



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

January 27, 2023

Dr. Caleb S. Brooks, Associate Professor
University of Illinois at
Urbana-Champaign
Department of Nuclear, Plasma,
and Radiological Engineering
Talbot Laboratory,
Room 111C, MC-234
104 South Wright St.
Urbana, IL 61801

SUBJECT: UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN - REQUEST FOR
ADDITIONAL INFORMATION REGARDING QUALITY ASSURANCE
PROGRAM DESCRIPTION (EPID NO. L-2022-NFN-0004)

Dear Dr. Brooks:

By letter dated October 20, 2022 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML22320A086), the University of Illinois at Urbana-Champaign (UIUC) submitted; pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR) Sections 50.34(a)(7) and 50.34(b)(6)(ii); its Quality Assurance Program Description (QAPD) for its proposed non-power reactor to the U.S. Nuclear Regulatory Commission (NRC) staff for its review and approval.

The NRC staff identified additional information needed to continue its review of the QAPD, as described in the enclosure to this letter. As discussed, provide a response to the request for additional information (RAI) within 30 days of the date of this letter. Following receipt of the complete response to the RAI, the NRC staff will continue its review of the QAPD.

The response to the RAI must be submitted in accordance with 10 CFR 50.4, "Written communications," and pursuant to 10 CFR 50.30(b), "Oath or affirmation," and be executed in a signed original document under oath or affirmation. Information included in the response that you consider sensitive or proprietary, and seek to have withheld from public disclosure, must be marked in accordance with 10 CFR 2.390, "Public inspections, exemptions, requests for withholding." Any information related to safeguards should be submitted in accordance with 10 CFR 73.21, "Protection of Safeguards Information: Performance Requirements."

Dr. C. Brooks

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If you have any questions regarding the NRC staff's review or if you intend to request additional time to respond, please contact me at (301) 415-4093 or via e-mail at Adrian.Muniz@nrc.gov.

Sincerely,



Signed by Muniz Gonzalez, Adrian
on 01/27/23

Adrian Muñoz, Senior Project Manager
Advanced Reactor Licensing Branch 2
Division of Advanced Reactors and Non-Power
Production and Utilization Facilities
Office of Nuclear Reactor Regulation

Project No. 99902094

Enclosure:
As stated

C. Brooks

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SUBJECT: UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN - REQUEST FOR
ADDITIONAL INFORMATION REGARDING QUALITY ASSURANCE
PROGRAM DESCRIPTION (EPID NO. L-2022-NFN-0004)
DATED: JANUARY 27, 2023

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REQUEST FOR ADDITIONAL INFORMATION
QUALITY ASSURANCE PROGRAM DESCRIPTION FOR THE
UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN NON-POWER REACTOR
DOCKET NO. 99902094
EPID NO. L-2022-NFN-0004

Background:

By letter dated October 20, 2022 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML22320A086), the University of Illinois-Champaign (UIUC) submitted its Quality Assurance Program Description (QAPD) topical report for its proposed non-power reactor for approval. UIUC submitted the topical report pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR) Sections 50.34(a)(7) and 50.34(b)(6)(ii). The NRC staff has reviewed the topical report and has identified that additional information is needed to complete its review as discussed in the requests for additional information (RAIs) and request for confirmation of information (RCI) below.

RAI and RCI Regulatory Basis:

The regulation in 10 CFR 50.34(a)(7), requires that a preliminary safety analysis report include “[A] description of the quality assurance program to be applied to the design, fabrication, construction, and testing of the structures, systems, and components of the facility.” In addition, the regulation in 10 CFR 50.34(b)(6)(ii) requires a final safety analysis report to include managerial and administrative controls to be used to assure safe operation of the facility. Guidance in NRC Regulatory Guide (RG) 2.5, “Quality Assurance Program Requirements for Research and Test Reactors,” Revision 1, dated June 2010 (ADAMS Accession No. ML093520099), which states that the general requirements for establishing and executing a quality assurance program for the design, construction, testing, modification, and maintenance of research and test reactors in American National Standards Institute/American Nuclear Society (ANSI/ANS)-15.8-1995, “Quality Assurance Program Requirements for Research,” provide an acceptable method for complying with the program requirements of 10 CFR 50.34, “Contents of Applications; Technical Information.” UIUC states in the topical report that the QAPD describes the methods and establishes quality assurance (QA) and administrative control requirements that meet 10 CFR 50.34, based on the criteria of ANSI/ANS-15.8 as endorsed by RG 2.5, Revision 1. Therefore, the NRC staff used ANSI/ANS-15.8-1995 (Reaffirmed 2013) as the basis for evaluating the acceptability of the UIUC QAPD in conformance with the provisions of 10 CFR 50.34(a)(7) and 50.34(b)(6)(ii).

RAIs and RCI:

RAI-1: Section 2.2, “Quality Assurance Programs” of the QAPD states, in part, that “This QAP provides for the use of a graded approach to quality. The measures applied to a particular engineered or administrative control or control system may be graded commensurate with the reduction of the risk attributable to that control or control system. This approach to achieving levels of quality is described in the QAPD and related implementing documents”. However, the QAPD topical report does not seem to discuss this graded approach to quality. Therefore, the NRC staff is requesting that UIUC provide additional information on this approach and how it plans to assign quality levels to the SSCs and activities.

Enclosure

RAI-2: Section 2.1.4, "Engineering Support and Operations Manager" of the QAPD states, in part, that the Engineering support and operations manager is responsible for providing oversight of outside organizations or support contractors and suppliers. Section 2.1.7, "Quality Assurance Manager" of the QAPD states, in part, that the QA manager is responsible for ensuring that the suppliers provide quality services, parts and materials that conform with applicable QA requirements.

Provide additional information on the roles and responsibilities of the engineering and QA organizations as it pertains to adequate supplier oversight responsibilities as described in ANSI/ANS-15.8 Section 2.7, "Control of Purchased Items and Services."

RAI-3: Section 55.4 to 10 CFR, provides a definition of "operator." QAPD Section 1.2, "Definitions" include the following definitions:

- a. Certified operator - An individual authorized by the chartering or licensing organization to carry out the duties and responsibilities associated with the position requiring the certification.
- b. Licensed operator – see certified operator

Describe the authorizations required to certify or license an operator for UIUC.

RAI-4: ANSI-ANS 15.8, Section 2.10, "Inspection" states, in part, that "The inspection program shall apply to procurement, construction, modification, maintenance, and experiment fabrication. The NRC staff notes that the UIUC QAPD does not address experiment fabrication activities.

Please clarify whether the QAPD will cover experiment fabrication activities or address why not.

RCI-1: Section 2.7 of ANSI/ANS-15.8, "Control of Purchased Items and Services," as reflected in QAPD 2.7 states, in part, that "The procurement of items and services shall be controlled to ensure appropriate procurement planning, source evaluation and selection, evaluation of objective evidence of quality furnished by the supplier, source inspection, **audit**, and examination of items or services for acceptance upon delivery or completion."

QAPD Section 2.18, "Assessments," consistent with Section 2.18 of ANSI/ANS-15.8, states, in part, that "UIUC conducts periodic **assessments** of quality-affecting activities during design, construction, modification, and operations to evaluate the effectiveness of the as-implemented quality program. Assessments shall be performed in accordance with written procedures or checklists.

Please confirm that the terms "assessment" and "audit" can be used interchangeably within the UIUC QAPD.