



SOUTH AFRICAN NATIONAL NUCLEAR REGULATOR (NNR) PRELIMINARY RESPONSE TO THE FUKUSHIMA NUCLEAR ACCIDENT

In its media statement of 16 March 2011, related to the events in Japan, the NNR highlighted that it would be following the events and would incorporate lessons learned from this event in its regulatory framework for operating facilities.

The general opinion in South Africa is that the probability/likelihood of occurrence of severe earthquake and tsunami hazards, considering our location and the tectonic plate structure, is relatively low. Similar to most nuclear facilities around the world, the Koeberg Nuclear Power Plant earthquake and tsunami hazard design basis have been established considering local conditions and historical event data.

It is however noted that the recent earthquake and tsunami in Japan were more severe than was assumed in the Fukushima Daiichi plant design basis. In the light of this and regardless of the relatively low earthquake hazard at the Koeberg site, it is accepted that events might occur which have not been considered in the design of the facility, albeit very unlikely. The NNR has therefore embarked on the formulation of a strategy and action plan to ensure that the lessons learned from the event are considered in our regulatory framework and approach as well as in the design and operation of operating nuclear installations.

Against this background the NNR has established a task team to continue monitoring the Fukushima accident and international responses and to propose a response in relation to regulation of safety of nuclear installations in South Africa.

It is considered that sufficient technical information is available to propose a framework for the review of the regulatory requirements for existing facilities as well as to require holders of nuclear installation licences to perform reassessments of the vulnerabilities of the existing designs against beyond design basis events. This reassessment will also assist in evaluating of the adequacy of the measures that are currently in place to deal with event scenarios of this nature while incorporating the lessons emanating from the Fukushima nuclear accident.

Some of the issues being considered in this reassessment include:

- a) Facility design against external events (design basis and potential vulnerabilities in the design and beyond design basis)
- b) Consequential loss of safety functions
 - (i) Prolonged total loss of electrical power
 - (ii) Prolonged loss of the ultimate heat sink
- c) Accident management measures
- d) Emergency management and response
- e) Safety considerations for operation of multi units at the same facility site (facilities and resources)
- f) Safety of other fissile material and facilities, e.g. safety of spent fuel storage in severe accident scenarios

The NNR task team is in the process of formulating the framework for the review of the regulatory requirements as well as to define the scope and requirements for holders of nuclear installation licences to perform reassessments, which will include milestones and anticipated timescales.