



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

May 14, 2021

MEMORANDUM TO: Benjamin Beasley, Chief
Advanced Reactor Licensing Branch
Division of Advanced Reactors and Non-Power
Production and Utilization Facilities
Office of Nuclear Reactor Regulation

FROM: Samuel Cuadrado, Project Manager *Samuel Cuadrado*
Advanced Reactor Licensing Branch
Division of Advanced Reactors and Non-Power
Production and Utilization Facilities
Office of Nuclear Reactor Regulation

SUBJECT: SUMMARY OF OCTOBER 7, 2020, PUBLIC MEETING TO
DISCUSS KAIROS POWER LLC'S QUALITY ASSURANCE
PROGRAM TOPICAL REPORT SET 1 OF CLARIFICATION
QUESTIONS

On October 7, 2020 (Agencywide Documents Access and Management System (ADAMS) Accession No. [ML20276A162](#)), the U.S. Nuclear Regulatory Commission (NRC) staff held a virtual Category 1 public meeting with Kairos Power LLC (Kairos) using the Microsoft Teams platform. The purpose of the meeting was to discuss with Kairos the first set of NRC's clarification questions regarding Kairos Quality Assurance Program (QAP) topical report (TR). The NRC's clarification questions can be found in ADAMS under Accession No. [ML20273A292](#). The list of attendees is provided as an enclosure to this document.

The NRC's first set of clarification questions had five questions that were shared with Kairos via email on September 18, 2020 (ADAMS Accession No. [ML20273A292](#)). During the meeting Kairos and the NRC staff discussed each of the five clarification questions.

On Question 1 the NRC staff requested clarification on how it should identify the Appendix B Criteria applicable to the design, fabrication, construction, and testing of the structures, systems, and components of the facility and to the managerial and administrative controls. Clarification was also sought on whether the QAP will be applicable to Manufacturing License activities pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR) Section 52.157(f)(17). Kairos stated that it believes the Appendix B Criteria applicable to each licensing activity is stated in the QAP TR. Kairos clarified that it does not intend to pursue a manufacturing license and will revise its TR to delete the word "manufacturing" from the "Executive Summary" and from Part I Section 1, "Organization." The staff stated that it will consider the information provided to assess if further clarification is needed on this topic.

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On Question 2 the NRC staff requested clarification on the Kairos QAP TR Part II Section 1 “Organization” for the design phase, construction management, and operations management. Clarification was also needed on the function of the organization described in Section 1 and how is the organization in alignment with Figure II.1-1, “Kairos Power Functional Organization.” Kairos noted that the QAP function is a subset of the function discussed in Section 1.2.5, “Safety Assurance and Quality,” and that the quality assurance (QA) functions described in Nuclear Energy Institute (NEI) 11-04A, Revision 0, “Nuclear Generation Quality Assurance Program Description,” are also contained in that section of the TR. Kairos also noted that the last two paragraphs of Section 1.3.1, “Construction Management,” describe the QAP function. For its revised QAP TR Kairos plans to provide language that is consistent with NEI 11-04A to clarify the transition of organizations into the construction and operations phase. Kairos stated that roles are cited in Section 1.3.2, “Operations Management,” as part of the operations management function and consistent with the level of detail in NEI 11-04A. Kairos also stated that the following revisions will be made to Part II of the QAP TR to address Question 2:

- For Section 1 Kairos will replace “site services, technical services” with “document control and other support services”
- For Section 1.2.5 Kairos will:
 - Clarify QA function under Safety Assurance and Quality Function
 - Clarify direct access of QA to Chief Executive Officer (CEO)
- For Section 1.3 Kairos will clarify that transition to construction and operations occurs such that those positions required to support quality-related activities will retain their applicable responsibilities until it is deemed that they are no longer necessary
- For Section 1.3.1 Kairos will clarify that construction management is staffed and has authority to perform quality-related construction activities
- For Section 1.3.2 Kairos will:
 - Clarify functions reporting Construction Management to Operations Management
 - Replace “site services technical services” with “document control and other support services”
- For Figure II.1-1 Kairos will make updates to be consistent with the organization described in Section 1 and to reflect the functions reporting to Construction Management and Operations Management.

On Question 3 the NRC staff requested clarification on how the requirements in NQA-1-2015, “Quality Assurance Requirements for Nuclear Facility Applications,” Requirement 18, paragraph 201.2 and 201.3, are met to allow for a 2-year extension. Kairos stated that the language in their QAP TR Part II Section 2.4, “Periodic Review of the Quality Assurance Program,” is verbatim from NEI 11-04A and addresses management assessments as provided for in NQA-1-2015, Requirement 2, Clause 100 General, item c, which states that “[m]anagement shall regularly assess the adequacy and effective implementation of the quality assurance program.” Kairos also stated that NQA-1-2015 Requirement 18 is addressed in Section 18 of the TR and the language within that section is consistent with NEI 11-04A, including language consistent with paragraph 201.2 from the then-nonmandatory requirement of NQA-1-2009a. Kairos noted that paragraphs 201.2 and 201.3 are now mandatory in NQA-1-2015 and that it commits to NQA-1-2015 Requirement 18 in their QAP TR.

On Question 4 the NRC staff requested clarification on the process to be used for the phased implementation mentioned in the QAP TR “Executive Summary.” Clarification was also requested on whether Kairos QAP would be based on any section of Part IV of the American Society of Mechanical Engineers NQA-1-2015. Kairos noted that the discussion in the “Executive Summary” regarding phased implementation was intended to imply the standard

practice to develop procedures when they are needed. Kairos assesses activities as part of standard planning to determine the extent to which the QAP description applies and that not every procedure needed to implement the QAP description for the life of the plant will be developed before approving the program requirements document. Kairos stated that it will revise or delete from the "Executive Summary" the sentence regarding "phased implementation" to avoid confusion. Kairos also stated that Part IV is cited in the QAP TR and that they will also add a reference to Part IV in the "Introduction," section of the TR.

On Question 5 the NRC staff requested clarification on the roles and responsibilities of the Vice President (VP) and other individuals within the QA Organization for Kairos. Kairos stated that the VP of Regulatory Affairs and Quality in the current Kairos organization fulfills the Safety Assurance and Quality function cited in the QAP description. The function is defined separately from the organizational titles to avoid unnecessary changes to the QAP description in the event of change in organizational titles that do not impact the function, and because the Regulatory Affairs and Quality organization also contains non-quality-related positions (such as Government Affairs). Kairos also stated that the QAP function is a subset of the Safety Assurance and Quality function discussed in Section 1.2.5 and that the QAP functions described in NEI 11-04A are contained in Section 1.2.5 of the TR. Kairos noted that the citation of the Regulatory Affairs and Quality position in Section 2.5 was an error that will be corrected in a revision to the TR to indicate and clarify the Safety Assurance and Quality function. Kairos stated that clarifications are being made to ensure the function/relationship is described consistently and that related to this and other questions, clarifications are also being made to direct access of QA to CEO and to Figure II.1-1.

At the end of the meeting Kairos asked if these were all the staff questions on the TR or if more questions were coming. The staff stated that as the detailed review of the TR continues it may have more clarification questions. The staff also stated that additional clarification questions would be sent to Kairos and that it would like to continue to have public meetings to discuss the questions.

Project No. 99902069

Enclosure:
List of Attendees

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NRC-001

OFFICE	NRR/DANU/UARL/PM	NRR/DANU/UARL/LA	NRR/DANU/UARL/BC	NRR/DANU/UARL/PM
NAME	SCuadrado	SLent	BBeasley	SCuadrado
DATE	5/11/2021	5/7/2021	5/4/2021	5/14/2021

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List of Attendees

NAME	ORGANIZATION
Drew Peebles	Kairos Power LLC (Kairos)
Darrell Gardner	Kairos
Peter Hastings	Kairos
John Price	Kairos
Rebecca Deiter	Kairos
Kerri Kavanagh	U.S. Nuclear Regulatory Commission (NRC)
Stu Magruder	NRC
Jonathan Ortega-Luciano	NRC
Richard Rivera	NRC
Yamir Diaz-Castillo	NRC
Samuel Cuadrado	NRC

Enclosure