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Guidance for Developing Principal Design Criteria for Non-Light Water Reactors

Comment On: NRC-2017-0016-0001

Guidance for Developing Principal Design Criteria for Non-Light Water Reactors; Draft Regulatory Guide for Comment

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82 FR 9246

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General Comment

X Energy LLC (X-energy) is a private wholly owned U.S. company that is pursuing the commercialization of an advanced high temperature gas-cooled reactor (HTGR) for both electricity and process heat applications. X-energy appreciates the efforts of the NRC, DOE and industry in developing guidance for the establishment of principal design criteria for modular mHTGRs. We agree with the comments that have submitted by the Nuclear Energy Institute (NEI) with particular highlights related to:

- (1) The degree to which integration of safety and security design requirements remains a challenge for designers of advanced reactors. Guidance on this will be beneficial.
- (2) Much effort has been undertaken for mHTGRs in establishing top-level regulatory criteria. These criteria can be summarized in terms of reactivity control, heat removal, and radionuclide retention functions. The draft Appendix C (DG-1330) retains many of the existing terms that have been derived for LWRs. As the guidance is finalized, consideration should be given to rephrasing (at least at the level of the recommended GDC groupings) to better align with these top-level functions.
- (3) Additionally, much work has been undertaken to risk-inform the regulatory requirements and guidance for large LWRs. More work will be needed for advanced non-LWRs. As DG-1330 is finalized, a statement needs

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to be included that acknowledges the maturity of these efforts and the expectation for future enhancements. The guidance that results from this DG-1330 effort should be noted as subject to further refinements as advanced non-LWR designs are brought into the marketplace.

Sincerely,

Edward M. Burns
Vice President, Regulatory Affairs