

August 19, 2021

Project No. 99902069

US Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555-0001

Subject: Kairos Power LLC
Regulatory Analysis for the Kairos Power Fluoride Salt-Cooled High Temperature Reactor

- References:
1. Letter, Kairos Power LLC to Document Control Desk, "Regulatory Analysis for the Kairos Power Fluoride Salt-Cooled High Temperature Reactor," January 24, 2019 (ML19024A483)
 2. Letter, Nuclear Regulatory Commission to Kairos Power, "Acceptance For Review of Kairos Power LLC Regulatory Analysis For the Kairos Power Fluoride Salt-Cooled, High Temperature Reactor Topical Report," March 6, 2019 (ML19059A377)
 3. Email, Nuclear Regulatory Commission Stewart Magruder to Darrell Gardner and James Tomkins, "Initial Staff Comments on Regulatory Analysis for the Kairos Power Fluoride Salt-Cooled, High Temperature Reactor," August 15, 2019
 4. Email, Nuclear Regulatory Commission Stewart Magruder to Darrell Gardner and James Tomkins, "Clarification Comments on Regulatory Analysis Topical Report," September 6, 2019
 5. Letter, Kairos Power LLC to Document Control Desk, "Regulatory Analysis for the Kairos Power fluoride Salt-Cooled, High Temperature Reactor, Revision 1," October 31, 2019 (ML19304C666)
 6. Nuclear Regulatory Commission, "NRC Staff Draft White Paper Analysis of Applicability of NRC Regulations for Non-Light Water Reactors," September 2020 (ML20241A017)
 7. Letter, Kairos Power LLC to Document Control Desk, "Regulatory Analysis for the Kairos Power Fluoride Salt-Cooled High Temperature Reactor, Rev. 2," November 23, 2020 (ML20328A234)
 8. Email, Nuclear Regulatory Commission Stewart Magruder to James Tomkins, "NRC Staff Preliminary Questions on Kairos Power Regulatory Analysis Topical Report (KP-TR-004), Rev. 2," April 12, 2021

Kairos Power submitted Revision 0 of the subject topical report for Nuclear Regulatory Commission (NRC) staff review on January 24, 2019 (Reference 1). This topical report was accepted for review on March 6, 2019 (Reference 2). The NRC staff provided initial review comments in emails dated August 15, 2019 (Reference 3) and September 6, 2019 (Reference 4). On October 31, 2019, Kairos Power submitted Revision 1 of the report (Reference 5) to address the initial NRC staff comments. Independently from the review of this report, the NRC issued a draft white paper evaluating the applicability of regulations for non-light water reactors (Reference 6).

Subsequent to Revision 1 of this report, Kairos Power elected to pursue the deployment of a KP-FHR test reactor prior to a commercial power reactor. This decision was communicated to NRC management and Commissioners during drop-in meetings in early September 2020. Kairos Power submitted Revision 2 of the report on November 23, 2020 (Reference 7) to address the relevant regulatory guidance in the

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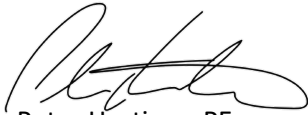
NRC's draft white paper for non-light water reactors, and to include a regulatory analysis for the KP-FHR test reactor.

The NRC staff provided additional review comments to Revision 2 of the report in an email dated April 12, 2021 (Reference 8). Kairos Power discussed these comments with the NRC staff in a public meeting on May 10, 2021. Kairos Power is submitting Revision 3 of the report to address NRC staff comments.

Enclosure 1 provides the non-proprietary report.

If you have any questions or need any additional information, please contact James Tomkins at tomkins@kairospower.com or (510)-808-5265, or Darrell Gardner at gardner@kairospower.com or (704)-769-1226.

Sincerely,



Peter Hastings, PE
Vice President, Regulatory Affairs and Quality

Enclosures:

- 1) Regulatory Analysis for the Kairos Power Fluoride Salt-Cooled High Temperature Reactor, Revision 3 (Non-Proprietary)

xc (w/enclosure)

William Kennedy, Acting Chief, Advanced Reactor Licensing Branch
Stewart Magruder, Project Manager, Advanced Reactor and Licensing Branch

KP-NRC-2108-003

Enclosure 1

Regulatory Analysis for the Kairos Power Fluoride Salt-Cooled High Temperature Reactor, Revision 3

(Non-Proprietary)