

NRC Response to Plant Performance

The NRC determines its regulatory response in accordance with an Action Matrix (see Figure 3). This matrix objectively ranks plant performance based on the significance of the inspection findings and PIs. The Action Matrix provides consistent, predictable, and understandable agency responses to licensee performance. As illustrated in Figure 3, NRC increases oversight as licensee performance declines.

Communications

The NRC assesses plant performance continuously and issues letters summarizing plant performance every six months. The NRC posts these assessment letters on each plant’s performance summary public website, and conducts public meetings with licensees to discuss plant performance. Other information available through the plant’s website includes:

- quarterly PI data
- significant inspection findings
- inspection reports

Individual plant performance information and additional information about the ROP can be accessed through the following website:

<http://www.nrc.gov/NRR/OVERSIGHT/ASSESS/index.html>

Contact Us

The NRC’s Performance Assessment Branch welcomes comments and questions from members of the public regarding the Reactor Oversight Process. These can be submitted via the form located at:

<http://www.nrc.gov/NRR/OVERSIGHT/ASSESS/contactus.html>

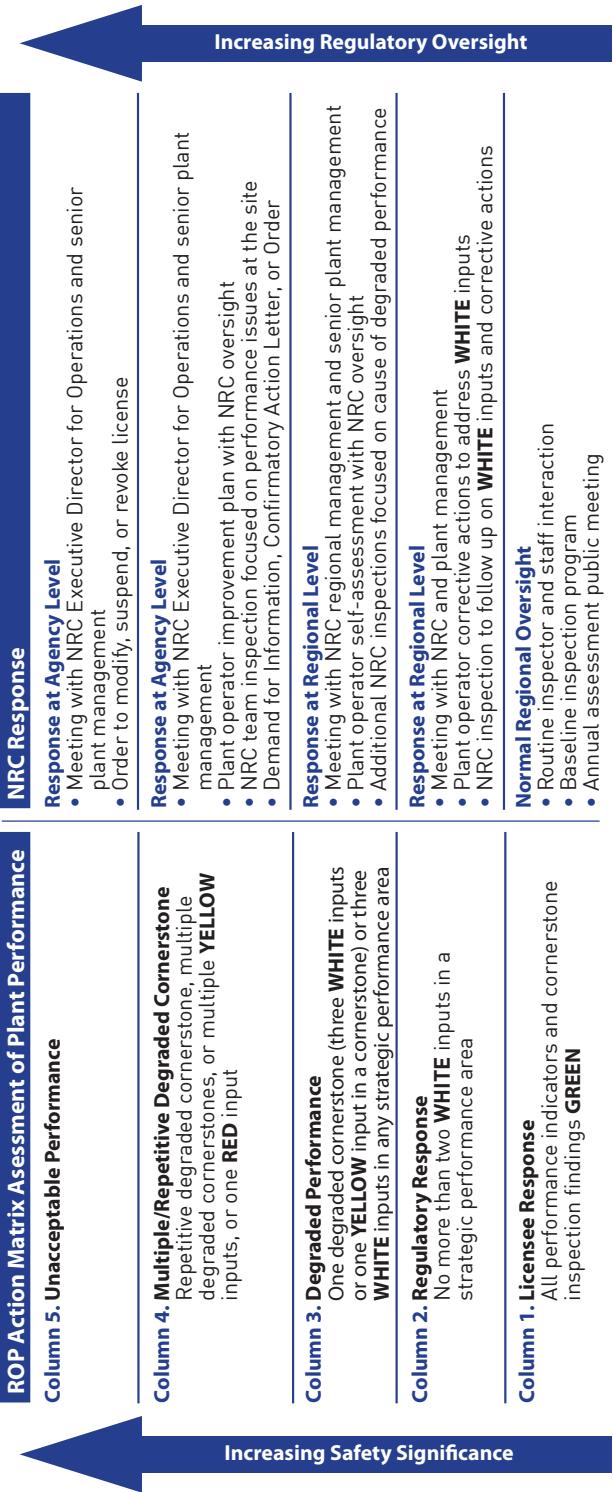


Figure 3. NRC response plan to ROP assessment of plant performance

Reactor Oversight PROCESS



photo courtesy FPL



NUREG/BR-0508 Rev. 1
April 2016

STAY CONNECTED



Reactor Oversight Framework

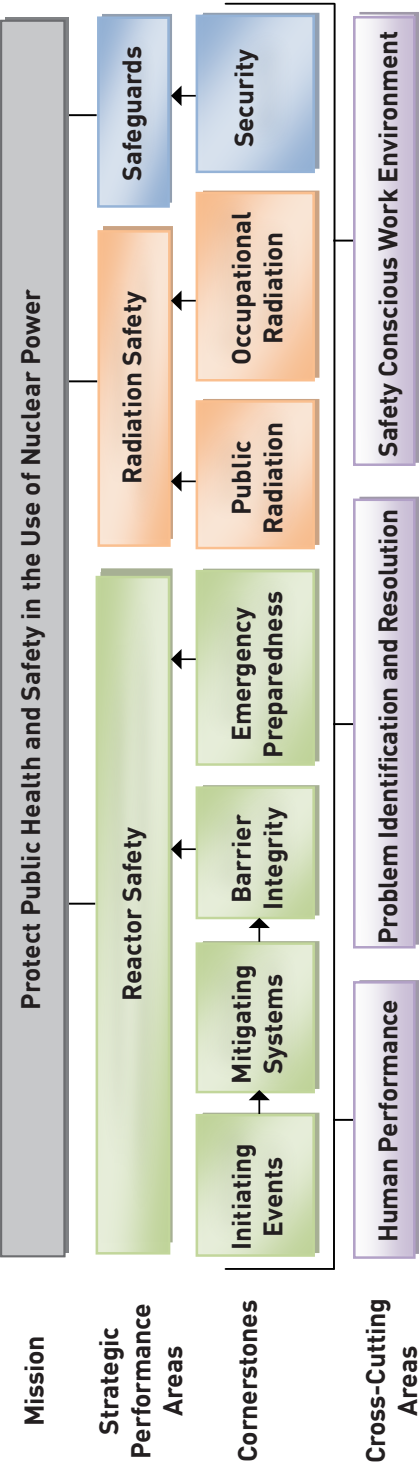


Figure 1. Reactor oversight framework

What is the Reactor Oversight Process?

The U.S. Nuclear Regulatory Commission’s (NRC’s) Reactor Oversight Process (ROP) is the agency’s program to inspect, measure, and assess the safety and security performance of commercial nuclear power plants. It also responds to declining licensee performance. The ROP contributes to the NRC’s mission of ensuring public health and safety, promoting the common defense and security, and protecting the environment during the operation of commercial nuclear power plants by monitoring plant performance in three strategic performance areas:

- **Reactor Safety:** avoiding accidents and reducing the consequences of accidents if they occur
- **Radiation Safety:** protecting both plant workers and the public from unnecessary radiation exposure during routine operations
- **Safeguards:** protecting the plant against sabotage and other security threats

Cornerstones of Safe Operation

The seven “cornerstones” of the ROP support the three strategic performance areas by monitoring and measuring plant performance (see Figure 1). The cornerstones cover the following:

- **Initiating Events:** this focuses on limiting the occurrence of the events that could disrupt plant operations and challenge safety functions
- **Mitigating Systems:** this monitors the function of the plant’s safety systems designed to reduce the effects of initiating events
- **Barrier Integrity:** this monitors the physical barriers (fuel cladding, reactor coolant system, and containment) that protect the public from releases of radioactive material caused by accidents or events

- **Emergency Preparedness:** this measures the effectiveness of the plant’s staff to carry out emergency plans to respond effectively to a possible accident
- **Occupational Radiation Safety:** this monitors the effectiveness of the plant’s program to protect worker’s health and safety from exposure to radiation
- **Public Radiation Safety:** this monitors the effectiveness of the plant’s program to protect public health and safety from exposure to radioactive materials released beyond the plant’s boundaries
- **Security:** this monitors the plant’s physical protection systems and ability to defend the plant against attack

Cross-Cutting Areas

In addition to the cornerstones, the ROP features three “cross-cutting” areas that can affect each of the cornerstones:

- human performance
- problem identification and resolution
- safety-conscious work environment

These cross-cutting areas are considered during all NRC inspections and are covered during periodic plant assessments.

Plant Assessment

The NRC’s plant evaluations are based on two distinct inputs:

- findings from the NRC’s inspection program
- performance indicators (PIs) reported by the licensee

The NRC gives both PIs and inspection findings a color designation based on their safety significance (see Figure 2).

- Green:** very low safety significance (for findings), expected performance (for PIs)
- White:** low-to-moderate safety significance
- Yellow:** substantial safety significance
- Red:** high safety significance

Figure 2. Safety significance color designation

Inspection Program

The NRC’s inspection program starts with the “baseline” inspections done at every U.S. nuclear plant. Baseline inspections represent the minimum level of inspection required to ensure plant safety and security. Baseline inspections focus on activities and systems that are significant to plant safety and security (e.g., those activities and systems that could trigger an accident or could either reduce or increase a potential accident’s consequences). Inspections beyond the baseline program are performed in response to specific events at a plant or changes in a plant’s performance.

The NRC’s Significance Determination Process determines the importance of inspection findings and associated violations.

Performance Indicators

Each PI objectively measures performance according to established safety margins. The plants compile the indicators and report them to the NRC quarterly. The NRC validates the licensees’ reported PIs.