 2012, the Nuclear Regulation Authority was newly established in Japan. Under the Authority, "the study team on the regulatory requirement for light water nuclear power plants - earthquake and tsunami ?" was established. The study team discussed about "new safety design standard for earthquake and tsunami". That was finalized in June, 2013.

In this new safety design standard, concept of the multiplex defense is adopted. 1) Tsunami should not get into a site. 2) When a tsunami get into a site with any reasons, the tsunami should be protected from a house or constructions. 3) When a tsunami get into a house, the power should be supplied from higher place near a site to prevent a severe accident. For tsunami should assume the largest tsunami source from the largest expected event. It is important to understand the concept of the multiplex defense. Some people may think that it is OK to have small inundation from small holes because the houses are protected from water. If such a thought comes out for the multiplex defense, a risk may increase ironically. I wish that the concept of the multiplex defense should be applied closely.