



REACTOR SAFETY*

Position Statement

Revised June 2007

The American Nuclear Society affirms that power reactors have been and can continue to be built and operated safely, with no undue risk to public health and safety, provided the established elements of power reactor safety are honored.

After more than 50 years and more than 11,000 reactor-years of operating experience, the international community of nuclear reactor experts has reached a consensus that the essential attributes of power reactor safety are the following:

- a solid foundation of scientific and technological knowledge;
- a robust design that uses established codes and standards and embodies margins, qualified materials, and redundant and diverse safety systems;
- construction and testing in accordance with the applicable design specifications and safety analyses;
- a comprehensive organizational safety culture;
- qualified operational and maintenance personnel that have a profound respect for the reactor core and radioactive materials, and any supporting systems;
- technical specifications that define and control the safety operating envelope;
- a strong engineering function that provides support to operations and maintenance;
- adherence to a defense-in-depth safety philosophy to maintain multiple barriers, both physical and procedural, to protect people;
- risk insights derived from analysis and experience;
- effective quality assurance, self-assessment, and corrective action programs;
- emergency plans protecting both onsite workers and off-site populations;
- access to a continuing program of nuclear safety research;
- a strong management and fiscal organization;



- safety regulatory authorities that are responsible for independently assuring operational safety;
- newer reactor designs that continue to incorporate enhanced safety features.

*See Position Statement 51 Background Information at: <http://www.ans.org/pi/ps/docs/ps51-bi.pdf>.

The American Nuclear Society, founded in 1954, is a not-for-profit scientific and educational society of over 10,000 scientists, engineers, and educators from universities, government and private laboratories, and industry.

Position Statements are the considered opinions and judgments of the Society in matters related to nuclear science and technology. They are intended to provide an objective basis for weighing the facts in reaching decisions on important national issues.