

U.S. Nuclear Power – Unsurpassed Safety and Reliability

The U.S. nuclear power industry has produced electricity around the clock for almost 50 years, providing utility customers with safe, reliable, no-emission, affordable power. During that time, the industry’s safety record has been unsurpassed. No other source of electricity generation or heavy industrial process has a better record protecting workers and the public. Since the introduction of commercial nuclear power generation in the U.S. during the 1950s, there has never been an employee or public injury due to radioactivity released by a nuclear power plant.

Even the industry’s most serious accident in March 1979 at Pennsylvania’s Three Mile Island Generating Station released little radioactivity and caused no injuries. And Three Mile Island continues safely generating power today.



Nuclear Power’s Safety Record is No Accident

Here are several of the reasons U.S. nuclear power plants have never caused a serious radiological injury:

- The industry employs a comprehensive continuous improvement process. All irregular events are analyzed for their root causes, measures are designed to prevent reoccurrences, and findings are communicated to other plants.
- Active partnerships with nearby community officials help ensure the best approaches are developed to safeguard residents.
- The industry’s employment standards produce nuclear professionals engaged in lifelong training who possess continuously expanding nuclear science knowledge.
- Nuclear power facilities use state-of-the-art technologies and multiple, overlapping protective measures to ensure worker and public safety.
- The U.S. Nuclear Regulatory Commission, which licenses and oversees the operation of the nation’s 104 nuclear plants, has inspectors stationed full-time at the San Onofre Nuclear Generating Station near San Clemente, Calif.



They roam freely throughout the site and ensure adherence to rigorous safety requirements by reviewing plant records, interviewing workers and visually inspecting systems, structures and components.

An Industry Hallmark – Continuous Improvement

1950s

- Implementation of fast shut-down systems separate from regular reactor controls.
- Development of thorough, written procedures for all operational activities.
- Development of “human factors” engineering programs.
- Development of separate reactor core instrumentation.



Each U.S. nuclear plant has at least two full-time Nuclear Regulatory Commission inspectors who serve as that agency’s expert eyes and ears, continuously monitoring plant safety.

1960s

- Establishment of minimum training requirements for plant personnel, and for 24/7 staffing.
- Development of additional core instrumentation.

1970s

- Development of enhanced fire protection standards.
- Separating safety-related controls from routine reactor controls.
- Modifications that allow the remote shut-down of reactors.
- Creation of the Institute of Nuclear Power Operations to promote excellence in plant safety and reliability.
- Establishment of mandatory testing of on-site and off-site emergency plans.

1980s

- Development of enhanced procedures for controlling plant equipment during outages.

The Nation’s Most Secure Industrial Facilities

Nuclear power plant security measures include multiple, overlapping safeguards. Security technologies and personnel guard several perimeters (see graphic below) that protect the plant’s most important components. Since the terrorist attacks of Sept. 11, 2001, the nuclear power industry has invested an additional \$1.5 billion in enhanced plant security. This has:

- Increased the number of security officers by 60 percent.
- Improved security force training.
- Increased the size and number of weapons systems.

