

**GOVERNMENT OF INDIA  
ATOMIC ENERGY  
LOK SABHA**

UNSTARRED QUESTION NO:2164  
ANSWERED ON:18.12.2013  
SAFETY MEASURES IN NUCLEAR PLANTS  
Shanavas Shri M. I.

**Will the Minister of ATOMIC ENERGY be pleased to state:**

- (a) the measures taken to ensure the safety of the nuclear power plants in the country, plant-wise;
- (b) the details of the mechanism put in place to monitor the safety parameters of all the nuclear plants in the country;
- (c) the details of the shore protection measures undertaken for the safety of the atomic power stations located near the sea coast;
- (d) whether these protection measures are reviewed and retested on regular basis under different technical parameters keeping in view the geographic locations of nuclear plants in the country; and
- (e) if so, the details thereof?

**Answer**

THE MINISTER OF STATE FOR PERSONNEL, PUBLIC GRIEVANCES & PENSIONS AND PRIME MINISTER'S OFFICE (SHRI V. NARAYANASAMY) :

(a) At all nuclear power stations, state of the art safety measures are provided based on principles of redundancy (more numbers than required) and diversity (operating on different principles). These include fail safe shutdown system to safely shutdown the reactor, combination of active and passive (systems working on natural phenomena and not needing motive power or operator action) cooling systems to remove the heat from the core at all times and a robust containment to prevent release of radioactivity in all situations. In addition, all nuclear power plants are designed to withstand extreme natural events like earthquake, flooding, tsunami etc.

(b) A multi-tier safety mechanism comprising of safety review committees within Nuclear Power Corporation of India Limited (NPCIL) and safety review committees in the regulatory authority (Atomic Energy Regulatory Board- AERB) is in place to monitor the safety of nuclear power plants. In addition, a framework of periodic safety reviews, audits and inspection is in place.

(c) Nuclear power stations in coastal areas are designed taking into account the technical parameters related to earthquake, tsunami, storm surges, floods etc. at each site. Appropriate bunds are provided at Tarapur, Kalpakkam and Kudankulam sites for shore protection.

(d)&(e) The shore protection measures are designed and constructed to withstand the possible impact of natural events. Surveillance of these protection measures is carried out periodically. Post Fukushima, the safety review of all nuclear power plants was conducted by task forces of NPCIL and the expert committee of AERB. These safety reviews have found that Indian nuclear power plants are safe and have margins and features in design to withstand extreme events like earthquakes and tsunamis.