
April 26, 2024

2024-XE-NRC-004

Project No. 99902118

U.S. Nuclear Regulatory Commission
Document Control Desk
11555 Rockville Pike
Rockville, MD 20852

Re: Submission of X-energy, LLC, XENITH™ Principal Design Criteria Licensing Topical Report

I am pleased to submit on behalf of X-energy, LLC (X-energy), an enclosed Controlled Unclassified Information (CUI) version of X-Energy's Next-Generation Integrated Transportable High-Temperature (XENITH) microreactor pre-application licensing topical report (LTR) that describes the development of the XENITH microreactor plant's principal design criteria (PDC). The XENITH PDC were developed using the guidance from the U.S. Nuclear Regulatory Commission (NRC) Regulatory Guide (RG) 1.232, "Guidance for Developing Principal Design Criteria for Advanced (Non-Light Water) Reactors," NEI 21-07, "Technology Inclusive guidance for Non-Light Water Reactor Safety Analysis Report: Content for Applicants Using the NEI 18-04 Methodology," Revision 1, and XENITH-specific safety functions and design requirements.

The enclosed XENITH PDC LTR includes the XENITH microreactor design team's assumptions and analysis associated with the PDC requirements outlined in the NEI 18-04 guidance. The XENITH PDC LTR is provided to the NRC for review and approval as indicated in the report and is expected to be referenced in future XENITH licensing applications. X-energy requests that an acceptance review, and the associated schedule/ budget planning activities for the XENITH PDC LTR review, occurs within 60 days of LTR's submittal; and that a review duration of less than 12 months be considered.

This submittal contains CUI information from X-energy and shall not be distributed and/ or disseminated outside of its intended audience without the consent of the Department of Defense's Strategic Capabilities Office. In conformance with the requirement of 10 CFR Section 2.390, as amended, of the NRC's regulations, we are enclosing with this submittal an Affidavit. The Affidavit sets forth the basis on which the information identified as CUI should be withheld from public disclosure.



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This letter contains no commitments. Should you have any questions or require additional information, please contact Michael Dudek at mdudek@x-energy.com

Sincerely,

Michael I. Dudek
Licensing Manager, XENITH Microreactor Program
X-energy, LLC

Cc:

X-energy, LLC

Tom Nixon

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Steve Vaughn

U.S. Nuclear Regulatory Commission

Michael Wentzel

Patrick Boyle

Ondra Dukes

Enclosures:

(1) Affidavit

(2) X-energy XENITH Microreactor Principal Design Criteria Licensing Topical Report (CUI)