

Facts about Safety and Emergency Planning Three Mile Island Generating Station October 2011

This document provides facts about safety and security procedures, equipment and systems related to earthquakes, flooding and other disaster preparedness at the Three Mile Island (TMI) Generating Station. This is not a comprehensive review of all facility safety and security procedures. It is meant to show Exelon Nuclear's commitment to the highest safety standards at all its facilities.

TMI is protected against earthquakes

- Exelon's facilities are engineered to withstand earthquakes between 6.0 and 6.9 on the Richter scale *at the facility site*, which translates into larger earthquakes as measured at the epicenter. This is far above any historical earthquake risk data for the area.
- Safety and security systems and components vital to TMI operations are protected in robust, reinforced concrete structures that allow these systems to remain functional in the event of an earthquake, tornado, or flood.
- These multiple, back up safety and security systems include emergency core cooling, emergency diesel generators and the spent-fuel pool cooling.

TMI is protected against floods

- TMI is protected against flooding from high river water levels. Tsunamis are not a threat to TMI due to its location.
- TMI is situated 304 feet above sea level. The Susquehanna River, the nearest body of water, runs at about 278 feet above sea level.
- TMI has several methods for protecting the facility's equipment from potential river water flooding.
- The facility is surrounded by an earthen dike. The top elevation of this protective structure at the northern tip of Three Mile Island is 310 feet.
- Potential water pathways were sealed during construction and are constantly maintained to prevent water intrusion.
- Water-tight flood barriers prevent water intrusion into vital facility equipment.

TMI is protected against power loss

- The facility gets its electricity from four independent power lines that feed two independent power transformers. Either transformer is capable of supplying power to the required vital equipment needed to shut down TMI and maintain long-term cooling to the fuel and equipment.
- In an offsite power loss affecting the local grid, safe shutdown and continued station power supply is ensured through three emergency diesel generators and two battery systems.
- Two emergency diesel generators are available immediately by automatic start or operator action.
- These emergency generators are housed in separate rooms in a reinforced concrete structure.
- A protected fuel supply of 25,000 gallons provides enough fuel to provide electricity 24-7 for a minimum of seven days.
- A third emergency diesel generator is available by operator action. It is located in a reinforced concrete structure separate from the other two emergency diesel generators. The structure is protected from flooding with locally staged water tight barriers.
- The emergency diesel generator has at least 10,000 gallons of fuel for approximately four days of operation. An additional 250,000 gallons of fuel is on-site.

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- TMI has developed contingency plans to supply additional fuel from off-site sources before the on-site storage tanks are exhausted.
 - TMI has two 250-volt battery banks which can run for a minimum of four hours in the unlikely event the emergency diesel generators become unavailable. The battery system is stored safely and securely in a reinforced concrete structure and located above maximum probable flood level.
 - Performance testing is routinely carried out to demonstrate that the emergency diesel generators and station batteries have adequate capacity to support required design functions.

TMI is protected against hydrogen build up

- TMI has systems and strategies that minimize hydrogen generation and concentrations.
- Monitors check for hydrogen gas generated inside the reactor building. Emergency procedures are used to remove hydrogen via dedicated ventilation systems.

TMI has multiple water resources

- There are five different methods for TMI to safely cool the reactor or used fuel pools, if needed.
- The total available water on-site is in excess of 400,000 gallons. Additional water can be obtained from the Susquehanna River and delivered as-needed.
- The station can also use an on-site fire suppression system that has three sources of water and two diesel-driven pumps.

TMI has extensive emergency plans

- TMI and all U.S. nuclear facilities have “Severe Accident Mitigation Guidelines” that prescribe actions and require pre-staged equipment (portable diesel generators and portable power packs) beyond normal emergency operating procedures to address severe challenges to the reactor core.
- Facility operators, maintenance personnel, engineers, and the emergency planning workforce verify their qualifications on a daily basis.
- Station operators are regularly trained in control-room simulators to respond to severe natural disasters that exceed the facility’s design basis.
- Station emergency drills are overseen by the Nuclear Regulatory Commission (NRC) and the Federal Emergency Management Agency (FEMA), with participation of state and local emergency agencies including the Pennsylvania Emergency Management Agency (PEMA) and the Pennsylvania Bureau of Radiation Protection.
- TMI conducts multiple emergency drills each year, and performs an NRC-graded drill every two years.

TMI used fuel

- TMI’s two used fuel pools have stainless steel liners and are reinforced with three to six feet of concrete around the pools to maintain adequate water levels 24-7, 365.
- TMI’s used-fuel pools are engineered to withstand forces greater than the largest earthquake ever seen in the region.

Quick facts about TMI

- TMI Unit 1 is a single Pressurized Water Reactor with a concrete, steel-lined containment structure.
- Unit 1 provides approximately 900 total net megawatts of electrical capacity at full power. It began producing electricity in 1974.
- TMI received an operating license extension and can operate until 2034. The main source of water for TMI is supplied by the Susquehanna River. The facility employs approximately 640 people and has a payroll of approximately \$62 million.