U.S. Nuclear Regulatory Commission
FACSIMILE COVER SHEET

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Docket   70-1257

Pages 3 **+ Cover Sheet**

Request for Additional Information
FANP-Richland Validation Amendment

1. Provide change pages to License Application, Section 4.2.1, containing a reference to (including the date and revision number) and summary description of, either a manual or a documented, reviewed, and approved validation report, for each methodology used to determine subcritical limits at your facility.

    10 CFR 70.61(d) requires, in part, that "the risk of nuclear criticality accidents must be limited by assuring that under normal and credible abnormal conditions, all nuclear processes are subcritical, including use of an approved margin of subcriticality for safety." This requires that calculational techniques used to ensure subcriticality are appropriately validated. NUREG-1520, Section 5.4.3.4.1(7), states "The applicant includes a reference to...and summary description of, either a manual or a documented, reviewed, and approved validation report..."

2. Provide change pages to License Application, Section 4.2.1, explaining your method for determining calculational bias Δk_b and uncertainty Δk_u, in sufficient detail to permit an understanding of the methodology.

    10 CFR 70.61(d) requires, in part, that "the risk of nuclear criticality accidents must be limited by assuring that under normal and credible abnormal conditions, all nuclear processes are subcritical, including use of an approved margin of subcriticality for safety." This requires that calculational techniques used to ensure subcriticality are appropriately validated. NUREG-1520, Section 5.4.3.4.1(7), states "The applicant includes a reference to...and summary description of, either a manual or a documented, reviewed, and approved validation report....The summary description of a reference manual or validation report should have...(a) A summary of the theory of the methodology that is sufficiently detailed and clear to allow understanding of the methodology." This consists of information similar to that removed from the current version of the license application.

3. Provide change pages to License Application, Section 4.2.1, addressing the following topics with regard to validation of your calculational technique, or justify why proposed wording in the license application addresses these topics.

    a) A summary of the area or areas to which the reference manual or validation report applies.

    b) A commitment to apply the methodology only in the area or areas of applicability or provide justifications for applying the methodology outside the area or areas of applicability.

c) A commitment to use pertinent computer codes, assumptions, and techniques in the methodology.

d) A commitment to properly perform the mathematical operations in the methodology.

e) A commitment to use data based upon reliable and reproducible experimental measurements.

f) A commitment to use plant-specific benchmark experiments and data derived therefrom to validate the methodology.

g) A commitment to determine the bias, the uncertainty in the bias, the uncertainty in the methodology, the uncertainty in the data, the uncertainty in the benchmark experiments, and the margin of subcriticality for safety, when using the methodology.

h) A commitment to use controlled software and hardware, when using the methodology.

i) A commitment to use a verification process when using the methodology.

10 CFR 70.61(d) requires, in part, that "the risk of nuclear criticality accidents must be limited by assuring that under normal and credible abnormal conditions, all nuclear processes are subcritical, including use of an approved margin of subcriticality for safety." This requires that calculational techniques used to ensure subcriticality are appropriately validated. NUREG-1520, Section 5.4.3.4.1(7), states "The applicant includes a reference to...and summary description of, either a manual or a documented, reviewed, and approved validation report...". NUREG-1520, Section 5.4.3.4.1, goes on to state that the summary description should contain topics (a) through (i) enumerated above.

4. Provide change pages to License Application, Section 4.2.1, explaining in detail how the requirements of ANSI/ANS-8.1-1998, Section 4.3, will be implemented.

10 CFR 70.61(d) requires, in part, that "the risk of nuclear criticality accidents must be limited by assuring that under normal and credible abnormal conditions, all nuclear processes are subcritical, including use of an approved margin of subcriticality for safety." This requires that calculational techniques used to ensure subcriticality are appropriately validated. NUREG-1520, Section 5.4.3.4.1(5), states that the applicant "commits to ANSI/ANS-8.1-1983 as it relates to methodologies." Your proposed words in Sections 4.2.1 and 4.2.7 state that validation shall be conducted in accordance with Section 4.3 of ANSI/ANS-8.1-1998. However, NUREG-1520, Section 5.4, states that "If an applicant intends to conduct activities to which a standard applies and the standard has been endorsed by an NRC Regulatory Guide, then a commitment to comply with all the requirements (i.e., "shalls") of a standard is necessary but may not be sufficient to meet the acceptance criteria. Notwithstanding a general commitment to a standard, the applicant should clarify its intended compliance with those requirements in the standard that are expressed only as general principles by more specific commitments and descriptions in the application."

5. Remove the citation to Reference 23 from License Application Section 4.2.8, or else provide the appropriate reference to this in Chapter 4 of the License Application.

    10 CFR 70.61(d) requires, in part, that "the risk of nuclear criticality accidents must be limited by assuring that under normal and credible abnormal conditions, all nuclear processes are subcritical, including use of an approved margin of subcriticality for safety." This requires that calculational techniques used to ensure subcriticality are appropriately validated. Section 4.2.8 of the License Application, states that these references are "currently used by FANP in performing criticality safety analyses." Reference 23 is cited in the current version of License Application Section 4.2.1, but not in the proposed revision. Therefore, there is no explanation as to how this reference will be used in performing criticality safety analyses. This information is needed for a clear understanding of your validation methodology.

6. State whether your validation report will indicate the computer programs used, the operations, recipes for choosing code options where applicable, cross section sets, and any numerical parameters necessary to describe input.

    Regulatory Guide 3.71 has endorsed ANSI/ANS-8.1-1983, but has not endorsed the 1998 version of this standard. NUREG-1520, Section 5.4.2, states: "If an applicant commits to an unendorsed standard, then the applicant needs to demonstrate in the application why the unendorsed standard should be acceptable to NRC." With regard to validation, the 1998 version of ANSI/ANS-8.1 omits the aforementioned items which were present in the (endorsed) 1983 version.

7. Revise your commitment to ANSI/ANS-8.5 in License Application Section 4.2.4.1 to indicate to which version of the standard you are committing.

    SRP Section 5.4.3.4.2(15)(a) contains the acceptance criterion that "When using borosilicate glass raschig rings, the applicant commits to ANSI/ANS-8.5-1995." A different version of this standard may not be acceptable to the NRC.