



U.S. NUCLEAR REGULATORY COMMISSION

STANDARD REVIEW PLAN

13.2.2 NON-LICENSED PLANT STAFF TRAINING

REVIEW RESPONSIBILITIES

Primary -- Organization responsible for the review of operator licensing

Secondary - Organization responsible for the review of human performance

I. AREAS OF REVIEW

The organization responsible for the review of operator licensing reviews the non-licensed plant staff training program of applicants (e.g., for a construction permit (CP), an operating license (OL), a standard design certification (DC), or a combined license (COL)) as described in its technical submittal. This section of the technical submittal should contain the description and scheduling of the non-licensed plant staff training program. The non-licensed plant staff training program includes the initial training, periodic retraining, and qualification that are required for non-licensed plant staff. The non-licensed plant staff includes the following categories of nuclear power-plant personnel: non-licensed operator, shift supervisor, shift technical advisor, instrument and control technician, electrical maintenance personnel, mechanical maintenance personnel, radiological protection technician, chemistry technician, and engineering support personnel.

Revision 4 – August 2016

USNRC STANDARD REVIEW PLAN

This Standard Review Plan (SRP), NUREG-0800, has been prepared to establish criteria that the U.S. Nuclear Regulatory Commission (NRC) staff responsible for the review of applications to construct and operate nuclear power plants intends to use in evaluating whether an applicant/licensee meets the NRC regulations. The SRP is not a substitute for the NRC regulations, and compliance with it is not required. However, an applicant is required to identify differences between the design features, analytical techniques, and procedural measures proposed for its facility and the SRP acceptance criteria and evaluate how the proposed alternatives to the SRP acceptance criteria provide an acceptable method of complying with the NRC regulations.

The SRP sections are numbered in accordance with corresponding sections in Regulatory Guide (RG) 1.70, "Standard Format and Content of Safety Analysis Reports for Nuclear Power Plants (LWR Edition)." Not all sections of RG 1.70 have a corresponding review plan section. The SRP sections applicable to a combined license application for a new light-water reactor (LWR) are based on RG 1.206, "Combined License Applications for Nuclear Power Plants (LWR Edition)."

These documents are made available to the public as part of the NRC policy to inform the nuclear industry and the general public of regulatory procedures and policies. Individual sections of NUREG-0800 will be revised periodically, as appropriate, to accommodate comments and to reflect new information and experience. Comments may be submitted electronically by e-mail to NRO_SRP.Resource@nrc.gov

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The objective of this review is to ensure that the proposed non-licensed plant staff training program description contains an adequate format, attributes, and level of detail, that the training program will be able to provide qualified personnel to operate and to maintain the facility in a safe and efficient manner, as well as to keep the facility in compliance with its license, technical specifications, and applicable regulations. In addition, the review is to ensure that sufficient technical resources have been, are being, and will continue to be provided to adequately accomplish these objectives.

The areas of review, based on the type of application, are as follows.

1. Design Certification

The DC review is focused on the evaluation of COL action items pertaining to non-licensed plant staff training.

2. Construction Permit or Combined License

The CP/COL review is focused on the applicant's detailed non-licensed plant staff training program descriptions. The program descriptions should include the initial training, periodic retraining, and qualification that are required for non-licensed plant staff. These programs are to be established, implemented, and maintained 18 months prior to the scheduled date for initial fuel load.

The non-licensed plant staff training program should include, in addition to the technical training that is required for each non-licensed plant staff position, training in the following areas: physical security, emergency protection, radiological emergency, administrative procedures, radiation protection, fire protection, quality assurance, and fitness for duty.

The non-licensed plant staff training program development process relies on review and feedback as an integral activity throughout program development and the implementation process. A system should be in place to periodically monitor the programs by individuals other than those directly responsible for the training programs. This monitoring includes an assessment of program effectiveness in developing the trainees' ability to meet performance requirements of the job. The program should be periodically updated to reflect the result of program evaluations, industry experience, and changes to the facility, procedures, regulations, and quality requirements.

The non-licensed plant staff training program descriptions that are submitted as part of the application should include the following.

- a. A commitment to meet the guidelines of Regulatory Guide (RG) 1.8, "Qualification and Training of Personnel for Nuclear Power Plants," for its non-licensed plant staff training program.
- b. A commitment to meet the guidelines of RG 1.149, "Nuclear Power Plant Simulation Facilities for Use in Operator Training and License Examinations," for its simulation facilities.

- c. For COL applicants, a commitment to meet the guidelines of Nuclear Energy Institute (NEI) 06-13A, "Template for an Industry Training Program Description," for its non-licensed plant staff training program.
- d. The non-licensed plant staff training program descriptions contain the following elements.
 - (i) The subject matter of each course of instruction.
 - (ii) The duration (approximate number of weeks) of each training course.
 - (iii) The organization teaching the course or supervising instruction of each training course, and the qualifications of the instructors and supervisors.
 - (iv) The title of the positions for which each training course is intended.
 - (v) A chart showing the proposed schedule for non-licensed plant staff training prior to criticality. The schedule should be relative to expected fuel load date and should display the preoperational test period.
 - (vi) A commitment to conduct formal non-licensed plant staff classroom, on-the-job, and simulator training, as required, before and after initial fuel load.
 - (vii) Training will be based on a systems approach to training, as defined in Title 10 of the *Code of Federal Regulations* (10 CFR) 55.4, "Definitions."
- e. Retraining of non-licensed plant staff should be periodic and no less frequently than every two years.
- f. For applicable non-licensed plant staff, the non-licensed plant staff training program descriptions contain the following elements.
 - (i) A description of the program for providing simulator capability that includes the following.
 - (a) The simulator has been approved by the Commission for use in accordance with 10 CFR 55.46(b) or 10 CFR 55.46(c).
 - (b) A commitment to maintain the simulator, to assure continued simulator fidelity, in accordance with 10 CFR 55.46(d).
 - (c) For CP applications, simulator capability that models the control room and includes the capability to simulate small-break loss-of-coolant accidents (LOCAs).

- (ii) A description of how the proposed simulator will model the control room.
- (iii) A discussion with sufficient detail to provide reasonable assurance that the training-program requirements will be implemented prior to the issuance of a license and of how simulator capability requirements will be met.
- (iv) The means for evaluating training-program effectiveness for all non-licensed plant staff.

3. Operating License or Combined License Holder

The OL/COL holder review is focused on the applicant's non-licensed plant staff training program descriptions, which is verified as part of the Construction Inspection Program.

For OL applicants, during the later stages of plant design, construction, and licensing, the applicant should provide evidence that the initial non-licensed plant staff training programs conform to the commitments made in the CP stage of licensing.

For COL holders, implementation of commitments made by the applicant can be evaluated after issuance of the COL as part of the Construction Inspection Program.

The non-licensed plant staff training program development process relies on review and feedback as an integral activity throughout program development and the implementation process. A system should be in place for periodically monitoring the program by individuals other than those directly responsible for providing the training. This monitoring includes an assessment of program effectiveness in developing the trainees' ability to meet performance requirements of the job. The program shall be periodically updated, as appropriate, to reflect the result of program evaluations, industry experience, and changes to the facility, procedures, regulations, and quality requirements. In addition, the following shall apply.

- a. The non-licensed plant staff training program descriptions should describe how much of the training program was completed at the approximate time of submittal of the operating license application technical submittal.

The non-licensed plant staff training program description contains the elements listed for CP/COL review in Section I.2, above, and the details of the program to enable the non-licensed plant staff to meet experience requirements.

II. REVIEW PROCEDURES

The review procedures described below are for the areas of review identified in Section I. The review procedures are based on the acceptance criteria. For deviations from the acceptance criteria, the staff should review the applicant's evaluation describing the proposed alternatives to the acceptance criteria and how the alternatives provide an acceptable method of complying with the relevant U.S Nuclear Regulatory Commission (NRC) requirements.

In preparing to review the application, the reviewer should become familiar with the references for this Standard Review Plan (SRP) section.

The application submitted is to be reviewed against this SRP section. The reviewer's evaluation is based on an inspection of the material presented in the application, on whether items of special safety significance are involved, and on the magnitude and uniqueness of the project. Any exceptions or alternatives presented in the application should be carefully reviewed to ensure that they are clearly defined and that an adequate basis for acceptance is provided.

The applicant will identify the references, RGs, and codes and standards used in the application. The reviewer should verify the version of the references, RGs, and codes and standards used in the review.

1. In reviewing and evaluating the information related to the non-licensed plant staff training program, the following points should be considered.
 - a. The applicant's plans for non-licensed plant staff training may not be fully developed and/or staffed. It is acceptable, if these plans are not fully developed; provided that the commitment made by the applicant is sufficiently firm to ensure that the commitment will be met. The non-licensed plant staff training programs can be verified during the Construction Inspection Program.
 - b. If the applicant has experience in the operation of a previously licensed nuclear power plant, the reviewer may seek independent information about the non-licensed plant staff training through the appropriate NRC regional office.
2. The review procedures for this section consist of the following.
 - a. An examination of the information submitted to determine that all areas identified in Subsection I, "Areas of Review," have been addressed.
 - b. A comparison of the information submitted with the acceptance criteria of Subsection III "Acceptance Criteria."
 - c. A review of the information provided by the NRC regional office position statement on the applicant's non-licensed plant staff training program and commitments made in the Safety Analysis Report (SAR), if applicable.
 - d. Verification, through the Construction Inspection Program, of the non-licensed plant staff training program.

Based on the above, the reviewer will determine the overall acceptability of the applicant's initial training and retraining non-licensed plant staff training programs.

For reviews of COL applications, the reviewer should follow the procedures in this Section to verify that the design, as set forth in the Design Control Document safety evaluation report and, if applicable, the site interface requirements, meet the acceptance criteria. With respect to a COL application, the scope of the review is independent of

whether the COL applicant references a DC, an Early Site Permit, or other NRC-approved material, applications, or reports. In addition, as the application may be received prior to establishment of the actual non-licensed plant staff training program, implementation of commitments made by the applicant may be evaluated after issuance of the COL as part of the Construction Inspection Program.

III. ACCEPTANCE CRITERIA

1. Acceptance criteria are based on meeting the relevant requirements of the following Commission regulations.

- 10 CFR 19.12, "Instruction to Workers"
- 10 CFR 26.29, "Training"
- 10 CFR 50.34(a)(6) and (9)
- 10 CFR 50.34(b)(6)(i), (ii), (iii), and (iv)
- 10 CFR 50.40(b)
- 10 CFR 50.48, "Fire Protection"
- 10 CFR 50.120, "Training And Qualification of Nuclear Power Plant Personnel"
- 10 CFR Part 50, "Licensing of Production and Utilization Facilities," Appendix B, "Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants"
- 10 CFR Part 50, Appendix E, "Emergency Planning and Preparedness for Production and Utilization Facilities"
- 10 CFR 52.47(a)(7)
- 10 CFR 52.79(a)(21), (33), (35), (39), (40) and (44)

The acceptance criteria are designed to meet 10 CFR 50.40(b) for all OL and COL reviews. As necessary for COL reviews, implementation of methods designed to meet the acceptance criteria may be verified through the Construction Inspection Program.

Specific criteria are as follows.

- a. The applicant has committed to RG 1.8, "Qualification and Training of Personnel for Nuclear Power Plants." RG 1.8 endorses ANSI/ANS-3.1-1993, "Selection, Qualification, and Training of Personnel for Nuclear Power Plants."
- b. The COL applicant has committed to NEI 06-13A, "Template for an Industry Training Program Description." NEI 06-13A describes a training program that the staff has found as a way to describe an acceptable non-licensed plant staff training program.
- c. For nuclear power plant applicants, the technical submittal shall demonstrate that the non-licensed plant staff training program will be established, implemented, and maintained by 18 months prior to fuel load by means of the following.
 - (i) The applicant has described how the non-licensed plant staff training program conforms to RG 1.8.

- (ii) For COL reviews, the applicant has described how the non-licensed plant staff programs conform to NEI 06-13A.

For design certification reviews, the development of non-licensed plant staff training program will be designated as a COL applicant action item.

- d. Initial training and retraining of non-licensed plant staff training shall be developed, established, implemented, and maintained using a systems approach to training, as defined in 10 CFR 55.4.
- e. A system is in place to periodically evaluate the non-licensed plant staff training programs by individuals other than those directly responsible for the training. This evaluation should include an assessment of program effectiveness in developing the trainees' ability to meet performance requirements of the job. The program should be periodically revised and updated, to reflect the result of program evaluations, industry experience, and changes to the facility, procedures, regulations, and quality requirements.

2. Review Interfaces

Other SRP sections interface with this section as follows:

- a. The structure, functions, and responsibilities of the onsite organizations to operate and maintain the plant are reviewed in SRP Section 13.1.2, "Operating Organization."
- b. The licensed operator training program is reviewed in SRP Section 13.2.1, "Reactor Operator Requalification Program; Reactor Operator Training."
- c. Additional guidance for identifying operational programs is provided in SRP, Section 13.4, "Operational Programs."
- d. Procedure adequacy is reviewed in SRP Section 13.5.1, "Administrative Procedures" and Section 13.5.2, "Operating and Emergency Operating Procedures."
- e. Human factors engineering practices and guidelines are evaluated in SRP Section 18.0, "Human Factors Engineering."

In addition, the organization responsible for operator licensing reviews will coordinate with other organization's evaluations that interface with the overall review of the non-licensed plant staff training program as follows:

- a. The organization responsible for fire protection will review the fire protection program organization and training as part of its review responsibility for SRP Section 9.5.1.1, "Fire Protection Program."

- b. The organization responsible for health physics will review the acceptability of the radiation-protection organization and training as part of its review responsibility for SRP Section 12.5, "Operational Radiation Protection Program."
- c. The organization responsible for emergency planning will review the emergency organization and training as part of its review responsibility for SRP Section 13.3, "Emergency Planning."
- d. The organization responsible for physical security will review the applicant's security organization and training as part of its review responsibility for SRP Section 13.6, "Physical Security."
- e. The organization responsible for quality assurance will review the organization and training of the independent review body as part of its review for SRP Section 17.5, "Quality Assurance Program Description – Design Certification, Early Site Permit and New License Applicants."

3. Technical Rationale

Compliance with the relevant requirements of 10 CFR 50.34, "Contents of Applications; Technical Information"; 10 CFR 50.40, "Common Standards"; and 10 CFR Part 50, Appendix B, requires the applicant to be technically qualified in order to engage in the non-licensed plant- staff training activities associated with the design, construction, and operation of a nuclear power plant, in accordance with the regulations in 10 CFR Part 50.

Compliance with the relevant requirements of 10 CFR 52.47, "Contents of Applications; Technical Information," and 10 CFR 52.79, "Contents of Applications; Technical Information in a Final Safety Analysis Report," requires the applicant to be technically qualified in order to engage in the non-licensed plant-staff training activities associated with the design, construction, and operation of a nuclear power plant, in accordance with the regulations in 10 CFR Part 52, "Licenses, Certifications, and Approvals for Nuclear Power Plants."

Meeting the requirements of 10 CFR 26.29"; 10 CFR 50.34; 10 CFR 50.40; 10 CFR 50.48, 10 CFR Part 50.120; 10 CFR Part 50, Appendix B; 10 CFR Part 50, Appendix E; 10 CFR 52.47; and 10 CFR 52.79, as applicable, provides assurance that the applicant is technically qualified to engage in the proposed activities and has established the necessary non-licensed plant staff training program to safely design, construct, operate, and maintain the facility.

IV. EVALUATION FINDINGS

The reviewer verifies that the applicant has provided sufficient information and that the staff's technical review and analysis support conclusions of the following type to be included in the staff's safety evaluation report. The reviewer also states the bases for those conclusions.

1. Design Certification

For DC reviews, the findings will also summarize, to the extent that the review is not discussed in other SER sections, the staff's evaluation of interface requirements and COL applicant action items relevant to this SRP section.

2. Construction Permit or Combined License

The staff concludes that the non-licensed plant staff training program is acceptable and meets the requirements of 10 CFR 26.29; 10 CFR 50.34; 10 CFR 50.40; 10 CFR 50.48, 10 CFR Part 50.120; 10 CFR Part 50, Appendix B; 10 CFR Part 50, Appendix E; 10 CFR 52.47; and 10 CFR 52.79. This conclusion is based on the following:

The applicant states that a training program will be established [for COL add: in accordance with the implementation milestones] to provide non-licensed plant staff with sufficient knowledge and operating experience to start up, operate, and maintain the plant in a safe manner. The non-licensed plant staff training program, derived from a systems approach to training, is to be developed by the applicant and will meet the regulatory guidance of RG 1.8 or, alternatively, NEI 06-13A. Non-licensed plant staff will receive training in security procedures, radiological emergency plans, administrative procedures, radiation protection, fire protection, and fitness for duty.

3. Operating License or Combined License holders

The staff concludes that the non-licensed plant staff training program is acceptable and meets the requirements of 10 CFR 26.29; 10 CFR 50.34; 10 CFR 50.40; 10 CFR 50.48, 10 CFR Part 50.120; 10 CFR Part 50, Appendix B; 10 CFR Part 50, Appendix E; 10 CFR 52.47; and 10 CFR 52.79. This conclusion is based on the following:

The applicant states that the non-licensed plant staff training program will provide reasonable assurance that decisions and actions by non-licensed plant staff during all plant conditions will be made consistent with plant safety procedures and operational limits established to protect the public health and safety. The non-licensed plant staff training program has been designed to meet the individual needs of the participants, depending upon their backgrounds, previous training, and expected job assignment. The program will meet the guidelines of RG 1.8 or, alternatively, NEI 06-13A, and 10 CFR Part 52, "Licenses, Certifications, and Approvals for Nuclear Power Plants." Non-licensed plant staff will receive training in security procedures, radiological emergency plans, administrative procedures, radiation protection, fire protection, and fitness for duty.

In addition to the finding based on the type of application, the safety evaluation report should also address the following.

These findings contribute to the judgment that the applicant complies with the requirements of 10 CFR 50.40(b), as evidenced by the following:

- a. The applicant is technically qualified, as specified in 10 CFR 50.40(b).
- b. The training program description, for COL applicants and holders, complies with NEI 06-13A.
- c. Qualification requirements and qualifications of plant personnel conform to the guidance of RG 1.8.

V. IMPLEMENTATION

The staff will use this SRP section in performing safety evaluations of DC applications and license applications submitted by applicants pursuant to 10 CFR Part 50 or 10 CFR Part 52. Except when the applicant proposes an acceptable alternative method for complying with specified portions of the Commission's regulations, the staff will use the method described herein to evaluate conformance with Commission regulations.

Implementation schedules for conformance to parts of the review plan discussed herein are contained in the referenced RGs and NUREG.

VI. REFERENCES

1. Nuclear Energy Institute, NEI 06-13A, "Template for an Industry Training Program Description."
2. *U.S. Code of Federal Regulations*, "Notices, Instructions and Reports to Workers: Inspection and Investigations," Part 19, Chapter 1, Title 10, "Energy."
3. *U.S. Code of Federal Regulations*, "Standards for Protection Against Radiation," Part 20, Chapter 1, Title 10, "Energy."
4. *U.S. Code of Federal Regulations*, "Fitness for Duty Programs," Part 26, Chapter 1, Title 10, "Energy."
5. *U.S. Code of Federal Regulations*, "Licensing of Production and Utilization Facilities," Part 50, Chapter 1, Title 10, "Energy."
6. *U.S. Code of Federal Regulations*, "Licenses, Certifications, and Approvals for Nuclear Power Plants," Part 52, Chapter 1, Title 10, "Energy."
7. U.S. Nuclear Regulatory Commission, NRC Inspection Manual Chapter (IMC) 2504, "Construction Inspection Program – Inspection of Construction and Operational Programs."
8. U.S. Nuclear Regulatory Commission, "Finalizing Licensing-Basis Information," ISG, DC/COL--ISG-011.

9. U.S. Nuclear Regulatory Commission, "Post-Combined License Commitments," ISG, DC/COL-ISG-015.
10. U.S. Nuclear Regulatory Commission, "Human Factors Engineering Program Review Model," NUREG-0711.
11. U.S. Nuclear Regulatory Commission, "Licensing Requirements for Pending Applications for Construction Permits and Manufacturing License," NUREG-0718.
12. U.S. Nuclear Regulatory Commission, "Training Review Criteria and Procedures," NUREG-1220.
13. U.S. Nuclear Regulatory Commission, "Qualification and Training of Personnel for Nuclear Power Plants," Regulatory Guide 1.8.
14. U.S. Nuclear Regulatory Commission, "Fire Protection for Nuclear Power Plants," Regulatory Guide 1.89.
15. U.S. Nuclear Regulatory Commission, "Combined License Applications for Nuclear Power Plants (LWR Edition)," Regulatory Guide 1.206.

PAPERWORK REDUCTION ACT STATEMENT

The information collections contained in the draft Standard Review Plan are covered by the requirements of 10 CFR Part 26, 10 CFR Part 50, 10 CFR Part 52, and 10 CFR Part 55, and were approved by the Office of Management and Budget, approval number 3150-0146, 3150-0011, 3150-0151 and 3150-0018.

PUBLIC PROTECTION NOTIFICATION

The NRC may not conduct or sponsor, and a person is not required to respond to, a request for information or an information collection requirement unless the requesting document displays a currently valid OMB control number.

**SRP Section 13.2.2
Description of Changes**

Section 13.2.2 – Non-Licensed Plant Staff Training

This revision of SRP Section 13.2.2 has been restructured and reorganized to clarify staff guidance. To this end, while this guidance has been significantly revised, it does not contain new staff positions. A detailed listing of changes to this section from its previous revision has thus been omitted.