

Summary Table of Proposed Safety Evaluation Changes with Rationale

No.	Location	Proposed Change	Rationale / Comments
1.	p. 2, Section 3.1, last paragraph	Concerning reliance on historical data, use the actual quote from Topical Report (TR) p. 1-4 rather than paraphrasing the report.	EPRI believes the revised statement is a more precise statement of what does not rely on historical data.
2.	p. 3, Section 3.2, last paragraph	Delete the last two sentences of the paragraph.	EPRI is concerned that the words “limited scope” could convey the incorrect impression that the topical report is somehow incomplete and needs to be supplemented. (Note: The words “limited scope” on Topical Report p. 2-4 were intended to apply to the data from AGR-1 and AGR-2, not to the report.) EPRI recognizes the Figure 2-1 alludes to the possibility of one or more future topical reports, but that possibility does not pertain to the regulatory bases of this TR. Accordingly, the last two sentences seem unnecessary and potentially misleading.
3.	p. 4, Section 3.4	Modify the characterization of the IPyC and OPyC layers.	The current wording seems to convey that the PyC layers handle all of the load (pressure) while the SiC layer handles fission product retention. The actual functions of the layers are more complex and interwoven. For example, SiC is the primary pressure boundary layer, but the PyC layers impact its stress state by putting it in compression during irradiation; also, the PyC layers function to contain gaseous fission products.
4.	p. 4, Section 3.5, NRC Staff Evaluation	Modify the characterization of Figure 5-2.	The current wording could be taken to imply that Figure 5-2 is an expected grain size, while the TR states that the figure shows a limiting large grain size and the actual grain size should be smaller. The suggested changes are consistent with the new TR Section 5.3.2.4.
5.	p. 7, Section 3.5, NRC Staff Evaluation, 2 nd full paragraph on page	Delete “instead of a much smaller number of fuel elements with tighter tolerances.”	EPRI is uncomfortable with the comparison of light water reactor fuel to TRISO fuel, and in particular, comparing the tolerances of each. It does not seem appropriate to characterize tolerances on different parameters for different products as “tighter” or “looser.” It seems very much like comparing apples and oranges.
6.	p. 7, Section 3.5, NRC Staff Evaluation, 2 nd full paragraph on page	Delete “large” where it is modifying “functional containment approach.”	The meaning of “large” in this context is unclear, and it does not appear to be necessary.

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7.	p. 8, Section 3.5, NRC Staff Evaluation, last paragraph, 2 nd to last sentence	Change “substantially” to “mostly.”	There is potential ambiguity with the current wording. “Substantially” within the boundaries could be interpreted to mean not only within the boundaries but well within the boundaries. It is EPRI’s understanding that the NRC intent is consistent with “mostly” (or “generally” or “largely”) within the boundaries.
8.	p. 8, Section 3.6, first paragraph	Modify the discussion of the cause of the increases in power seen during the experiment.	The topical report discussed two different causes for power increases – a general trend due to depletion of boron during the first several cycles (p. 6-7) and an end of cycle increase in some cycles due to rotation of control drums (p. 6-10). The NRC wording “increase in power during the experiment” seems to refer to the general trend. The suggested revisions to the wording focus on that burnable absorber depletion effect.
9.	p. 9, Section 3.6, NRC Staff Evaluation, first full paragraph on page	Change “vendor” to “future license applicant.”	Clarifies the ultimate responsibility.
10.	p. 9, Section 3.6, NRC Staff Evaluation, second full paragraph on page, last sentence	Change “manufacturing specifications in Section 5” to “parameter envelope in Table 5-5.”	With the revisions to the TR, there are no manufacturing specifications in Section 5.
11.	p. 9, Section 3.6, NRC Staff Evaluation, last paragraph	Modify wording of paragraph.	<p>The different types of fission products and associated measurements in AGR-1 and -2 can be difficult to follow. The proposed changes are intended to clarify the discussion.</p> <p>The modified wording also corrects a typo (Condition 2 should be Condition 3).</p>
12.	p. 10, Section 3.7, third paragraph on page	Modify discussion of silver depletion.	<p>The changes clarify that the initial release (and depletion) of silver was not all of the silver in the compact but the silver outside the TRISO particles.</p> <p>Also, “isotope” is changed to “element” because the more general term is appropriate for europium and strontium.</p>

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13.	p. 11, Section 3.7, NRC Staff Evaluation, 2 nd to last paragraph	Modify wording of paragraph.	EPRI agrees with the NRC that the data can be used to empirically evaluate failure probabilities of populations of TRISO particles with characteristics consistent with the AGR fuel and subjected to similar irradiation conditions. However, EPRI is concerned the current wording of the paragraph could lead to some overly pessimistic impressions of the state of knowledge concerning TRISO fuel behavior and the utility of the AGR data. In particular, the current text could be taken as implying (i) the results presented did not provide any data on particle failure mechanisms and (ii) the empirical data cannot be used in fuel performance model validation activities. Notwithstanding the challenges inherent in modeling some of the key phenomena, the AGR-1 and -2 tests provided important insights into the causes of the few particle failures that were experienced, as described in Section 7.4 of the TR.
14.	p. 12, Section 3.8, NRC Staff Evaluation, paragraph 3	Add krypton to the parenthetical list of elements with isotopes discussed in Sections 6.7, 6.8, 7.1, and 7.3.	Kr-85 is an important isotope and it is discussed in Sections 7.3.5 and 7.3.6.