



Nuclear Reactors

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Research and Test Reactors

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Regulatory Oversight

The NRC's [Office of Nuclear Reactor Regulation](#) (NRR) has oversight responsibility for the licensing of operating research and test reactors. Within NRR, the staff within the Research and Test Reactors Branches of the Division of Policy and Rulemaking (DPR) performs most functions associated with the regulation of research and test reactors. These efforts take the facility from initial licensing through transition to decommissioning status. The [Office of Federal and State Materials and Environmental Management Programs \(FSME\)](#) has project management and inspection oversight for decommissioning research and test reactors. There are three major oversight responsibilities for operating research and test reactors: Program Management, Inspection, and Operator Licensing.

- [Map of Operating Research and Test Reactors](#)
- [Backgrounder on Research and Test Reactors](#)

The Research and Test Reactor staff offer an introductory course that provides a general familiarity with Research and Test Reactor designs, facilities, equipment, operating characteristics, technical specifications, inspection requirements, and current areas of concern to the NRC.

For additional information, and or interest in attending the introductory course, please [Contact Us](#).

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Security

Since the 1970's, the NRC has required security at research and test reactors in accordance with NRC regulations ([10 CFR Part 73](#)) . The NRC requires research and test reactors to maintain security plans or procedures that are designed to detect, deter, assess and respond to unauthorized activities. Research and test reactor security uses a graded approach with increasing requirements depending on the type of fuel or amount of radiological materials (i.e., higher licensed power level). Research and test reactor security follows a defense-in-depth philosophy similar to that employed at nuclear power plants.

- [Security Timeline](#)
- [Security Spotlight](#)
- [Security FAQ](#)

Since September 11, 2001, all NRC-licensed facilities have received increased security attention, including research and test reactors. On 9/11, the NRC advised all research and test reactor licensees to go to a pre-established heightened level of alert. During the remainder of 2001 and in 2002, research and test reactor licensees implemented additional security precautions based on NRC advisories and onsite evaluations. Between 2002 and 2004, NRC gained commitments from the research and test reactor licensees with nuclear fuel to implement additional security

measures (ASMs), which enhanced protection against radiological sabotage or theft. Between 2003 and 2006, the NRC conducted security assessments that considered potential sabotage or theft scenarios.

The NRC continuously monitors the current threat environment and regularly reviews the security of all of its licensees, including research and test reactors. If the NRC determines any regulated facility needs additional security requirements in order to protect public health and safety, the NRC will take action.

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Program Management

The Program Management staff act as the NRC's focal point for research and test reactor policy and technology. This function includes all NRC actions taken with respect to the facility license. It involves approval of license requirements for each facility consistent with [NRC Regulations](#) and ensuring an acceptable level of safety.

In recent years, non-routine licensing actions have included initial licensing license renewals and extensions, decommissioning plan reviews, license terminations, conversion to low-enriched uranium fuel, power upgrades, and other license changes. Routine licensing actions have included program reviews (e.g., emergency preparedness, operator requalification, and security changes). The NRC often uses technical assistance from DOE's National Laboratories to supplement NRC staff efforts in conducting the high number of complex reviews required by the licensees.

In addition Program Management includes the review and coordination of all inspection, enforcement and allegation activities for their assigned licensees.

The Program Management staff is currently focused on performing license renewal reviews, updating regulatory guides that are applicable to research and test reactor, and work related to the rulemaking associated with fingerprinting for unescorted access to the research and test reactors facilities. The [Current & Upcoming Activities](#) page provides detailed status of these and other activities currently within Program Management.

- [NUREG-1537, Part 1, "Guidelines for Preparing and Reviewing Applications for the Licensing of Non-Power Reactors, Format and Content"](#) 
- [NUREG-1537, Part 2, "Guidelines for Preparing and Reviewing Applications for the Licensing of Non-Power Reactors, Standard Review Plan and Acceptance Criteria"](#) 
- [List of Research and Test Reactors and their respective Project Managers](#)
- [Current & Upcoming Activities](#)

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Inspection

NRC staff inspect each facility periodically to ensure that the licensees safely conduct regulated activities. The NRC maintains two types of inspections\ programs for operating research and test reactors. For research and test reactors licensed to operate at power levels of 2 megawatts (2,000,000 watts) or greater, the inspection program is completed annually. For reactors licensed to operate at power levels below 2 megawatts, the inspection program is completed biennially (every two years).

Inspection programs for operating reactors include: organizational structure, qualifications and responsibilities, operational activities, design and design control, review and audit functions, radiation and environmental protection, operator requalification, maintenance and surveillance activities, fuel handling, experiments, procedures, emergency preparedness, and safeguards and security.

Those reactors that are shutdown and are not being decontaminated have an abbreviated inspection program completed triennially. NRC inspects decommissioning reactors as required for their condition to verify safe conduct of dismantlement and decontamination.

The NRC Inspection [Manual Chapter 2545](#) , contains the guidance which the NRC uses to administer the Research and Test Reactor Inspection Process.

For information on Inspection Procedures IP 69001 through 69013, see the table below. See also, our [complete collection](#) of Inspection Procedures.

The following links on this page are to documents in Adobe Portable Document Format (PDF). See our [Plugins, Viewers, and Other Tools](#) page for more information. For successful viewing of PDF documents on our site please be sure to use the latest version of Adobe.

Document	Description
IP 69001	Class II Research and Test Reactors
IP 69002	Class III Research and Test Reactors
IP 69003	Class I Research and Test Reactor Operator Licenses, Requalification, and Medical Activities
IP 69004	Class I Research and Test Reactor Effluent and Environmental Monitoring
IP 69005	Class I Research and Test Reactor Experiments
IP 69006	Class I Research and Test Reactors Organization and Operations and Maintenance Activities
IP 69007	Class I Research and Test Reactor Review and Audit and Design Change Functions
IP 69008	Class I Research and Test Reactor Procedures
IP 69009	Class I Research and Test Reactor Fuel Movement
IP 69010	Class I Research and Test Reactor Surveillance
IP 69011	Class I Research and Test Reactor Emergency Preparedness
IP 69012	Class I Research and Test Reactors Radiation Protection
IP 69013	Research and Test Reactor Decommissioning

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Operator Licensing

The Commission's regulations ([10 CFR Part 55](#)) require the personnel who operate a reactor to have either a Reactor Operator or a Senior Operator license issued by the NRC. Reactor Operators are licensed to operate the reactor under most routine conditions without supervision. However, Senior Operator must be present to supervise operation of the reactor during some non-routine plant conditions. In addition, Senior Operators are usually responsible for plant conditions during emergencies.

To ensure that they have the required knowledge, skills and abilities to control the reactor during both routine evolutions and emergencies the NRC prepares and administers both a comprehensive written examination and a hands-on operating test to all candidates for a new reactor operator or senior operator license. These examinations are designed to measure the candidate's qualifications to operate the reactor and are based on the requirements of Commission's regulations (in 10 CFR Part 55). The NRC issues licenses for six-year periods.

Once licensed, operators and senior operators are required to maintain their expertise. Each facility is required to maintain a Requalification Program, covering both refresher training (material covered during initial licensing) and training on systems recently changed. The training program is divided into two year cycles and requires a comprehensive written examination, and annual operating tests. These examinations are administered by the facility staff. At the end of the six year period, operators and senior operators are required to submit a renewal application to keep their license. As part of their application, the applicant must certify satisfactory participation in the Requalification Program.

- [NUREG-1478 "Operator Licensing Examiner Standards for Research and Test Reactors," Revision 2](#) 
- Application forms required for operator licensing:

- [Certificate of Medical History by Facility Licensee](#) 
- [Personal Qualification Statement - Licensee](#) 

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