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December 5, 2022

U.S. Nuclear Regulatory Commission
Office of Administration
Mail Stop: TWFN-7-A60M
Washington, DC 20555-0001

ATTN: Program Management, Announcements and Editing Staff

Subject: Docket ID NRC-2021-0193
American Nuclear Society Comments on NUREG-2263, *Environmental Impact Statement for the Construction Permit for the Kairos Hermes Test Reactor* (Draft for Comment)

Dear Sir or Madam:

On behalf of the 10,000 nuclear technology professionals that make up the American Nuclear Society (ANS), I am pleased to provide comments on the Nuclear Regulatory Commission's (NRC's) draft environmental impact statement (EIS) for the Kairos Hermes test reactor. ANS members are involved in many applications of nuclear technology for the betterment of humanity, including the clean generation of reliable energy using nuclear power plants. Constructing and operating the Hermes test reactor is a significant step in the development and licensing of the Kairos Power Fluoride Salt-Cooled, High Temperature Reactor (KP-FHR). Once deployed, the KP-FHR will provide an important capability for generation of clean, reliable energy using advanced reactor technology.

The NRC, in its role as regulator of commercial nuclear facilities, evaluated the environmental impacts of the proposed Hermes test reactor and documented the results of that evaluation in draft NUREG-2263. ANS members have substantial experience in nuclear reactor design, construction, operation, waste management, and decommissioning. Based on that experience and its review of draft NUREG-2263, ANS offers the following comments on the draft EIS.

General

ANS agrees with the draft NRC findings that the environmental impacts from construction, operation, and decommissioning of the Hermes test reactor and associated facilities would be small (Section 5.1, Table 5-1). Also, ANS concurs with the preliminary NRC staff recommendation that "… unless safety issues mandate otherwise, … the NRC issue the CP [construction permit] to Kairos for the Hermes facility." (Section 5.4, p. 5-11).

Environmental Impacts

The discussion in Chapter 3 makes it clear that the Heritage Center Industrial Park of the East Tennessee Technology Park is a suitable location for the planned Hermes test reactor.

No Action Alternative

ANS agrees with the NRC statement that the failure to construct and operate Hermes "… could slow or impede safe and efficient development of the [KP-FHR] technology." (Section 4.1, p. 4-2). However, ANS does not agree that this is the full extent of the adverse impact of the no action alternative.

Timely deployment of the advanced reactor designs will be necessary if the United States is to meet its aggressive decarbonization targets. In addition to clean electricity generation, high temperature reactors like the KP-FHR will be essential for large scale replacement of greenhouse gas-emitting fossil fuels in many industrial applications. Failure to issue a timely construction permit for Hermes would have a chilling effect on the deployment of all advanced nuclear energy systems, thereby jeopardizing the nation's ability to limit the extent of harmful climate impacts.

Overall, ANS commends the NRC for the quality and scope of the draft EIS for the Kairos Hermes test reactor.

Respectfully,

Dr. Steven Arndt

President
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Craig H. Piercy

Executive Director / CEO
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