

NRC Response to the Event at the National Institute of Standards and Technology National Bureau of Standards Reactor



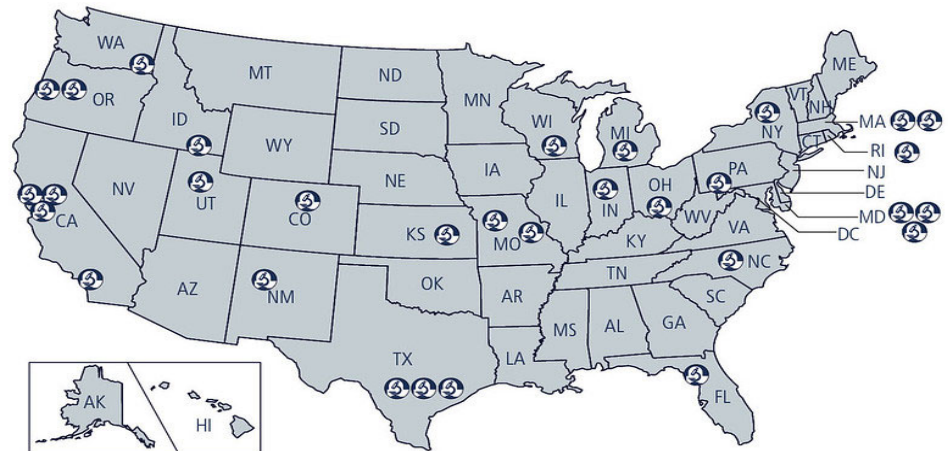
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U.S. Research and Test Reactors

- 31 operating reactors
- 4 shut down
- Power range 5 watts to 20 megawatts (MW)
 - 5 are 2 MW or greater
- Reactor types
 - 16 TRIGA
 - 9 plate-type fuel
 - 3 Aerojet General Nucleonics
 - 3 one-of-a-kind (PULSTAR, Argonaut, critical assembly)

U.S. Nuclear Research and Test Reactors



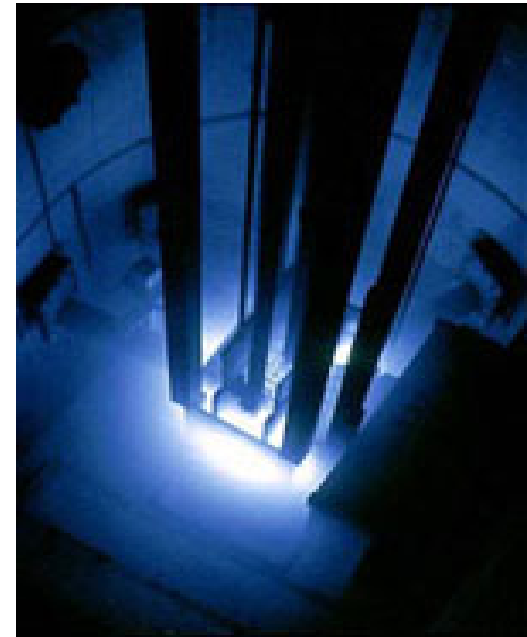
 RTRs Licensed/Currently Operating (31)

Note: For the most recent information, go to the Dataset Index Web page at <https://www.nrc.gov/reading-rm/doc-collections/datasets/>

As of June 2017

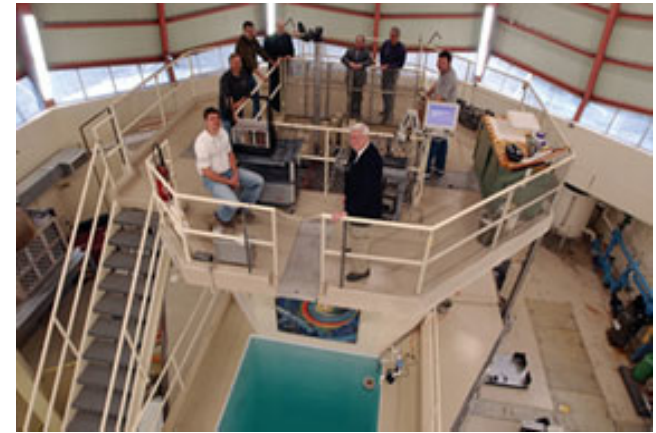
Non-Power Production and Utilization Facility Licensing Branch

- Conducts licensing reviews
 - Construction permits
 - Operating licenses
 - Amendments
 - High to low enriched uranium conversions
 - License renewals
 - Medical isotope production facilities
- Develops licensing guidance
 - Application format and content
 - Standard Review Plan and Acceptance Criteria
- Interfaces with outside organizations (e.g., International Atomic Energy Agency, licensee groups, and other government agencies)



Non-Power Production and Utilization Facility Oversight Branch (cont.)

- Conducts oversight activities
 - Facility inspections
 - Reactor operator licensing
 - Inspection and operator licensing guidance
 - Security reviews and inspections
 - Enforcement
 - Emergency response



NRC Applies Minimum Amount of Regulation to Research and Test Reactors

- Consistent with Section 104c of the **Atomic Energy Act** of 1954, as amended, which states, in part—

*“The Commission is directed to **impose** only such **minimum amount of regulation** of the licensee as the Commission finds will permit the **Commission to fulfill its obligations under this Act to promote the common defense and security and to protect the health and safety of the public and will permit the conduct of widespread and diverse research and development.**”*



NRC Principles of Good Regulation

- Principles focused on ensuring safety and security while appropriately balancing the interests of the NRC's stakeholders, including the public and licensees
 - Independence
 - Openness
 - Efficiency
 - Clarity
 - Reliability



NRC Response to the Event at the National Institute of Standards and Technology (NIST) National Bureau of Standards Reactor (NBSR)

- Initial event assessment
- Reactive inspection evaluation
- Special inspection
 - Charter
 - Exceeded safety limit
 - Interim report
 - Root cause report
 - Final report
 - Enforcement
- Communications



Findings from the NRC Response

- The NRC determined the NBSR safety systems functioned properly during the event and reactor shutdown (i.e., all the control rods fully inserted and fission reactions stopped, ventilation system aligned to emergency mode)
- The NRC determined that public health and safety were protected during and following the event and is satisfied that the surrounding community remains safe while the NBSR remains shut down
- Since the event, the NBSR has remained in a stable shutdown condition and monitoring systems continue to operate properly
- NIST has completed a root cause analysis and an analysis of the appropriate responsive corrective actions
- NIST submitted to the NRC on October 1, 2021, a request for authorization to restart the NBSR
- The NRC's activities in response to the event will inform the NRC's response to NIST's request for authorization to restart the NBSR

Post-Special-Inspection Oversight of the NBSR

- Special inspection results
- Enforcement followup
- Corrective actions assessment
- Restart decision support
- Future oversight

