



**U.S. NUCLEAR REGULATORY COMMISSION**  
**STANDARD REVIEW PLAN**  
**OFFICE OF NUCLEAR REACTOR REGULATION**

## SECTION 9.5.3

## LIGHTING SYSTEMS

REVIEW RESPONSIBILITIES

Primary - Auxiliary and Power Conversion Systems Branch (APCSB)

Secondary - Electrical, Instrumentation and Control Systems Branch (EICSB)

I. AREAS OF REVIEW

The APCSB review of the lighting system is limited to the emergency or supplementary lighting systems. The system is reviewed with respect to the following considerations: capability of the system to provide adequate emergency lighting during all operating conditions, including transients and accident conditions, and the effect of the loss of offsite power on the emergency lighting system.

The review of the lighting system involves secondary review evaluations performed by other branches. The conclusions from their evaluations will be used by the APCSB to complete the overall evaluation of the system. The evaluations provided by the other branches are as follows. The EICSB will assure that the lighting system is capable of being powered by the onsite emergency power system discussed in Standard Review Plan 8.3.1.

II. ACCEPTANCE CRITERIA

Acceptability of the design of the lighting system, as described in the applicant's safety analysis report (SAR), is based on the degree of similarity of the design with that for previously reviewed plants with satisfactory operating experience. There are no general design criteria or regulatory guides that directly apply to the safety-related performance requirements for the lighting system. The APCSB will use the following criterion to assess the system design capability: the emergency lighting system is acceptable if the integrated design of the system will provide adequate emergency station lighting in all areas required for control and maintenance of safety-related equipment and the access routes to and from these areas.

III. REVIEW PROCEDURES

The information provided in the SAR pertaining to the design of the emergency lighting system is evaluated to determine that the lighting in vital areas and essential passageways to and from these areas is adequate. Engineering judgment, in conjunction with a comparison to equipment provided on previously approved plants, is used as a basis for determining acceptability.

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**USNRC STANDARD REVIEW PLAN**

Standard review plans are prepared for the guidance of the Office of Nuclear Reactor Regulation staff responsible for the review of applications to construct and operate nuclear power plants. These documents are made available to the public as part of the Commission's policy to inform the nuclear industry and the general public of regulatory procedures and policies. Standard review plans are not substitutes for regulatory guides or the Commission's regulations and compliance with them is not required. The standard review plan sections are keyed to Revision 2 of the Standard Format and Content of Safety Analysis Reports for Nuclear Power Plants. Not all sections of the Standard Format have a corresponding review plan.

Published standard review plans will be revised periodically, as appropriate, to accommodate comments and to reflect new information and experience.

Comments and suggestions for improvement will be considered and should be sent to the U.S. Nuclear Regulatory Commission, Office of Nuclear Reactor Regulation, Washington, D.C. 20546.

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IV. EVALUATION FINDINGS

The reviewer determines that sufficient information has been provided and his review supports conclusions of the following type, to be included in the staff's safety evaluation report:

"The lighting system includes all components necessary to provide adequate lighting during both emergency and normal operating conditions. The scope of review of the lighting system for the \_\_\_\_\_ plant included assessment of the adequacy of the emergency power sources and verification of adequacy in accident conditions. [The review has determined the adequacy of the applicant's proposed design criteria and design bases regarding the requirements for lighting during accident conditions. (CP)] [The review has determined that the design of the emergency lighting system and auxiliary supporting systems is in conformance with the design criteria and bases. (OL)]

"The basis for acceptance in the staff review has been conformance of the applicant's designs and design criteria for the emergency lighting system and necessary auxiliary supporting systems to staff positions and industry standards.

"The staff concludes that the design of the lighting system conforms to all applicable staff positions and industry standards, and is acceptable."

V. REFERENCES

1. None.

SRP 9.5.4