

NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY NATIONAL BUREAU OF STANDARDS TEST REACTOR - SUPPLEMENTAL INSPECTION PLAN

PURPOSE

To establish the plan for U.S. Nuclear Regulatory Commission (NRC) oversight of the National Institute of Standards and Technology (NIST) test reactor facility following the extended shutdown due to the February 3, 2021, event (event notification (EN) 55094) and subsequent notification (EN 55120) that the reactor exceeded the technical specification safety limit for the fuel temperature.

To ensure that the NRC communicates unified and consistent oversight in a clear and predictable manner to the licensee, the public, and other stakeholders.

To document the required regulatory and licensee corrective actions taken to support re-start readiness, to address actions from identified violations, to confirm technical items identified during the technical review, to support post restart inspection activities to monitor performance, and to support the eventual return of the NIST test reactor oversight to routine inspections in accordance with NRC Inspection Manual Chapter (IMC) 2545, "Research and Test Reactor Inspection Program."

To provide assurance that the NIST test reactor will be operated in a manner that provides adequate protection of public health and safety during and following reactor restart.

OBJECTIVES

The inspectors will review the licensee's planned and completed evaluations, corrective actions, and actions to ensure that appropriate corrective plans and actions are in place in a timely manner to effectively address and preclude recurrence of the event. Specifically, the inspection objective are as follows:

- assure corrective actions to address the seven special inspection violations are timely, effective, and sustained
- assure restart readiness activities are comprehensive and necessary activities to restart and safely operate are completed
- assure corrective actions completed and planned direct timely actions to effectively address and correct issues and preclude re-occurrence

SCOPE

The NRC is implementing this supplemental inspection plan in response to the February 3, 2021, event; the Request to Restart submitted by NIST on October 1, 2021 (Agencywide Documents Access and Management System Accession No. ML21274A018), the apparent violations identified in the NRC Special Inspection Report dated March 16, 2022 (ML22066B312), the NRC's technical review of the facility licensing basis, and the confirmatory order (CO) dated August 1, 2022 (ML22202A423). NIST is required to receive authorization from the NRC to restart the reactor in accordance with Title 10 of the *Code of Federal Regulations* Section 50.36(c)(1) because the technical specification fuel temperature safety limit

was exceeded during the event. Appropriate inspections in this supplemental inspection plan will assess restart readiness activities.

This supplemental inspection plan consists of activities specified in IMC 2545, additional inspection activities necessary to determine that adequate corrective actions have been implemented, and inspection activities to support confirmation that the licensee has met the requirements of the CO. The NRC staff is conducting supplemental inspections identified in the table attached to this plan using the following procedures:

- Inspection Procedures (IP) 69003, “Class I Research and Test Reactor Operator Licenses, Qualification, and Medical Examinations”
- 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 92701, “Followup”
- IP 92702, “Follow-up on Traditional Enforcement Actions Including Violations, Deviations, Confirmatory Action Letters, and Orders”
- IP 81606, “Material Control and Accounting – Non-Power Reactors”

The NRC staff will conduct supplemental inspections in accordance with this plan to provide post-restart oversight until reasonable assurance of the safety of the NIST test reactor operations can be achieved through routine inspections in accordance with IMC 2545. Although several CO items are included within scope of the supplemental inspections, confirmation of the completion of all CO items is not within scope of this inspection plan. The NRC staff will conduct a follow-up inspection to confirm completion of all CO items following receipt of notification of the completion of the terms of the CO.

INSPECTION AND SUPPORT TEAM

Kevin Roche, research and test reactor (RTR) inspector
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