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NRC Issues Findings from NIST Reactor Event Special Inspection

Nuclear Regulatory Commission staff has released its initial [conclusions](#) from its special inspection at the National Institute of Standards and Technology's non-power reactor in Gaithersburg, Maryland. The NRC [launched](#) the inspection in February 2021, a few days after an event during startup of the reactor damaged a reactor fuel element and released radioactive material. The agency issued an [interim inspection report](#) in April 2021.

The inspectors examined independent analyses of the radiation release and concluded that public health and safety was maintained – any potential dose to the public, while unlikely, would have been a very small fraction of regulatory limits. The inspectors also concluded that doses to the reactor facility staff during the event were well below regulatory limits.

During the inspection, NRC inspectors reviewed NIST's records from the event, the facility staff's response, NIST's root cause analysis, proposed corrective actions and related documentation. They also interviewed NIST staff and management regarding the event and related matters. The inspection found seven apparent violations of NRC requirements, including five violations related to exceeding the fuel temperature safety limit and damaging a fuel element. Other apparent violations are related to emergency planning and equipment modification.

If finalized at their current level, the findings could result in a civil penalty. After reviewing the NRC inspection report, NIST can accept the NRC's findings, provide additional information in writing or during a regulatory conference, or request alternative dispute resolution. The NRC will consider all available information before making a final determination and document the decision in publicly available correspondence. The report notes several items planned for NRC follow-up. These items will be assessed in supplemental NRC inspections and documented in subsequent inspection reports.

Since the event violated the fuel temperature safety limit, the NRC must formally approve any restart of the reactor, which NIST has requested. The NRC will only consider authorizing restart after the agency has completed reviewing the restart request and has determined that sufficient corrective actions have been implemented to ensure that the facility will be operated safely by the licensee. Increased NRC oversight of the NIST facility will continue after any restart has been authorized.