

Oversight of Nuclear Power Plants

Background

Nuclear power plants have numerous barriers to protect workers and the public from radiation. Both the nuclear industry and the NRC have a role ensuring the safety of these plants. The NRC establishes regulations and guides for the construction and operation of nuclear reactors. Utilities are responsible for designing, constructing, and operating their facilities safely. The NRC also approves plant-specific terms that must be followed by the plant operators. These ensure that all necessary equipment is available to safely shut down the plant in the event of an accident. Through its licensing and oversight programs, the NRC confirms that its licensees are meeting their responsibilities.

The NRC's oversight process uses objective, timely, and risk-informed criteria to assess plant performance. A description of the oversight process and plant-specific performance results are available on the NRC's [website](#).

Inspection Program

The Atomic Energy Act of 1954 gives the NRC the authority to inspect nuclear power plants to protect public health and safety. The NRC inspection program assesses whether licensee activities are properly conducted and equipment is maintained to ensure safe operations. Inspectors monitor the licensee's activities and provide findings to the licensee's management. If necessary, NRC experts conduct follow-up inspections to ensure that the licensee has addressed its findings.

Reactor inspections are conducted primarily by resident inspectors and regional inspectors. Under a program initiated in 1977, resident inspectors are stationed at each nuclear power plant. Resident inspectors provide first-hand, independent assessment of plant conditions and performance.

Resident inspectors live near the nuclear power plant where they are assigned. They maintain offices at the plant during regular business hours and spend a portion of their time at the plant during weekends and evenings. Resident inspectors significantly increase the NRC's onsite monitoring of the plants. In addition, they greatly reduce the time needed to respond to events at the plant.

Resident inspector activities are supplemented by engineers and specialists from the nearest regional office and/or headquarters. The NRC's regional specialists review plant security, emergency planning, radiation protection, environmental monitoring, plant equipment and systems, fire protection, construction activities, and other areas. Each year, NRC specialists conduct 10 to 25 routine inspections at each nuclear power plant, depending on the activities at the plants and issues that may occur.

Additional special team inspections may focus on a specific plant activity, like maintenance or security, or a team may be sent to the plant to look at a specific operating problem or event.

Due to the scale of activities at a nuclear power plant, it is impossible to review every aspect of licensee performance. As a result, the NRC evaluates plant performance through selective inspections. The inspection program chooses an appropriate sample based on its potential risk, past operational experience, and regulatory requirements.

The frequency, scope, and depth of the inspection program varies for operating reactors depending on their performance. The program consists of three major elements. First, baseline inspections, are the minimum required at all plants. Second, supplemental inspections, are performed at plants with performance below established thresholds. Lastly, special inspections focus on a specific issue at all or a group of plants.

Inspection results are used in NRC's overall evaluation of licensee performance. When a safety problem or failure to comply with requirements is discovered, the NRC requires prompt corrective action by the licensee. The NRC may also use its enforcement authority to sanction licensees that violate NRC rules. All inspections and findings are documented in written reports. These reports are sent to the utility and are made publicly available in the agency's document management system (ADAMS). Inspection reports, issued for each inspection, are also available on the reactor oversight process [webpage](#).

In 1989, the Commission announced a policy of cooperation that allows States to observe, and in some cases participate in, NRC inspections at reactor facilities.

Performance Indicators

Nuclear power plants use performance indicators to objectively measure plant safety performance. Performance indicators are submitted quarterly by licensees to the NRC. They show how well a plant is performing compared to established thresholds for each area. These performance indicators are posted on the NRC's [website](#).

Performance Assessment

The NRC uses inspection findings and performance indicators to assess plant performance. An "action matrix" reflects licensee performance in seven safety areas: (1) initiating events, (2) mitigating systems, (3) integrity of radioactivity release barriers, (4) emergency preparedness, (5) worker radiation safety, (6) public radiation safety, and (7) physical protection.

The performance indicators and inspection findings are posted to the NRC website. A color system notes their safety significance. Green indicates that performance is acceptable and has little or no impact on safety. White, Yellow, or Red inspection findings, respectively, represent a greater degree of safety significance and trigger increased regulatory attention. The NRC addresses any significant performance issues and follows up until they are corrected.

For more information on inspection or performance assessment, see the oversight section of our “How We Regulate” [webpage](#).

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