



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

December 14, 2021

Dr. Robert Dimeo, Director
National Institute of Standards and Technology
NIST Center for Neutron Research
U.S. Department of Commerce
100 Bureau Drive, Mail Stop 8561
Gaithersburg, MD 20899 8561

SUBJECT: NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY –
REGULATORY AUDIT RE: RESTART REQUEST FOLLOWING EXCEEDANCE
OF CLADDING TEMPERATURE SAFETY LIMIT (EPID: L-2021-LLN-0000)

Dear Dr. Dimeo:

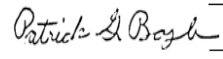
By letter dated October 1, 2021 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML21274A018), as supplemented by letters dated October 15 and 21, 2021 (ADAMS Accession Nos. ML21288A552 and ML21294A371 respectively) National Institute of Standards and Technology requested authorization to resume operations of the National Bureau of Standards test reactor (NBSR), Facility Operating License No. TR-5. The requested action would allow the NBSR to resume operations after exceedance of the cladding temperature safety limit per Title 10 of the *Code of Federal Regulations* Part 50, "Domestic Licensing of Production and Utilization Facilities," Section 50.36 "Technical specifications."

The U.S. Nuclear Regulatory Commission (NRC) staff will conduct a regulatory audit starting December 1, 2021, and continuing as necessary, to gain a better understanding of the actions described in the restart request. The audit may include review of documentation, observation of the facility, and discussions with facility personnel and management. The enclosed audit plan provides additional details of the objective and scope of the audit. To facilitate an efficient audit, please provide ready access to an electronic portal, working space, requested documentation, and areas of the facility, as necessary

Following completion of the audit, the NRC staff will provide an audit summary. The summary will include a description of any information identified during the audit that will need to be docketed to supplement the restart request and allow the NRC staff to continue its review.

If you have any questions, please contact me at (301) 415-3936, or by electronic mail at Patrick.Boyle@nrc.gov.

Sincerely,

 Signed by Boyle, Patrick
on 12/14/21

Patrick G. Boyle, Project Manager
Non-Power Production and Utilization Facility
Licensing Branch
Division of Advanced Reactors and Non-Power
Production and Utilization Facilities
Office of Nuclear Reactor Regulation

Docket No. 50-184
License No. TR-5

Enclosure:
As stated

cc: See next page

cc:

Environmental Program Manager III
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Baltimore, MD 21230-1724

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Director, Department of Natural Resources
Power Plant Siting Program
Energy and Coastal Zone Administration
Tawes State Office Building
Annapolis, MD 21401

President
Montgomery County Council
100 Maryland Avenue
Rockville, MD 20850

Test, Research and Training
Reactor Newsletter
Attention: Amber Johnson
Dept of Materials Science and Engineering
University of Maryland
4418 Stadium Drive
College Park, MD 20742-2115

Dr. Thomas H. Newton, Deputy Director
National Institute of Standards and
Technology
NIST Center for Neutron Research
U.S. Department of Commerce
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REGULATORY AUDIT RE: RESTART REQUEST FOLLOWING EXCEEDANCE
OF CLADDING TEMPERATURE SAFETY LIMIT (EPID: L-2021-LLN-0000)
DATED: DECEMBER 14, 2021

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ADAMS Accession Number: ML21341B353

NRR-106

OFFICE	NRR/DANU/UNPL/PM	NRR/DANU/UNPL/LA	NRR/DANU/UNPL/BC	NRR/DANU/UNPL/PM
NAME	PBoyle	NParker	JBorromeo	PBoyle
DATE	12/08/2021	12/08/2021	12/14/2021	12/14/2021

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OFFICE OF NUCLEAR REACTOR REGULATION

REGULATORY AUDIT PLAN

REGARDING REVIEW OF THE RESTART REQUEST

FACILITY OPERATING LICENSE NO. TR-5

NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY

NATIONAL BUREAU OF STANDARDS TEST REACTOR

DOCKET NO 50-184

Background

The U.S. Nuclear Regulatory Commission (NRC) staff is continuing its review of the National Institute of Standards and Technology (NIST, the licensee), request to resume operation of the National Bureau of Standards test reactor (NBSR, the facility), Facility Operating License No. TR-5. The requested action would allow the NBSR to resume operations after exceedance of the cladding temperature safety limit (SL) per Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50, Domestic Licensing of Production and Utilization Facilities," Section 50.36 "Technical specifications." This regulatory audit is intended to assist the NRC staff in making an independent assessment regarding the decision to permit the restart of the NBSR. This audit will continue the review of the information request in the NRC letter dated November 18, 2021 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML21294A277).

Regulatory Bases for the Audit

The purpose of this audit is to determine if the licensee's proposed corrective actions, inspections, evaluations, test results, and acceptance criteria conducted in response to the events on February 3, 2021, which resulted in the NBSR exceeding the cladding temperature SL are consistent with the regulation in 10 CFR Part 50 and addresses applicable guidance provided in NUREG-1537, "Guidelines for Preparing and Reviewing Applications for the Licensing of Non-Power Reactors," Part 2, "Standard Review Plan and Acceptance Criteria" (ADAMS Accession No. ML042430048).

Regulatory Scope for the Audit

The NRC staff will conduct an initial teleconference and/or video conference supported discussions with NIST. As facilitated in part by the online portal discussed below, the NRC staff will also audit inspection results and review documents to gain a better understanding of the information related to the restart request. Additionally, the NRC staff will visit and tour (as necessary) the NBSR in Gaithersburg, Maryland, to gain further understanding of the proposed corrective actions, review the NBSR test results and acceptance criteria to ensure safe operations, and review processes and procedures for the safe operation of the NBSR. The NRC may request access to the contractor facility where testing and evaluations are conducted.

Information Needed for the Audit

The NBSR staff should be prepared to support the NRC staff with a comprehensive tour of the facility, access to documents describing the corrective actions, recovery actions, and associated analyses. The NRC staff will review a copy of the licensee's contract supporting facility cleanup, testing, and inspections. The NRC staff will also want to review the plans developed by the contractor related to recovery and restart. These documents may be reviewed using a secure link allowing the NRC staff to review the documents. Any information necessary to support the restart evaluation will be requested to be submitted on the docket.

Audit Team

Multiple Divisions within the Office of Nuclear Reactor Regulation will be performing this audit. Specific individuals who require access to the facility and supporting documentation will be communicated through the facility project manager. The following branches within the NRC have been tasked with technical review areas in support of the restart decision:

- Division of New and Renewed Licenses, Reactor Vessel Internals
- Division of Engineering and External Hazards, Mechanical Engineering and Inservice Testing
- Division of Safety Systems (DSS), Plant Systems
- DSS, Nuclear Methods and Fuels
- DSS, Nuclear Systems Performance
- DSS, Nuclear Methods, Systems, and New Reactors

Audit Team Logistics

The virtual component of the audit will conduct a kickoff meeting December 1, 2021, will continue as necessary until the NRC staff have adequate understanding of issues to be addressed to complete the review of the restart request. The kickoff meeting will introduce key players involved in the review and discuss the information request from November 18, 2021. Audit activities may be conducted as onsite review meetings and teleconference and video conference supported activities, as appropriate and efficient to the gathering of information by the NRC staff. The audit period may be reduced or extended, dependent on the NRC staff and licensee progress in addressing audit questions. Additional audit activities may be planned, as necessary, to support the understanding of information necessary to complete the review of the restart request. It is expected that more interaction will be needed to identify information requests to support restart request review activities.

Deliverables

At the completion of the regulatory audit the NRC staff will prepare a regulatory audit summary, which will be issued within 90 days after the audit. The regulatory audit summary will include the documents reviewed, the audit activities, and any requests for additional information that were discussed or that will be issued based on the audit, as applicable.

Audit Questions:

The questions for discussion during the audit are primarily based on the NRC staff review of the restart request. The audit begins with the information request sent to NIST in a letter dated

November 18, 2021. Additional information requests will be generated during the audit as the answers to the questions are reviewed. Additional questions will be added to the audit plan as the recovery actions proceed, test results become available, and analyses are provided by the contractor supporting the restart.