

Facts about Safety and Emergency Planning Clinton Power 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 Clinton Power 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.

Clinton Power Station 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.
- Clinton's safety and security systems and components are protected in reinforced concrete structures, allowing them to remain functional in earthquakes, tornados, floods or an accident internal to the facility.
- Among protected systems are those that provide emergency cooling water to the reactor and used fuel pools, emergency diesel generators, diesel fuel tanks and emergency core cooling systems.

Clinton Power Station is protected against floods

- Clinton is designed to remain in a safe condition even in significant floods. Tsunamis are not a threat to Clinton due to its location.
- Clinton is situated 737 feet above sea level. The nearest body of water, Clinton Lake, has an elevation of about 690 feet above sea level. The largest recorded flood in that area rose to 696 feet above sea level.
- Clinton emergency equipment used for the reactor core cooling is protected from water incursion by the use of water tight doors. The safety and security equipment is elevated above potential flood levels behind special engineered flood barriers and water tight doors – examples of how we plan for unexpected events.

Clinton Power Station is protected against power loss

- The electricity that powers the facility comes from two independent switchyards (similar to substations) that are connected to the grid by five transmission lines.
- Should all offsite power sources fail, three locomotive-sized emergency diesel generators and four independent battery banks ensure continued electricity for safe shutdown and safe cooling of the facility.
- The three emergency diesel generators are safely contained in separate rooms within a reinforced concrete structure. They start automatically when offsite power is lost and can run 24-7 for several months if needed.
- The generators are fueled by three diesel fuel tanks with a total capacity of 130,000 gallons of diesel fuel, a seven-day supply on site at all times. Pipes and pumps run underground to the diesel generators. The station has plans for replenishing diesel fuel supplies in a natural disaster.
- Clinton has four banks of large emergency batteries in four locations within the facility. Each set of batteries can provide emergency backup power for at least four hours should all diesel generators become unavailable. Portable diesel generators and portable power packs would be used if the diesels failed and the batteries were depleted.
- The emergency diesel generators are tested monthly; batteries are inspected weekly.

Clinton Power Station is protected against hydrogen build up

- Clinton Power Station has developed systems and strategies that minimize hydrogen buildup inside the facility, believed to be the cause of explosions in the Japanese facilities.
- Emergency operating procedures provide guidelines to operate equipment to ensure hydrogen levels are detected and mitigated.
- Clinton Station uses hydrogen recombiners that reunite hydrogen and oxygen back together to form water to prevent hydrogen buildup.

Clinton Power Station water resources

- Clinton has 12 independent methods of safely putting water into the reactor if needed.
- The facility has four independent methods of safely putting water into the used fuel pool if needed.
- Water for the used-fuel pool is maintained with a cycle condensate system that has a tank capacity of 350,000 gallons.
- Clinton Lake is a backup source of fresh water that can last for an extended period of time.

Clinton Power Station has extensive emergency plans

- Clinton has extensive primary and backup emergency procedures to respond to emergency conditions in order to protect the health, safety and security of the public and its employees during emergencies. These procedures exceed all federal safety standards.
- Facility operators, maintenance personnel, engineers, and the emergency planning workforce verify their qualifications on a daily basis.
- Clinton and all U.S. facilities have in place “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.
- 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 Illinois Emergency Management Agency.
- Clinton conducts multiple emergency drills each year, and performs an NRC-graded drill every two years.

Clinton Power Station used fuel facts

- Clinton’s used-fuel pool is engineered to withstand greater than the largest earthquake ever seen in the region. Pool walls are three to six feet thick steel-reinforced concrete with a stainless steel liner to maintain adequate water levels 24-7, 365.
- The top of the used fuel pool is 20 feet above grade with actual fuel assemblies below grade.

Quick facts about Clinton Power Station

- Clinton Power Station is a single-unit Boiling Water Reactor with a concrete steel-lined containment structure. Clinton’s Unit 1 provides 1,067 total net megawatts of electrical capacity at full power.
- Unit 1 began producing electricity in 1987. Clinton’s Unit 1 is licensed to operate until 2026. Clinton Lake is the main source of cooling water for Clinton Power Station.
- The facility employs approximately 652 people with an annual payroll of approximately \$54 million.