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Office of Administration  
U. S. Nuclear Regulatory Commission  
Washington, D.C. 20555-0001

**Comments on Proposed New Regulatory Guide DG-1145, Combined License Applications for Nuclear Power Plants (LWR Edition)**

AREVA NP appreciates the opportunity to submit comments on the U.S. Nuclear Regulatory Commission's (NRC) proposed new regulatory guide DG-1145, *Combined License Applications for Nuclear Power Plants (LWR Edition)*.

AREVA NP participated in the development of comments by the Nuclear Energy Institute (NEI) Combined License Task Force (COLTF), which are being submitted to the NRC in a separate letter by NEI. The NEI letter comprises a comprehensive review of DG-1145, covering essentially all of the important issues and concerns associated with the proposed new regulatory guide. AREVA NP endorses the comments in the NEI letter.

Attachment 1 to this letter includes detailed comments on specific sections of DG-1145 and general concerns related to the proposed new regulatory guide.

If you have any questions concerning this letter, please contact Ms. Sandra M. Sloan, AREVA NP Regulatory Affairs Manager for New Plants Deployment. She may be reached by telephone at 434-832-2369 or by e-mail at [sandra.sloan@areva.com](mailto:sandra.sloan@areva.com).

Sincerely,

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cc: E. R. Oesterle  
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AREVA NP INC.  
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## Attachment 1

### **Comments on the Proposed New Regulatory Guide DG-1145, Combined License Applications for Nuclear Power Plants (LWR Edition)**

#### General Comments

1. DG-1145 seeks information that will not be available at the time of COL application (COLA) and is not necessary for the staff to make its reasonable assurance findings. These information items should be eliminated from the guidance. Examples include:
  - a. Battery characteristic curves (available only after batteries are procured) [C.I.8.3.2.1]
  - b. List of SSCs used on Emergency Operating Procedures (EOPs) (EOPs will be developed post COLA [C.I.17.6])
  - c. Final transmission line routing to support the Environmental Impact Statement (final routing may not be determined until after the COL is issued)
  - d. Summary of the cumulative usage factor values for each of the component operating conditions for all ASME Code Class I components (these are contained in the ASME required design report which requires as-built reconciliation)
2. In numerous cases the NRC response provided in DG-1145 Appendix I indicates agreement with the industry comment, but declines to clarify the guidance. In most cases, clarification is necessary to avoid confusion and achieve consistency among applications. Clarification in the DG-1145 sections should be provided consistent with the comment responses in Appendix I.

#### Specific Comments Related to FSAR Content (Sections C.I and C.III)

3. Section C.I.1.9.4.1: This section states "Applicants for certified designs or combined licenses are required to address comparable international operating experience in accordance with proposed 10 CFR 52.47(a)(19) [52.47(a)(22) in version released 27 Sep 2006] and 10 CFR 52.79(a)(37), respectively. To the extent that the design (or portions thereof), for which an applicant seeks a design certification or COL, originates or is based on international design, the application should address how international operating experience has contributed to the design process."
  - a. This statement is not consistent with proposed 10 CFR 52.47(a)(19) [52.47(a)(22) in version released 27 Sep 2006] and 10 CFR 52.79(a)(37) which requires the applicant to provide "the information which demonstrates how operating experience from generic letters or bulletins issued up to six months before the docket date of the application, or comparable international operating experience, have been incorporated into the plant design." The language in the proposed Part 52 ("or") indicates that providing information on comparable international operating experience is an alternative to providing information relative to generic letters and bulletins, not an additional requirement. In contrast, the language in the draft guide describes this as additional information. Requiring this information in addition to information on generic letters and bulletins is unnecessarily burdensome and inconsistent with the proposed rule.
  - b. NRR Office Instruction LIC-401, "NRR Reactor Operating Experience Program," requires the NRC to monitor, exchange, review, and analyze international operating experience through the NRC's own reactor operating experience program.

Therefore, international operating experience is implicitly addressed in an evaluation of the NRC's operating experience documents such as generic letters and bulletins. Therefore an additional requirement for the applicant to evaluate international operating experience in addition to generic letters / bulletins should not be required.

- c. DG-1145 requires this information only from some applicants, those whose design originates or is based on international design. It is inequitable to impose this additional requirement on designs of "foreign" heritage, because any assessment of "heritage" (i.e., the extent to which a domestic design is "based on" a "foreign" design) is subjective, as is the assessment of applicability of international operating experience to any given domestically licensed design.

This section should be revised to be consistent with the proposed language in Part 52, which indicates that providing information on comparable international operating experience is an alternative to providing information relative to generic letters and bulletins, not an additional requirement.

4. Section C.I.3.9.3.1: This section, second paragraph, item (3) seeks a summary of maximum stress, deformation, and cumulative usage factor values for all ASME Code Class I components. This information will not be available at the time of COLA. The cumulative usage factor values will be contained in the ASME required design report, which requires reconciliation with the as-built configuration. Consistent with industry's position in NEI 04-01 Rev E, Appendix H, Item 3-18, the ASME required design specification and design report should be made available for NRC audit prior to fuel load. This comment also applies to C.III.3.9.3.1.

C.I.3.9.3.1 and C.III.3.9.3.1 should be modified to state that the ASME required design specification and design report will be prepared according to ASME Code Section III for Class I components and made available for NRC inspection prior to fuel load.

5. C.I.7: Appendix A to this section, item (19), the second sentence states "A statistically valid sample of system requirements should be selected to confirm that the applicants/licensee's life-cycle activities have been implemented as planned. The sample size should be such that the staff can conclude with at least 95% assurance that the quality of the design has been validated." This statement is an attempt to clear up the amount of information that needs to be submitted based on the wording in the previous draft. However, the method of determining the sample size of the requirements is still ambiguous. Exactly what one requirement constitutes is debatable and the sample size to provide "95% assurance" is open to interpretation. There was discussion at the work shop in July that the NRC would require an inventory of documents to be made available to the reviewers when the application is submitted and the NRC would then review what they thought was a valid sample size. This approach would be more manageable.

Item (19) should be modified to state that the applicant should identify documentation that will be made available for NRC inspection that confirms implementation.

6. C.I.7: Appendix A to this section, item (20), the second sentence states "A statistically valid sample of software design outputs should be provided to confirm with at least 95% assurance that they address the functional requirements and have been allocated to the software appropriately, and to confirm that the expected software development process characteristics are evident in the design outputs." This statement is an attempt to clear up the amount of information that needs to be submitted based on the wording in the previous draft. However, the method of determining the sample size of the design outputs is still ambiguous. The sample size to provide "95% assurance" is open to interpretation.

Item (20) should be modified to state that the applicant should identify documentation that will be made available for NRC inspection that confirms implementation.

7. C.I.8.2.2: This section, second paragraph states "Describe how the stability of the grid is continuously studied as the loads grow and additional transmission lines and generators are added." There is no regulatory basis for requiring this study.

This section should be revised to remove this statement.

8. C.III.5.1.1, Item (15): The last bullet states "designing the communications path to be broadcast only from the protection system to the control system". There is no precedent or regulatory basis for this approach. This comment also applies to Section C.1.7, C.I.7.B-2, Item (3).

These sections should be revised to remove this statement.

#### Specific Comments Related to Additional Technical Information (Section C.II)

9. C.II.1: This section states: "Determine how the risk associated with design relates to the Commission's goals of less than 1 E-4/yr for core damage frequency (CDF) and less than 1 E-6/yr for large release frequency (LRF)."

The following comment on this statement, which was also contained in the draft work in process, was previously submitted: "The objective is to demonstrate that the Quantitative Health Objectives (QHO) are met. This can be demonstrated using the subsidiary objectives for CDF (1E-4/yr) and LERF (1E-5/yr). LRF is not defined in the regulations and a LRF goal is not appropriate for a regulatory guide."

The NRC staff's response to this comment, contained in Appendix I, states: "Staff disagrees. LRF and CCFP goals were established by Commission in June 26, 1990 SRM (SECY-90-016). LRF goal understood to include all large release contributors, not just early (as in LERF). Staff will clarify that while the applicant should address these goals, they are not performance requirements, and clarify the role of the CPGs in properly balancing preventive and mitigative features."

This section should be revised to reference the QHOs and subsidiary CDF and LERF objectives of 1E-04/yr and 1E-05/yr respectively.

10. C.II.1.3: This section states "These goals were established in the Commission SRM dated June 26, 1990 in response to SECY-90-016. In addition, the Commission approved the use of a containment performance goal (CPG). The CPG includes (1) a deterministic goal that containment integrity be maintained for approximately 24 hours following the onset of core damage for the more likely severe accident challenges and (2) a probabilistic goal that the conditional containment failure probability (CCFP) be less than approximately 0.1 for the composite of all core damage sequences assessed in the PRA."

The following comment on this statement, which was also contained in the draft work in process (as a footnote) was previously submitted: "The objective is to demonstrate that the Qualitative Health Objectives (QHO) are met. This can be demonstrated using the subsidiary objectives for CDF (1E-4/yr.) and LERF (1E-5/yr.) The CPG was accepted by the Commission before risk-profile information for advanced plants was available. PRAs on current designs demonstrate that nearly all credible core damage sequences have been eliminated. The uncertainty due to unanticipated sequences has driven the need for a CPG. Since CCFP is calculated based on the response to anticipated sequences, it has limited value in addressing unanticipated sequences. A CPG goal is not appropriate for a regulatory guide."

The NRC staff's response to this comment, contained in Appendix I, states: "Staff disagrees. LRF and CCFP goals were established by Commission in June 26, 1990 SRM (SECY-90-016). LRF goal understood to include all large release contributors, not just early (as in LERF). Staff will clarify that while the applicant should address these goals, they are not performance requirements, and clarify the role of the CPGs in properly balancing preventive and mitigative features."

This section should be revised to reference the QHOs and subsidiary CDF and LERF objectives of 1E-04/yr and 1E-05/yr respectively.

11. C.II.2: This section states "Exists means that the item is present and meets the design description provided in the COL application." The definition provided for the word "exists" places incorrect scope within the context of the ITAAC. Instead of defining the acceptance criteria to be that a report exists and contains a conclusion of a specific ITAAC commitment, this definition brings the entire COL application design description into every ITAAC. The usage currently in existence usually defines the scope of the word within the acceptance criteria, e.g., "exists and concludes that ...". For those cases where no design description is identified this criteria can not be met unambiguously.

This section should be revised to remove the definition of the word "exists" or reduce the scope of the definition to be the "ITAAC commitment" not the "design description provided in the COL application".

12. C.II.2.2.2, Section 14.3.2: This section contains numerous statements similar to "COL applicants should provide ITAAC to reconcile the as-built plant with the structural design basis." Reconciliation between as-built configuration and structural analysis is neither performed nor required unless there is a deviation from the design drawings used in the analysis. As-built configurations are checked against design drawings to verify compliance with the design basis. There is no regulatory basis for this requirement and it is not consistent with precedent (none of the existing certified designs have these ITAAC). This comment is also applicable to draft SRP Section 14.3.2.

This section should be revised to remove all statements that imply a requirement for as-built reconciliation with analysis and replace it with reconciliation of as-built configuration with design drawings.

13. C.II.2.2.3, Section 14.3.3: This section requires as-built analyses to be performed. See above comment on C.II.2.2.2, Section 14.3.2 concerning as-built reconciliation. As-built reconciliation is performed by confirmation that the as-built configuration conforms to the design drawings. Structural analyses are only revised if necessary to reconcile deviations that are identified. If the design uses LBB methods there should be an ITAAC developed to require that a report exists and concludes that the material properties in the certified material test reports are consistent with the material properties assumed in the LBB analysis.

This section should be revised to remove all statements that stipulate the structural analyses have to be revised to verify as-built configuration. The bullet on LBB reconciliation should be revised to reflect that the only input needed is the certified material test reports.

14. C.II.2.2.5, Section 14.3.5: This entire section reads more like what is required to be in the Tier 2 discussion of these items, not the Tier 1 ITAAC. Section 14.3.5 requires that ITAAC be prepared for each section of IEEE Std. 603-1991. This far exceeds the requirements in SRP 14.3.5 for design certification. Section 14.3.5 requires that ITAAC be prepared for each of the GDC that apply to I&C. This requirement exceeds SRP 14.3.5 requirements for design certification. These requirements are not consistent with design certification precedent or the SRP.

This section should be revised to agree with ITAAC requirements as defined in SRP 14.3.5 and as approved in existing certified designs.

15. C.II.2.2.7, Section 14.3.7: Some of the discussion in this section specifies ITAAC for as-built reconciliation with analyses. As noted in the comments above, the as-built reconciliation is not performed with analyses, it is performed with the design drawings.

This section should be revised to remove reference to performing as-built reconciliation with analyses and replace it with as-built reconciliation with design drawings.

16. C.II.2, Appendix C.II.2-A, I&C and Control Systems, Section I, Design Descriptions and Figures, and Section II, ITAAC: These sections of the attachment differ significantly from design certification precedent and from the required content of similar sections for other disciplines. See similar comment above on C.II.2.2.5, Section 14.3.5.

This section of the appendix should be revised to reflect that it is a description of the design, not an analysis of how the design complies with various regulations. Delete references to regulatory guides, policy statements, PRA, GSIs, TMI action items, and operating experience reviews.

17. C.II.2, Appendix C.II.2-A, I&C and Control Systems, Section II, ITAAC: Item C seeks submittal of the Software Test Plan. There is no regulatory basis for this requirement. The Software Test Plan is not mentioned in BTP-14.

This section should be revised to remove the Software Test Plan.

18. C.II.2, Appendix C.II.2-A, Electrical Systems, Section I, Design Descriptions and Figures: Guidance for determining the safety-significance of SSCs is provided in the body of C.II.2, in Section C.II.2.1. Although this section of the appendix addresses those items that could be expected to result from the selection process, it seems to supersede the process to determine safety significance.

This section of the appendix should be revised to delete the information that redefines the material to be covered by ITAAC such as GDCs, SBO, regulatory guides, operating experience reviews, policy issues, PRA, severe accidents, and TMI action items. This information is addressed elsewhere in the application

Specific Comments Related to Miscellaneous Topics (Section C.IV)

19. C.IV.2.2: The first paragraph of this section states "The COL applicant must include the generic DCD in the application. Included in the application means that the actual document is provided with the application." The generic DCD will have been previously submitted to the NRC under oath and affirmation by the vendor as part of the design certification application. Please confirm that the statement in C.IV.2.2 means that the COL applicant is required to provide a copy of the generic DCD rather than being required to make a separate generic DCD submittal under oath and affirmation.

This section should be revised to clarify that the COL applicant is not required to make a separate generic DCD submittal under oath and affirmation.