



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

April 13, 2021

Mr. George Wilson
Director, Regulatory Affairs
TerraPower, LLC
15800 Northup Way
Bellevue, WA 98008

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION ON NRC'S ASSESSEMENT OF
THE QUALITY ASSURANCE PROGRAM DESCRIPTION FOR TERRAPOWER,
LLC'S QUALITY ACCURANCE TOPICAL REPORT REVISION 1 (EPID NO. L-
2020-LRO-0045)

Dear Mr. Wilson:

By letter dated February 26, 2021 (Agencywide Documents Access and Management System Accession No. ML21057A084), TerraPower, LLC (TerraPower) submitted for U.S. Nuclear Regulatory Commission (NRC) staff review Revision 1 of their "Quality Assurance Topical Report (QATR)."

The NRC staff has identified that additional information is needed to continue portions of the review. The staff's request for additional information (RAI) is contained in the enclosure to this letter. You are requested to respond within 45 days of the date of this letter.

If changes are needed to the design control document, the staff requests that the RAI response include the proposed wording changes. Please contact Mallecia Sutton at 301-415-0673 or by e-mail at Mallecia.Sutton@nrc.gov with questions.

Sincerely,

A handwritten signature in black ink, appearing to read "Benjamin Beasley", is written over a horizontal line.

Signed by Beasley, Benjamin
on 04/13/21

Benjamin G. Beasley, Chief
Advanced Reactor Licensing Branch
Division of Advanced Reactors and Non-Power
Production and Utilization Facilities
Office of Nuclear Reactor Regulation

Project No. 99902087

Enclosure:
As stated

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION ON NRC'S ASSESSEMENT OF
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2020-LRO-0045) DATED: April 13, 2021

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MShams

BSmith

BBeasley

YDiaz-Castillo

KKavanagh

PPrescott

jnikola@terrapower.com

tneider@terrapower.com

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NRR-088

OFFICE	NRR/DANU/UARL/PM	NRR/DANU/UARL/LA	NRR/DANU/UARL/BC
NAME	MSutton	SLent	BBeasley
DATE	4/5/2021	4/5/2021	4/13/2021

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Request for Additional Information

Application Title: TerraPower QAPD Revision 1

RAI 1

Request for additional information (RAI) 1 asked TerraPower, LLC (TerraPower) to clarify whether TerraPower is committed to NQA-1-2015 for each of the 18 criteria of Appendix B to Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50. In its response, TerraPower stated that they would review each of the criteria and specify clarifications or exceptions as applicable.

The NRC staff confirmed that the Quality Assurance Program Description (QAPD) was updated with a statement committing to NQA-1-2015; however, for Criterion 2, and 7, a statement committing to Regulatory Guide (RG) 1.28 was not included. Further, a statement committing to RG 1.28 was included under Criterion 17, but it did not include the revision number.

Clarify if TerraPower is committed to Revision 5 of RG 1.28 for Criterion 2, 7 and 17 to ensure the NRC's regulatory positions will be adequately implemented.

RAI 2

In RAI 6 the NRC asked TerraPower if they were committed to Revision 3 of RG 1.189 since Revision 3 is the latest revision and the QAPD stated they were committed to Revision 2. In RAI 7 the NRC asked TerraPower to document the regulatory guides, generic letters (GLs), and other quality assurance (QA) standards that are applicable and provide justification for guidance that may not be applicable due to unique design considerations.

In its response, TerraPower stated that they would revise the QAPD to commit to Revision 3 of RG 1.189 and that an evaluation will be done to determine which RGs, GLs, and QA standards are applicable and then develop a list of commitments and a justification for inclusion or not will be provided in the QAPD.

Section 20, "Regulatory Guides and Quality Assurance Standards Requirements," in Revision 1 of the QAPD, states, in part:

"TerraPower commits to identifying the extent of conformance, including justifications for exclusion or modifications based on the specific characteristics of TerraPower's non-LWR technology, to other Regulatory Guides (RGs), Generic Letters (GLs) and Quality Assurance (QA) standards supplementing the TerraPower QAPD within the applicable license application documents, including but not limited to:

- RG 1.26 (*no revision provided*)
- RG 1.29 (*no revision provided*)
- RG 1.37, Revision 1
- Regulatory Position (RP) 3.5 and Appendix A in RG 1.155 (*no revision provided*)
- GL 85-06
- GL 89-02
- GL 89-05

Enclosure

- RP 1.7 in RG 1.189 (*no revision provided*)”
- a. The statement “...within the applicable license application documents...” seems to suggest that TerraPower’s QAPD may be applicable to any type of application and not specific to a Construction Permit (CP) as previously discussed. The NRC staff’s review of a QAPD is dependent on the type of application that will be submitted due to the different quality assurance requirements for the different types of applications. Clarify if TerraPower’s QAPD is based on the QA requirements for a CP.
 - b. The NRC understands that because of the substantial differences between TerraPower’s plant design and a light-water reactor, direct commitment to RGs, GLs and QA standards may not be appropriate at this time. However, Section 20 of the QAPD did not include a comprehensive list of RGs, GLs, and QA standards that are applicable and did not include justification for guidance that may not be applicable due to unique design considerations. Further, TerraPower is not consistent in providing the applicable revision number for the guidance listed.

Explain TerraPower’s plans to review the applicable guidance and include justification for that guidance that may not be applicable due to unique design considerations.

RAI 3

Section 7.8, “Commitment,” was created to list the exceptions taken for Criterion VII. One of the exceptions listed is the use of the International Laboratory Accreditation Cooperation (ILAC) accreditation process.

- a. The exception contains the following statement: “...commercial-grade surveys and source verifications need not be performed...” The NRC’s approval of the ILAC accreditation process is only acceptable to use in lieu of commercial-grade surveys, and can’t be used in lieu of performing source verifications. In addition, the current write-up references both the 2005 and 2017 editions of International Standards Organization 17025. The 2005 edition of ISO 17025 is only acceptable until June 1, 2021.
- b. Clarify if TerraPower plans to implement Revision 1 of Nuclear Energy Institute 14-05A, which the NRC staff recently endorsed in a safety evaluation report dated November 23, 2020 (Agencywide Documents Access and Management System Accession No. ML20322A019).

RAI 4

Section 18.2, “Exigent Conditions,” was created to include guidance on the 25 percent extension for supplier audits/surveys during exigent conditions.

- a. This section is included under Criterion XVIII; however, it should be included under Criterion VII. Criterion VII addresses the requirements for supplier oversight, which includes external audits, while Criterion XVIII addresses the requirements for internal audits.
- b. The following condition is missing from the current write-up in Section 18.2: “Receipt inspection and industry operating experience are reviewed on an ongoing basis as the information becomes available and documented. The results of the review are promptly

considered for the effects on a supplier's continued qualification and adjustments made as necessary, including corrective actions."