



X Energy, LLC
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26 May 2023

2023-XE-NRC-014

Project No. 99902071

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555-0001

Submission of X Energy, LLC (X-energy) Xe-100 Licensing Topical Report: Atmospheric Dispersion and Dose Calculation Methodology

The purpose of this letter is to submit the subject Licensing Topical Report to the U.S. Nuclear Regulatory Commission (NRC) on behalf of X Energy, LLC (X-energy). X-energy is requesting NRC approval of the methodology described in Sections 4 through 7 of this Licensing Topical Report for use by prospective applicants for Construction Permits, Operating Licenses, Standard Design Approvals or Certifications, Early Site Permits, Combined Licenses, or Manufacturing Licenses for the Xe-100 technology or project as an appropriate means to calculate dose consequences of Anticipated Operational Occurrences, Design Basis Events, and Beyond Design Basis Events for evaluation of frequency-consequence targets and quantitative health objectives and to evaluate Design Basis Accident consequences to ensure that performance of the Xe-100 meets the dose limits in 10 CFR 50.34. This submission provides both proprietary and non-proprietary versions of the report. It is provided for NRC review and approval as indicated in the report and is expected to be referenced in future Xe-100 licensing applications. The specific review schedule will continue to be developed with X-energy's NRC project manager.

This report contains commercially sensitive, proprietary information, and, as such, we are requesting that this information be withheld from public disclosure in accordance with 10 CFR 2.390, "Public inspections, exemptions, requests for withholding," paragraph (a)(4). Enclosure 1 is the Non-Public version of the report which contains nonredacted sensitive, proprietary information that is appropriately marked. Enclosure 2 provides an affidavit with the basis for this request. Enclosure 3 provides a redacted public version of the report that contains non-proprietary content.

This letter contains no commitments. If you have any questions or require additional information, please contact Jessica Maddocks at jmaddocks@x-energy.com or Ingrid Nordby at inordby@x-energy.com.

Sincerely,

DocuSigned by:
A handwritten signature in black ink, appearing to read 'T. Chapman', is placed over a horizontal line. The signature is enclosed in a blue DocuSign verification box.
F053E736949E4C3...

Travis A. Chapman

Director, Reactor Licensing & Regulatory Affairs, Xe-100
Program



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X Energy, LLC

cc:

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Enclosures:

- 1) X Energy, LLC (X-energy) Xe-100 Licensing Topical Report: Atmospheric Dispersion and Dose Calculation Methodology (Non-Public)
- 2) Affidavit Supporting Request for Withholding from Public Disclosure (10 CFR 2.390)
- 3) X Energy, LLC (X-energy) Xe-100 Licensing Topical Report: Atmospheric Dispersion and Dose Calculation Methodology (Public)



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Enclosure 2

Affidavit Supporting Request for Withholding from Public Disclosure (10 CFR 2.390)



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Affidavit Supporting Request for Withholding from Public Disclosure (10 CFR 2.390)

I, Travis A. Chapman, Director, Reactor Licensing & Regulatory Affairs, Xe-100 Program, of X Energy, LLC (X-energy) do hereby affirm and state:

1. I am authorized to execute this affidavit on behalf of X-energy. I am further authorized to review information submitted to or discussed with the Nuclear Regulatory Commission (NRC) and apply for the withholding of information from disclosure. The purpose of this affidavit is to provide the information required by 10 CFR 2.390(b) in support of X-energy's request for proprietary treatment of certain commercial information submitted in 2021-XE-NRC-014. Specifically, Enclosure 1, the Licensing Topical Report, "Atmospheric Dispersion and Dose Calculation Methodology," contains proprietary information and has been marked appropriately.
2. I have knowledge of the criteria used by X-energy in designating information as sensitive, proprietary, confidential, and export-controlled.
3. Pursuant to the provision of paragraph (b)(4) of 10 CFR 2.390, the following is furnished for consideration by the NRC in determining whether the information sought to be withheld from public disclosure should be withheld.
 - a. The information sought to be withheld from public disclosure in Enclosure 1 is owned by X-energy. This information was prepared with the explicit understanding that the information itself would be treated as proprietary and confidential and has been held in confidence by X-energy.
 - b. The information sought to be protected in Enclosure 1 is not available to the public.
 - c. The information contained in Enclosure 1 is of the type that is customarily held in confidence by X-energy, and there is a rational basis for doing so. The information X-energy is requesting to be withheld from public disclosure includes technical information related to the design, analysis and operations associated with our Xe-100 high-temperature, gas-cooled, pebble bed advanced reactor design that directly impact our business development and commercialization efforts. X-energy limits access to this proprietary and confidential information in order to maintain confidentiality.
 - d. Enclosure 1 contain information about the planned activities of X-energy related to the development of the Xe-100 design bases and relate to the commercialization strategy for our Xe-100 advanced reactor. Public disclosure of the information contained in Enclosure 1 would create substantial harm to X-energy because it would reveal valuable technical information regarding X-energy's design development, competitive expectations, assumptions, current position and strategy. Its use by a competitor could substantially improve the competitor's position in the design, manufacture, licensing, construction and operation of a similar competing product.




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e. The Proprietary Information contained in Enclosure 1 is transmitted to the NRC in confidence and under the provisions of 10 CFR 2.390; it is to be received in confidence by the NRC. The proprietary slides are marked.

I declare under the penalty of perjury that the foregoing is true and correct. Executed on May 26, 2023.

Sincerely,

DocuSigned by:

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Travis Chapman
Director, Reactor Licensing & Regulatory Affairs
Xe-100 Program
X Energy, LLC