

FAQ Number 07-0033

FAQ Revision 0

FAQ Title Engineering Analyses

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805 TF FPWG RATF RIRWG BWROG PWROG

Purpose of FAQ:

Provide guidance on the transition of existing engineering equivalency evaluations.

Is this Interpretation of guidance? Yes / No

Proposed new guidance not in NEI 04-02? Yes / No

Details:

NEI 04-02 guidance needing interpretation (include section, paragraph, and line numbers as applicable):

Sections 4.3.1, 4.3.2, Appendix B

Circumstances requiring guidance interpretation or new guidance:

NEI 04-02 (Reference 2.4) Section 4.1.1 states in part:

“The extent to which the pre-transitional fire protection licensing basis can be incorporated into the new NFPA 805 licensing basis is determined by the extent to which the fire protection CLB can be shown to comply with the requirements in NFPA 805. However, exceptions are permitted for the following licensee specific deviations from NFPA 805 requirements:

- *Alternatives from the fundamental fire protection program attributes of NFPA 805 Chapter 3 [NFPA 805 Chapter 3 Section 3.1] previously reviewed and approved by the NRC.*
- *Exemptions/deviations from 10 CFR 50 Appendix R / NUREG 0800 [NFPA 805 Figure 2.2] previously reviewed and approved by the NRC. Note the licensee will review these exemptions/deviations during the transition process to ensure the basis for acceptability is still valid.*
- *Existing Engineering Equivalency Evaluations [NFPA 805 Figure 2.2]. Note the licensee will review these equivalency evaluations during the transition process to ensure the quality level and the basis for acceptability is still valid.”*

NEI 04-02 (Reference 2.4) Section 4.3.1 states:

“It is important that the “previously approved alternatives” be clearly determined in order to understand the level of review and potential upgrades necessary to meet the requirements in Chapter 3 of NFPA 805. Fire protection program features and systems, although previously reviewed and approved by the NRC, may have been changed since initial NRC approval. Such changes are part of the Current Licensing Basis (CLB) if they have been made in accordance with the correct application of the guidelines of Generic Letter 86-10, an evaluation of plant changes under the requirements of 10 CFR 50.59, or the fire protection standard license condition (NEI 02-03). The fire protection standard license condition allows changes to the “approved fire protection program without prior approval of the Commission if those changes would not adversely affect the ability to achieve and maintain safe shutdown in the event of a fire.” Where the changes from the original NRC review and approval have been made appropriately using an approved change process, the changes are considered an acceptable part of the CLB. Licensees may rely on these changes to claim compliance but the NRC may inspect those changes and conclude that they do not comply with NFPA 805. However, they are not considered previously approved by the NRC for the purposes of superseding requirements in Chapter 3.”

Guidance needs to be provided to document the criteria against which the existing engineering equivalency evaluations will be reviewed.

Detail contentious points if licensee and NRC have not reached consensus on the facts and circumstances:

N/A

Potentially relevant existing FAQ numbers:

FAQ 06-0008 provides a process for post-transition engineering analyses.

Response Section:

Proposed resolution of FAQ and the basis for the proposal:

Engineering evaluations that have been made in accordance with an appropriate application of the guidelines of Generic Letter 86-10, and evaluated under the requirements of 10 CFR 50.59, or the fire protection standard license condition (Fire Protection Program Regulatory Reviews), are acceptable for transition to the new fire protection licensing basis. These engineering evaluations are not considered a “change” for the purposes of a transition change evaluation. These evaluations may be associated with fire protection systems and features addressed in NFPA 805, Chapter 3.

If appropriate, provide proposed rewording of guidance for inclusion in the next Revision:

Section 4.3.1 of NEI 04-02, Revision 1, last sentence (page 27). Insert underlined information.

Guidance on performing and documenting the fundamental element review is provided in Appendix B-1 of this document. A sample table showing NFPA 805 requirements, fundamental program and design elements, items for review, method of compliance, and licensing basis references are also shown in Appendix B.1 of this document. [Guidance on determining the acceptability of existing engineering equivalency evaluations is provided in Appendix B.3 of this document.](#)

Section 4.3.2 of NEI 04-02, Revision 1, last sentence (page 29). Insert underlined information.

Where the licensing basis is unclear or silent on fire area compliances, care should be taken to establish a licensing basis going forward. Guidance on performing and documenting the NFPA 805 Chapter 4 reviews is provided in the tables in Appendix B.2 of this guidance. [Guidance on determining the acceptability of existing engineering equivalency evaluations is provided in Appendix B.3 of this document.](#)

Insert new section B.3 to Appendix B of NEI 04-02:

B.3 Existing Engineering Equivalency Evaluations – Acceptability Determination

For the purposes of this transition, Engineering Equivalency Evaluations are those evaluations that demonstrate a fire protection system or feature is adequate for the hazard. In other words, the feature /system cannot be evaluated as ‘rated’ or ‘compliant’. For example a penetration seal engineering equivalency evaluation that determines the seal is ‘rated’ would not be included in the EEEE review of this procedure. However, if the evaluation takes into consideration combustible loading, other suppression/detection features, location of safe shutdown equipment, etc., and makes a claim that the seal is ‘adequate for the hazard’ then this evaluation would be considered in the scope of this instruction.

NEI 02-03, Appendix A, provides guidance for the preparation and development of engineering evaluations to determine if changes result in a deviations from applicable regulatory requirements, guidance documents, or the fire protection licensing basis are acceptable. The guidance may also be utilized to evaluate deviations from applicable NFPA codes. The guidance in NEI 02-03 is consistent with the information contained in Generic Letter 86-10. The evaluation criteria and considerations in Appendix A to NEI 02-03 should be utilized in the decision-making process regarding the adequacy of engineering evaluations for transition. These

FAQ Title Engineering Analyses

criteria and considerations should also be utilized in upgrading engineering evaluations or performing additional engineering evaluations prior to transition.

The following process should be used to determine if an existing engineering equivalency is adequate to transition:

- The engineering evaluation should not be based solely on quantitative risk evaluations.
- The engineering evaluation should be qualitative, and avoid performance based justifications.
- The engineering evaluation should be an appropriate use of the engineering evaluation process (e.g., for a pre-1979 plant, judging that 15 feet of separation between redundant trains with suppression and detection meets 10 CFR 50, Appendix R, Section III.G.2.b is not appropriate, since an exemption would be required.)
- The engineering evaluation has been evaluated against the criteria in the pre-transition standard fire protection license condition, 10 CFR 50.59, or plant specific process used to determine the impact of the change/condition on the ability to achieve and maintain post-fire safe shutdown.
- The engineering evaluations should be judged to be of acceptable quality. A recommended quality standard for engineering evaluations is based upon ASME NQA-1. ASME NQA-1 requires that design analyses meet minimum requirements. Design analyses shall be:
 - Legible and in a form suitable for reproduction, filing, and retrieving.
 - Provide analysis sufficiently detailed as to purpose, method, assumptions, design input, references and units, such that a person technically qualified in the subject can review and understand the analysis and verify the adequacy of the results without recourse to the originator.
 - ASME NQA-1 applies these requirements to safety-related and augmented quality design analyses. Fire Protection is typically "augmented quality", so engineering evaluations would be subject to these requirements.
- The engineering evaluation should reflect the current plant configuration or clearly bound changing plant conditions.

The engineering evaluation results will require judgment. The results of the transition evaluation should be formally documented as part of the transition report. This documentation should consist of a listing of each evaluation (document reference, revision no., related fire areas, etc.) and the results of the adequacy review. Existing engineering evaluations that will be transitioned to the new licensing basis and are determined to be inadequate can be:

- Updated to an acceptable level before transition and transitioned over to the new licensing basis.
- Evaluated during the transition process as part of the change evaluation process. (Note: Depending upon the significance of the adequacy determination, the item under consideration may need to be addressed via the corrective action process and/or may require compensatory measures.)