



NUREG-0800

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U.S. NUCLEAR REGULATORY COMMISSION STANDARD REVIEW PLAN

13.1.2 -- 13.1.3 -- OPERATING ORGANIZATION

REVIEW RESPONSIBILITIES

Primary -- Organization responsible for the review of human performance--

Secondary - None

I. AREAS OF REVIEW

The ~~applicant's~~ organization responsible for the review of human performance reviews the operating organization, ~~as described in its safety analysis report (SAR), is reviewed. This section of the SAR should describe the~~ of applicants (e.g., for a construction permit (CP), operating license (OL); standard design certification (DC), combined license (COL), or license transfer). The review will include the structure, functions, and responsibilities of the onsite organization established to safely operate and maintain the ~~plant~~ facility. This section of the Safety Analysis Report (SAR) should ~~also describe any requests for exemptions from the requirements regarding the number~~ of licensed personnel, as specified in Title 10, ~~Section 50.54(m), of the Code of Federal Regulations [(10 CFR) 50.54(m)]~~.

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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 operating organization is involved with, informed of, and dedicated to the safe operation and maintenance of the nuclear plant. In addition, ~~the~~ ~~The specific~~ 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. ~~CPs and COLs.~~ ~~It~~ Design Certification

The DC review is ~~recognized that, during~~ focused on the ~~early stages~~ evaluation of ~~plant design or construction, many details~~ combined license action items pertaining to the corporate-level management and technical-support organizations.

2. Construction Permit and Combined License

The application may be received prior to establishment of the ~~plant~~ operating organization and detailed staffing ~~have~~ has not been finalized~~—~~, implementation of commitments made by the applicant can be evaluated after issuance of the COL as part of the Construction Inspection Program. The organizational information provided ~~at this time~~ should include the following elements:

a. ~~A.~~ ~~The applicant's~~ applicant's commitment to meet the guidelines of Regulatory Guide (RG) 1.33 ~~for its~~ 28, "Quality Assurance Program Criteria (Design and Construction)," for its design and construction operating organization.

~~B.~~
b. The ~~applicant's~~ applicant's commitment to meet the guidelines of ~~Regulatory Guide~~ RG 1.33, "Quality Assurance Program Requirements (Operation)," for its operating organization.

~~b-c.~~ The applicant's commitment to meet the guidelines of RGs 1.33 ~~for~~, 1.174, "An Approach for Using Probabilistic Risk Assessment in Risk-Informed Decisions on Plant-Specific Changes to the Licensing Basis"; 1.175, "An Approach for Plant-Specific, Risk-Informed Decisionmaking: Inservice Testing"; 1.177, "An Approach for Plant-Specific, Risk-Informed Decisionmaking: Technical Specifications"; 1.178, "An Approach for Plant-Specific Risk-Informed Decisionmaking for Inservice Inspection of Piping"; and 1.182, "Assessing and Managing Risk Before Maintenance Activities at Nuclear Power Plants," for risk-informing decision making in onsite review and rules of practice.

~~e-d.~~ ~~C.~~ ~~The applicant's~~ applicant's commitment to meet Branch Technical Position SPLB(BTP) 9.5-1-, "Fire Protection Program."

~~e-e.~~ ~~D.~~ ~~The applicant's~~ applicant's commitment to meet the guidelines of ~~Regulatory Guide~~ RG 1.8, "Qualification and Training of Personnel for Nuclear Power Plants," for its operating organization.

e-f. ~~E.~~ The ~~applicant's~~ applicant's commitment to be consistent with one of the options in the Commission's ~~Generic Letter (GL) 86-04 "Policy Statement on Engineering Expertise on Shift."~~

f-g. ~~F.~~ The ~~applicant's~~ applicant's commitment to meet NUREG-0737 and Supplement 1, "Clarification of TMI Action Plan ~~Items Requirements,~~" Items I.A.1.1, "Shift Technical Advisor," and I.A.1.3 ~~of NUREG-0737 for shift technical advisor and shift manning,~~ "Shift Manning."

g-h. ~~G.~~ A schedule, relative to fuel loading for each unit, for filling all positions.

~~2. OL or COL holder verification through the Construction Inspection Program. During~~
Operating License or Combined License

For OL applicants, during the later stages of plant design, construction, and licensing, the applicant should provide evidence that the initial personnel selections conform to the commitments made in the ~~early stages~~ CP stage of licensing.

~~The~~ 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 organizational information provided by the applicant, as demonstrated on organizational charts, as descriptions of organizational functions and responsibilities, and as descriptions of position functions and responsibilities, should ~~provide~~ include the following organizational information:

a. ~~A.~~ An organization chart ~~with~~ /table that contains:

- i. ~~i.~~ the title of each position in the operating organization
- ii. ~~ii.~~ the minimum number of persons assigned to ~~be~~ each position
- ii-iii. the minimum number of persons assigned to duplicated positions
- iii-iv. ~~iii.~~ the number and composition of operating shift crews
- iv-V. ~~iv.~~ the positions for which reactor operator and senior reactor operator licenses are required

For multi-unit stations, the ~~organization~~ organizational chart (or supplemental charts) should ~~clearly~~ show changes and additions as new units are added to the station.

b. ~~B.~~ The personnel resumes for these selected Resumes for management and supervisory positions down through the shift supervisor/shift manager.

c. ~~C.~~ the The functions, responsibilities, and authorities of the following plant positions ~~or their equivalents~~:

- i. ~~i.~~ plant managers

- i. ii. ~~plant managers (e.g., plant manager, electrical maintenance, mechanical maintenance, instrumentation and controls, maintenance, training, engineering, chemistry, radiation protection, fire protection engineer, and operations);~~
- ii. operations supervisors;
- iii. operating shift ~~crew~~ supervisors/managers;
- iv. shift technical advisors;
- v. reactor operators and senior operators;
- ~~vi.~~ vi. non-licensed operators;
- ~~vii.~~ vii. technical
- ~~vi.~~ vii. chemistry supervisors;
- ~~viii.~~ viii. radiation- protection supervisors;
- ~~viii.~~ ix. instrumentation and controls maintenance supervisors;
- ~~x.~~ x. equipment
- ~~ix.~~ x. mechanical maintenance supervisors;
- ~~xi.~~ xi. fire protection-
- ~~x.~~ xi. electrical maintenance supervisors;
- xii. fire protection supervisors;
- xiii. training supervisors;
- ~~xi.~~ xiv. quality assurance ~~supervisor~~/quality control supervisors (when part of the plant staff)

- d. For each position, listed above and where applicable, ~~required~~ describe the interfaces with offsite personnel or positions identified in ~~SAR~~ Standard Review Plan (SRP) Section- 13.1.1 ~~should be described~~ of the application. Such interfaces include defined lines of reporting responsibilities (e.g., from the plant manager to the immediate superior), lines of authority, ~~and communication channels~~-communication channels, and roles in risk-informed evaluations and decisionmaking. Also for each position listed above and when applicable, describe the responsibilities associated with:

- i. ~~D.~~ The line coordination/integration of activities;
- ii. longer-term safety improvements;
- iii. monitoring externally imposed requirements;
- iv. communications to maintain awareness of key operations and problems;
- and
- v. information tracking systems-

- e. A description of the lines of succession of authority and responsibility for overall station operation in the event of unexpected contingencies of a temporary nature, and.

A description of the delegation of authority that may be granted to operations supervisors and; to operating crew shift supervisors/managers, including the authority to issue standing or special orders.

- f. E. The extent; and nature to reactor operators and senior operators.

e-g. Description of the participation of how the plant operating and technical staff will be utilized in developing, conducting, and participating in the initial test program, in reviewing test results and in the plant-specific test program training.

- f-h. F. If the station contains, or there are plans that it contain power generating facilities other than those specified in the application and including fossil fueled units, this section the applicant should also describe interfaces with the organizations operating the other facilities. The description should include any proposed sharing of personnel between the units, a description of the duties of the shared personnel, and the proportion of the time they these shared personnel will routinely be assigned to the nonnuclear units.

g-i. G. The position titles, operator licensing requirements for each position, and the total number of personnel that will man each shift should be described for all combinations of units planned for the station in both operating and cold shutdown modes. Shift crew staffing plans specific to refueling operations should be described. The proposed means of assigning shift responsibility for implementing the radiation protection and fire protection programs on a round-the-clock basis should also be described.

- h-j. H. The A description of the education, training, and experience requirements (qualification requirements) established by the applicant for filling each management, operating, technical, and maintenance position category in the operating organization above should be described. This includes the personnel who will deconduct and participate in the preoperational and startup tests. Consequently, the information should demonstrate an understanding of and commitment to the acceptance criteria below test programs.

3.4. Review of OL Operating License Transfers.

The initial operating organization of an applicant for transfer of an OL was found acceptable by during the initial licensing review. Subsequent safety-related changes to the operating organization should have been evaluated with using an appropriate methodology. Therefore, the existing organization remains acceptable. The review offer a license transfer of an OL should focus on evaluating changes to the operating organization proposed as a result of the transfer.

2. ~~Review Interfaces~~

~~Other SRP sections interface with this section as follows:~~

II. REVIEW PROCEDURES

The review procedures are described below for the areas of review identified in Subsection I, "Areas of Review." 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 NRC requirements.

In preparing to review the application, the reviewer should become familiar with the references for this SRP section.

The information submitted in the application is to be reviewed against the guidance of this SRP section. The reviewer's judgment during the review is based on an inspection of the material presented, 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 references, RGs, and codes and standards revision numbers used in their submittal. The reviewer should identify the version of the references, RGs, and codes and standards used in their review.

1. In reviewing and evaluating the information related to the operating organization, the following points should be considered:
 - a. The applicant's plans for staffing the operating organization may not be fully developed and staffed. It is acceptable if these plans are not fully developed, provided that the applicant either makes a Final Safety Analysis Report (FSAR) commitment or includes a license condition to ensure that the responsibility will be met. The operating-organization staffing plan and implementation of the staffing plan will be verified as part of the Construction Inspection Program.
 - b. There are several ways to define and delegate job responsibilities. Variations in staffing are to be expected between applicants. The reviewer should be alert to the possibility that excessive workloads may be placed on too few individuals. It is important that the reviewer verify that applicants do not underestimate the magnitude of the task and that all applicants adequately consider the potential effects of human error. Guidance on human- error considerations may be found in NUREG-0711, "Human Factors Engineering Program Review Model."

If the application is for more than one unit, the reviewer should ensure that operating organization staffing plans take this fact into account. This is particularly important if additional units are scheduled to come on line at intervals of a year or less, as preoperational testing, fuel load, and startup testing of a new plant will produce quite heavy workloads. In some cases the applicant may plan to bolster the plant staff during such periods so that it is necessary to evaluate the operating-organization staffing plans in conjunction with the headquarters staffing plans.

- c. ~~The reviewer should~~ ~~Organizational~~ consider that the ~~structure~~ of the operations, onsite technical-support, and maintenance groups may be dependent on the applicant's headquarters staffing and the division of effort between onsite and offsite personnel.

During the later stages of the plant design, construction, and licensing phases, the reviewer should use review techniques similar to those used during the early stages of the plant design, construction, and licensing phase reviews and should examine each resume. The reviewer should compare the education and experience in each resume with the ~~qualifications and experience under SRP Section 13~~ guidance endorsed by RG 1.8. "Applicable experience," i.e., work performed in a nuclear-fueled electric power production plant (commercial or military) during preoperational, startup-testing, or operational activities, should be judged according to the responsibility of the position. Individual experience which may not be entirely applicable should be weighed against the requirements of the position.

If the applicant's plant staff positions are not comparable to those defined in the standards endorsed by RG ~~1-43~~.8, the applicant should list each position on its operating staff and either ~~(1-3)~~ designate each position to the most closely corresponding position in these standards or (2) describe in detail the proposed qualification requirements for each position on its operating staff.

If the applicant has experience in operating previously licensed nuclear power plants, the reviewer may seek independent information about plant staffing and qualifications from the appropriate regional office.

- d. The reviewer should ensure that the applicant has planned for sufficient operating-shift crews so they are not required to work excessive overtime. For multi-unit sites, the reviewer should determine if overall site authorities and responsibilities are clear for periods when senior management is not onsite.

~~2. Training of licensed operators under SRP Section 13.2.1.~~

- e. ~~3.~~ The reviewer should use the procedures and criteria delineated in NUREG-1791, "Guidance for Assessing Exemption Requests from the Nuclear Power Plant Licensed Operator Staffing Requirements Specified in 10 CFR

50.54(m),” to evaluate requests for exemptions from the licensed- operator staffing requirements specified in 10 CFR 50.54(m).

2. The review procedures for this section consist of the following:

- a. An examination of the information submitted to determine that all areas identified above in Section I, “Areas of Review,” have been addressed.
- b. A comparison of the information submitted with the acceptance criteria of Section III, “Acceptance Criteria.”
- c. A review of the information provided by the NRC regional office position statement on the applicant’s organizational and administrative commitments in the applicant’s SAR, if applicable.
- d. Verification as part of the Construction Inspection Program, of the implementation of the committed to operating ~~Procedure adequacy under SRP Section 13.5.2.~~

~~4. Organizational provisions for independent reviews and verifications under SRP Section 17.5.~~

~~5. Use of human factors engineering principles under SRP Section 18.0.~~

~~In addition, the organization responsible for human performance will coordinate with other organization’s evaluations that interface with the overall review of the operating organization, as follows:~~

~~1. The organization responsible for emergency preparedness and radiation protection reviews the emergency organization as part of its review responsibility for SRP Section 13.3.~~

a-d. ~~2. The organization~~

~~Based on the~~ ~~—responsible for emergency preparedness and radiation protection reviews the above, the reviewer will determine the overall acceptability of the radiation protection applicant’s operating organization as part of its review responsibility for SRP Section 12.5 and staffing plans.~~

~~3. The organization responsible for safeguards reviews the applicant’s plans and provisions for security, including the security organization as part of its review responsibility for SRP Section 13.6.~~

~~4. The organization responsible for quality assurance reviews the quality assurance organization as part of its review responsibility for SRP Chapter 17.~~

~~The specific acceptance criteria and review procedures are contained in the referenced SRP sections.~~

~~II.~~ For OL transfers, the operating organization was found acceptable as part of the initial licensing review. Therefore, the review in support of a license transfer should focus on the organizational changes proposed as a result of the transfer. The reviewer should ensure that the proposed changes will result in an organization that will continue to meet the relevant review criteria.

For reviews of DC applications, the reviewer should consider the appropriateness of identified COL action items. The reviewer may identify additional COL action items. However, to ensure these COL action items are addressed in a COL application, they should be added to the DC FSAR.

For reviews of COL applications, the reviewer should follow the above procedures to verify that the design, as set forth in the DC 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 dependent of whether the COL applicant references a DC, an early site permit (ESP) or other NRC-approved material, applications, and/or reports. In addition, as the application may be received prior to establishment of the actual operating organization, implementation of commitments made by the applicant can be evaluated after issuance of the COL as part of the Construction Inspection Program.

III. ACCEPTANCE CRITERIA

Requirements

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

- ~~4.~~ 10 CFR 50.34(a)(6) and (9)
- 10 CFR 50.34(b)(6)(i), (ii), (iii), and (iv)
- 10 CFR 50.34(f)(3)(vii)
- 10 CFR 50.40(b)
- 10 CFR 50.48(a)(1)(ii)
- 10 CFR 50.50, Appendix B
- 10 CFR 50.54(j), (i), (j), (k), (l), and (m)
- 10 CFR 50.80, ~~as it relates~~ applicable
- 10 CFR 52.47(a)(7)
- 10 CFR 52.79(26), (27), (28), (29)(i)

The acceptance criteria are designed to ~~demonstrating (in conjunction with other~~ meet 10 CFR 50.40(b) for all CP, OL, COL ~~reviews) that the applicant is technically qualified to engage in nuclear activities~~ and to meet 10 CFR 50.80 for all license-transfer reviews. As necessary for COL reviews, implementation of methods designed to meet the acceptance criteria may be verified as part of the Construction Inspection Program.

Acceptance criteria for the review and evaluation of engineering expertise on shift should be consistent with the Commission's Policy Statement on Engineering Expertise on Shift and the guidelines of Three Mile Island (TMI) Action Plan Item I.A.1.1 of NUREG-0737.

Acceptance criteria for the review and evaluation of the licensed ~~under these regulations.~~

2. ~~operator license conditions are based on meeting 10 CFR 50.54(i), (j), (k), (l), and (m) as they relate to operator manipulation of controls, the operator designated as at the controls of the facility, staffing requirements during the facility operation of the facility, the responsibility for directing activities of licensed operators, and the senior operator availability during reactor operations and other specific reactor conditions or modes of operation. In addition, the staffing should follow the staff positions of TMI Action Plan Items I.A.1.1 and I.A.1.3 of NUREG-0737.~~

3. ~~10 CFR 50.80 as it relates to demonstrating (in conjunction with other reviews) that the applicant for a license transfer is technically qualified to hold a license.~~

SRP Acceptance Criteria

~~Specific SRP acceptance criteria acceptable to meet the relevant requirements of the NRC's regulations identified above are as follows for the review described in this SRP section. The SRP is not a substitute for the NRC's 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 acceptable methods of compliance with the NRC regulations.~~

In general:

1. ~~Plant staff organizational structures are not rigidly fixed. However, experience has shown that certain components are common to and necessary for all plants. Among these are operational, onsite technical support, and maintenance groups under the direction and supervision of a plant manager.~~
2. ~~The operating organization should be free of ambiguous assignments of primary responsibility. Operating responsibilities should be reasonably well defined in both numbers and experience of persons required to implement the project.~~
3. ~~The total on-shift manpower available should include enough full operating shift crews that excessive overtime is not routinely scheduled.~~
4. ~~Any requests for exemptions from the requirements of 10 CFR 50.54(m) concerning the number of licensed personnel should be justified and reviewed using the NRC's "Guidance for Assessing Exemption Requests from the Nuclear Power Plant Licensed Operator Staffing Requirements Specified in 10 CFR 50.54(m)" (NUREG-1791).~~

1. ~~Specific Requirements. Specific criteria to meet the relevant requirements of 10 CFR 50.40(b), 10 CFR 50.80, and 10 CFR 50.54(j), (k), (l), and (m) are as follows:~~
- A. ~~ANSI N18.7/ANS 3.2, Section 3.4, "Operating Organization," as endorsed by Regulatory Guide 1.33, should be met. In addition, the following criteria should be satisfied:~~
- i. ~~The Specific criteria are as follows:~~
- a. The applicant has committed to RG 1.33, "Quality Assurance Program Requirements (Operation)." RG 1.33 endorses American National Standards Institute (ANSI) N18.7-1976/American Nuclear Society (ANS)-3.2, "Administrative Controls and Quality Assurance for the Operational Phase of Nuclear Power Plants."
- b. As demonstrated on organizational charts, as descriptions of organizational functions and responsibilities, and as descriptions of position functions and responsibilities, the applicant:
- i. Has identified and described the reporting ~~responsibility~~ responsibilities and ~~authority of~~ authorities in the functional areas of radiation protection/health physics, quality assurance, and training. The reporting responsibilities and authorities should ensure independence from normal operating pressures. ~~In utilities with large commitments to nuclear power plants, overall management and technical direction in these areas may be concentrated at the home office.~~
- ii. ~~There should be clear lines of authority to the plant manager.~~
- ii. iii. ~~Responsibility for all~~ Has clearly defined the responsibilities of the operating organization related to activities important to the safe operation and maintenance of the facility ~~should be clearly defined.~~
- iii. iv. ~~Distinct functional areas should be~~ Functional areas, (e.g., maintenance, operations, training, etc.), are separately supervised and/or managed.
- iv. v. ~~There should be sufficient~~ Sufficient managerial depth is available to provide qualified backup ~~if the incumbent is absent~~ for overall station operation in the event of unexpected contingencies of a temporary nature.
- a-c. B. ~~Responsibilities~~ The applicant has described how the responsibilities and authorities of operating organization personnel ~~should conform to the requirements of ANSI N18.7/ANS 3.2, Section 5.2, "Rules of Practice"; ANSI Section 4.4, "Onsite Review," as endorsed by Regulatory Guide 1.33; Branch Technical Position SPLB 9.5 1; and Regulatory Guide 3.2, RG 1.189, "Fire Protection for Nuclear Power Plants"; and RG 1.8 for the operating organization.~~

In addition, the organization, "Qualification and Training of Personnel for Nuclear Power Plants." The description should reflect the staff position in ~~TMI Action Plan item~~ NUREG-0694, "TMI-Related Requirements for New Operating Licenses," Item I.C.3 of ~~NUREG-0694~~ by, "Shift Supervisor Responsibilities," which clearly ~~defining~~ establishes the command duties of the shift supervisor ~~position and making top management responsibility for the~~ /manager, clearly defines the duties, responsibilities and authorities of the shift supervisor/manager and the control room operators, and emphasizes management responsibilities for safe operation and maintenance of the plant.

b.d. ~~C.~~ Assignments of onsite shift operating crews, described in Table 1, shall be made in accordance with 10- CFR 50.54(i), (j), (k), (l), and (m). In addition, the staffing should follow the ~~staff positions of TMI Action Plan items~~ guidance of NUREG-0737, Item I.A.1.1 and, "Shift Technical Advisor," and Item I.A.1.3 of ~~NUREG-0737~~, "Shift Manning," as follows:

- i. ~~i.~~ A shift supervisor / manager with a senior reactor ~~operator's~~ operator's license, who is also a member of the station supervisory staff, shall be ~~on-site~~ onsite at all times when at least one unit is loaded with fuel.
- ii. ~~ii.~~ In addition to the licensed personnel specified in 10- CFR- 50.54(m), ~~as a minimum~~, an auxiliary operator (~~nonlicensed~~ non-licensed) shall be assigned to each reactor and an ~~additional~~ auxiliary operator shall be assigned for each control room for an operating reactor. ~~These~~ The auxiliary operators shall be properly qualified to support the unit to which they are assigned. ~~(The shift composition described above is shown in tabular form in Table 1.)~~
- iii. ~~iii.~~ ~~To meet TMI Action Plan item I.A.1.1 of NUREG-0737, engineering~~ A licensed senior reactor operator shall, at all times, be in the control room from which a reactor is being operated. The shift supervisor may act as a relief operator for the licensed senior reactor operator for either unit being operated from that control room, provided he holds a current license for each unit assigned to the control room.
- iv. An additional licensed reactor operator shall be onsite at all times and available to serve as relief operator for that control room. This individual may serve as relief operator for each unit being operated from that control room, provided he holds a current license for each unit.
- ~~iii-v.~~ Engineering expertise shall be onsite at all times a licensed pressurized-water reactor (PWR) is ~~being~~ operated in Modes 1-4 or a licensed boiling-water reactor (BWR) is being ~~operated~~ in Modes- 1-3. This engineering expertise should be consistent ~~NUREG-0737, Item I.A.1.1, and consistent~~ with one of the options in the

| ~~Commission's~~Commission's Policy Statement on Engineering Expertise
on Shift.

TABLE 4
SHIFT STAFFING**

	One Unit One Control Room	Two Units One Control Room	Two Units Two Control Rooms
One Unit Operating*	1 SS (SRO) 1 SRO 2 RO 2 AO	1 SS (SRO) 1 SRO 3 RO 3 AO	1 SS (SRO) 1 SRO 3 RO 3 AO
Two Units Operating*	NA	1 SS (SRO) 1 SRO 3 RO 3 AO	1 SS (SRO) 2 SRO 4 RO 4 AO
All Units Shutdown	1 SS (SRO) 1 RO 1 AO	1 SS (SRO) 2 RO 3 AO	1 SS (SRO) 2 RO 3 AO
SS—Shift Supervisor SRO—Licensed Senior Reactor Operator RO—Licensed Reactor Operator AO—Auxiliary Operator			
Notes: 1. To operate, or supervise the operation of, more than one unit, an operator (SRO or RO) must hold an appropriate, current license for each unit. 2. In addition to the staffing requirements indicated in the table, a licensed senior operator will be required to directly supervise any core alteration activity. *Modes 1 through 4 for PWRs. Modes 1 through 3 for BWRs. **Shift staffing of unlicensed personnel for special cases such as three units, operating from one or two control rooms, etc., will be determined case by case, based on the principles defined in item II.B.3. of this SRP section. However, shift staffing of licensed personnel for special cases, including temporary deviations and staffing for three units must meet the requirements of 10 CFR 50.54(m).			

~~iv.~~

~~iv-vi.~~ A health physics technician shall be ~~on-site~~ on-site at all times when there is fuel in a reactor.

~~v-vii.~~

~~v.~~ A rad/chem technician shall be ~~on-site~~ on-site at all times when a PWR is being operated in Modes 1 through 4 or a BWR in Modes 1 through 3.

~~vi-viii.~~

~~vi.~~ Assignment, stationing, and relief of operators and senior operators within the control room shall be as described in ~~Regulatory Guide 1.114~~ RG 1.114, "Guidance to Operators at the Controls and Senior Operators in the Control Room of a Nuclear Power Unit."

~~D.~~ Any deviation from the Specific Criterion B.3.a-f and/or the staffing-related requirements

Table 1

Minimum Requirements per Shift for OnSite Staffing of Nuclear Power Units by Operators and Senior Operators Licensed Under 10 CFR Part 55

Number of nuclear power units operating	Position	One Unit	Two Units		Three Units	
		One control room	One control room	Two control rooms	Two control rooms	Three control rooms
None	Senior Operator	1	1	1	1	1
	Operator	1	2	2	3	3
	Non-licensed Operator	1	3	3	3	3
One	Senior Operator	2	2	2	2	2
	Operator	2	3	3	4	4
	Non-licensed Operator	2	3	4	4	4
Two	Senior Operator		2	3	3	3
	Operator		3	4	5	5
	Non-licensed Operator		3	3	5	5
Three	Senior Operator				3	4
	Operator				5	6
	Non-licensed Operator				6	6

Notes:

1. In addition, one Shift Technical Advisor (STA) is assigned per shift during plant operation. A shift manager or another SRO on shift, who meets the qualifications for the combined Senior Reactor Operator/Shift Technical Advisor position, as specified for option 1 of GL 86-04, (Reference 202) the commission's policy statement on engineering expertise on shift, may also serve as the STA. If this option is used for a shift, then the separate STA position may be eliminated for that shift.
2. Temporary deviations from the numbers required by this table shall be in accordance with criteria established in the unit's technical specifications.
3. For the purpose of this table, a nuclear power unit is considered to be operating when it is in a mode other than cold shutdown or refueling as defined by the unit's technical specifications.
4. A senior operator, licensed for each unit that is fueled, shall be onsite at all times when at least one unit is loaded with fuel.
5. To operate or supervise the operation of more than one unit, an operator (SRO or RO) must hold an appropriate, current license for each unit.
6. In addition to the staffing requirements indicated in the table, a licensed senior operator or senior operator limited to fuel handling will be required to directly supervise any core alteration activity.
7. A radiation protection technician shall be onsite at all times when there is fuel in a reactor.
8. A chemistry technician shall be onsite during plant operation in modes other than cold shutdown or refueling.

e-e. Applicant requests for exemption from the licensed operator staffing requirements specified in 10 CFR 50.54(m) and NUREG-0737; Item I.A.1.1, "Shift Technical Advisor," and Item I.A.1.3, "Shift Manning," can be justified and reviewed using the guidance set forth in NUREG-1791.

d-f. E. — The ~~total complement~~ number of licensed and ~~unlicensed~~ non-licensed personnel for onsite shift operating crews should be sufficient to avoid the routine ~~heavy~~ use of overtime. ~~— (SRP Section 13.5.1 contains guidance on work hour limitations.) To meet this policy, staffing plans should provide for no less than the number required for five shift rotations.~~

e-g. F. — The applicant has described how the plant operating and technical staff ~~should be used as much as possible~~ will be utilized in developing, conducting, and participating in the initial test program ~~for the facility~~, in reviewing test results and the plant-specific test-program training.

f-h. G. — Assignments of personnel to the fire brigade ~~should~~ follow the ~~guideline~~ guidance of SRP Section ~~—~~ 9.5.1, including ~~the following~~ commitments that:

g-i. i. — ~~The~~ The responsibilities of the fire brigade members ~~under normal conditions should~~ do not conflict with their responsibilities during a fire emergency.

ii. — ~~The~~ The minimum number of fire brigade members available ~~on-site~~ for each shift ~~operation~~ operating crew ~~should be~~ is consistent with the activities required to combat the most significant fire. The minimum size of the fire brigade shift should be five persons unless a site evaluation has been completed ~~and some other number justified.~~

i. H. — ~~Regulatory Guide~~ The applicant has committed that the experience and qualifications of members of the operating organization meet or exceed those endorsed by RG 1.8, ~~"Qualification and Training of Personnel for.~~

j. The applicant has described the required training to implement RGs 1.160, "Monitoring the Effectiveness of Maintenance at Nuclear Power Plants," ~~sets forth the,~~ and 1.182 and the training for operational and onsite technical support staff in risk-informed decisionmaking necessary to support the effective implementation of RGs 1.174, 1.175, 1.177, and 1.178.

3. Review Interfaces

Other SRP sections interface with this section as follows:

- a. ~~position on plant~~ Organizational structure, personnel qualifications ~~and training,~~ and experience under SRP Sections 13.1.1, 16.0, and 16.1.
- b. Training of licensed operators and non-licensed staff under SRP Section 13.2.
- c. Procedure adequacy under SRP Section 13.5.

b-d. Organizational provisions for independent reviews and verifications under SRP Section 17.5.

e. Use of human factors engineering principles under SRP Section 18.

e-f. Use of risk-informed evaluations and decision making under SRP Sections 3.9.7, 3.9.8, 16.1, 19.0, 19.1, and 19.2.

~~In addition, although the qualification levels of the standards are endorsed as acceptable minimums for each position, it is expected that the collective qualifications of the plant staff will be greater than the sum of the minimum individual requirements described in the standard, particularly in the area of nuclear power plant experience and in supervisory and managerial positions involved in operating the facility. If the collective qualifications do not exceed the sum of the minimums for individual positions, additional technical support for the plant staff may be required. This will be determined on a case by case basis.~~

the organization responsible for the review of human performance will coordinate with other organizations' evaluations that interface with the overall review of the operating organization, as follows:

- g. The organization responsible for emergency planning will review the emergency organization as part of its review responsibility for SRP Section 13.3.
- h. The organization responsible for health physics will review the acceptability of the radiation-protection organization as part of its review responsibility for SRP Section 12.5.
- i. The organization responsible for physical security will review the applicant's security organization as part of its review responsibility for SRP Section 13.6.
- j. The organization responsible for quality assurance will review the quality-assurance organization as part of its review responsibility for SRP Section 17.5.
- k. The organization responsible for fire protection will review the fire-protection program organization as part of its review responsibility for SRP Section 9.5.1.1.

3. Technical Rationale

~~The technical rationale for application of these acceptance criteria to the areas of review addressed by this SRP section is discussed in the following paragraphs:~~

~~1. Compliance with the relevant requirements of 10 CFR 50.34, "Contents of Applications; Technical Information"; 10 CFR 50.40(b) requires that, "Common Standards"; 10 CFR 50.48, "Fire Protection"; and 10 CFR Part 50, Appendix B, requires the applicant be technically qualified to engage in the proposed activities in accordance with the regulations in Chapter 10 CFR Part 50. Similarly,~~

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 have the technical qualifications to engage in the proposed activities in accordance with the regulations in 10 CFR Part 52, “Licenses, Certifications, and Approvals for Nuclear Power Plants.”

Compliance with the relevant requirements of 10 CFR 50.80 requires ~~that an~~the applicant for a license transfer be technically qualified to hold ~~a~~the license.

~~Reviewing the~~The operating organization established by the applicant to oversee operation of a nuclear power plant ~~reveals corporate management's~~provides insights into management's understanding of its safety role in the operation and maintenance of the facility. The key positions for ensuring the safe operation of the plant are in the operating organization. ~~—and helps show whether~~Those insights, during a review of the operating organization, help determine that an applicant is technically qualified ~~to engage in the proposed nuclear activities.~~ ~~Reviewing the operating organization shows whether~~by ensuring that the applicant ~~considers safety first~~addresses appropriate considerations in establishing ~~qualifications~~general qualification requirements and staffing levels for all key positions on which the safety of the facility ~~will depend~~depends.

Meeting the requirements of 10 CFR 50.34, 10 CFR 50.40~~(b)~~, 10 CFR 50.48, 10 CFR Part 50, Appendix B, 10 CFR 52.47, 10 CFR 52.79, and 10 CFR 50.80, as applicable, provides assurance that the applicant is technically qualified to engage in the proposed activities and has established the necessary managerial and technical~~—support~~ organizations to safely operate ~~and maintain the proposed~~ facility.

2. ~~Compliance with 10 CFR 50.54(j), (i), (j), (k), (l), and (m) requires the applicant to demonstrate that it/ describe how the~~ operating organization satisfies minimum requirements for operator supervision and the availability of licensed senior operators and licensed operators during ~~reactor operations and other~~ specific reactor conditions ~~or~~and modes of operation. Any requests for ~~exemptions from the licensed operator staffing requirements specified in 10 CFR 50.54(m) should be granted (or denied) based on the guidance set forth in NUREG-1791 and founded on a thorough analysis of personnel performance.~~

3. ~~The key positions for ensuring the safe operation of the plant are in the operating organization. A staffing review of the operating organization shows whether an applicant is technically qualified to operate the facility.~~

~~III.~~ REVIEW PROCEDURES

~~The reviewer will select material from the procedures described below, as may be appropriate for a particular case.~~

~~These review procedures are based on the identified SRP acceptance criteria. For deviations from these acceptance criteria, the staff should review the applicant's evaluation of how the proposed alternatives provide an acceptable method of complying with the relevant NRC requirements identified in Subsection II.~~

In reviewing information about the operating organization, the following points should be considered:

- ~~1. During the early stages of construction or plant design, the applicant will generally not have made selections for plant staff positions. The reviewer, therefore, examines this section of the SAR for a commitment to conform to the stated acceptance criteria.~~
- ~~2. The reviewer must recognize that there are many acceptable ways to define and delegate job responsibilities. Variations in staffing may also be expected between applicants with and without experience in nuclear plant operation. It is important that the reviewer verify that applicants lacking in experience do not underestimate the magnitude of the task and that all applicants adequately consider the potential effects of human error. Guidance on human error considerations may be found in NUREG-0711, Chapter 7, "Element 6—Human Reliability Analysis." The reviewer should be alert to the possibility that too much work may be put on too few people.~~

~~The reviewer should also consider that the structure of onsite technical support and maintenance groups may depend somewhat on the applicant's headquarters staffing and the division of effort between onsite and offsite personnel.~~

- ~~3. During the later stages of plant design, construction, and licensing, the reviewer follows the same process as during the early stages of plant design and construction, and then examines each resume. The reviewer should compare the educational and experience information in each resume with the qualifications endorsed by Regulatory Guide 1.8, or other approved qualifications. "Applicable experience" should be judged according to the responsibility of the position. Credit for experience which may not be entirely applicable, should be weighed against the requirements of the position.~~
- ~~d-1. If the proposed plant staff positions are not comparable to those defined in the standards endorsed in Regulatory Guide 1.8, the applicant should list each position on its plant staff and designate the most closely corresponding position in these standards, or describe in detail the proposed qualification requirements for each position on its plant staff.~~

~~In addition, if the applicant has had experience in operating previously licensed nuclear power plants, the reviewer may seek independent information about plant staffing and qualifications from the appropriate regional office (e.g., by talking with inspection personnel or reviewing inspection reports).~~

- ~~4. The reviewer should make sure the applicant has planned for enough full operating shift crews so that they don't have to work excessive overtime. Additional staffing guidance may be found in NUREG-0711, Chapter 6, "Element 5—Staffing." For multi-unit sites, the reviewer should check that overall site responsibilities are clear for periods when senior level supervisors are not on site.~~
- ~~5. The reviewer should use the procedures and criteria delineated in NUREG-1701 to evaluate any requests for exemptions from the licensed operator staffing requirements specified in 10 CFR 50.54(m).~~

~~The review procedure for this SRP section, therefore, is as follows:~~

- ~~1. Examine the information submitted to determine whether all items in subsection I, "Areas of Review," have been addressed.~~

~~2. Compare the information with the acceptance criteria of subsection II, "Acceptance Criteria."~~

~~3. Review the information provided by the NRC regional office on the organizational and administrative commitments in the applicant's SAR, as appropriate.~~

~~b-e. 4. Verify the implementation of the management structure and the provision of technical support personnel by visiting the applicant's corporate headquarters and the site, as appropriate) should be evaluated using the guidance set forth in NUREG-1791, "Guidance for Assessing Exemption Requests from the Nuclear Power Plant Licensed Operator Staffing Requirements Specified in "~~

~~Based on the foregoing, the reviewer then determines the overall acceptability of the applicant's operating organizations and plant staffing plans.~~

~~For OL transfers under 10 CFR Part 50, the operating organization was found acceptable as part of the initial licensing of the plant. Subsequent changes to the operating organization should have been made in accordance with an appropriate evaluation methodology. Therefore, the existing organization should still be acceptable. License transfer reviews should focus on the changes proposed to the operating organization as a result of the transfer. 54(m)."~~

~~For review of a DC application, the reviewer should consider the appropriateness of identified COL action items. The reviewer may identify additional COL action items; however, to ensure these COL action items are addressed during a COL application, they should be added to the DC FSAR.~~

~~For review of a COL application, the scope of the review is dependent on whether the COL applicant references a DC, an early site permit (ESP) or other NRC approvals (e.g., manufacturing license, site suitability report or topical report).~~

IV. EVALUATION FINDINGS

The reviewer verifies that the applicant has provided sufficient information and that the review and calculations (if applicable), support the conclusions provided below for DC, CP, COL, and operating license transfers respectively. These conclusions, as well as their bases, should be included in the staff's safety evaluation report (SER).

1. CPe Design Certification

~~For DC and COLs.~~ COL reviews, the findings will also summarize (to the extent that the review is not discussed in other SER sections) the staff's evaluation of the inspections, tests, analyses, and acceptance criteria (ITAAC), including design acceptance criteria, as applicable, and interface requirements and COL action items relevant to this SRP section.

2. Construction Permit and Combined License

The staff concludes that the ~~applicant's~~ applicant's operating organization is acceptable and meets the relevant requirements of 10 CFR 50.40(b) or 10 CFR 50.80, as applicable, and 10 CFR- 50.54(j) through (m). This conclusion is based on the following:—

The applicant has described the assignment of plant operating responsibilities; the reporting chain up through the chief executive ~~office~~ officer of the applicant; the proposed size of the regular plant staff; the functions and responsibilities of each major plant staff group; the proposed shift crew complement for single-unit or multiple-unit operation; the qualification requirements for members of its plant staff; and staff qualifications (through personnel resumes for management and principle supervisory and technical positions as submitted during the later stages of plant design, construction, and licensing).

3. Operating License Transfers-3

The applicant has described its organization for managing, and its means of providing, technical support to the plant staff for operation and maintenance of the facility after the license transfer. These measures have been reviewed and it is concluded that the applicant has an acceptable organization and adequate resources to provide technical support for the operation and maintenance of the facility under both normal and off-normal conditions.

In addition to the finding based on the type of application, the SER should also state:

~~These~~ The applicant's operating organization is characterized as follows:

~~A.~~—findings contribute to the judgment that the applicant complies with the requirements of 10 CFR 50.40(b) and 10 CFR 50.80, as applicable. That is:

- a. The applicant is technically qualified, as specified in 10- CFR- 50.40(b) and 10 CFR- 50.80, as applicable.
- b. ~~B.~~—An adequate number of licensed operators will be available at all required times to satisfy the minimum staffing requirements of 10 CFR 50.54(j)-), (m), or as described in an approved exemption.
- c. ~~C.~~—On-shift personnel are able to provide initial facility response in the event of an emergency.
- d. ~~D.~~—Organizational requirements for the plant manager and radiation protection manager have been satisfied.
- e. ~~E.~~—Qualification requirements and qualifications of plant personnel conform with the guidance of ~~Regulatory Guide~~RG 1.8.
- f. ~~F.~~—Organizational requirements conform ~~with~~to the guidance of ~~Regulatory Guide~~RG 1.33.
- g. ~~In addition, the~~ The applicant has complied with TMI Action Plan ~~items~~Items I.A.1.1 and I.A.1.3.

~~2. For OL Transfers. For a safety evaluation report on a transfer of an OL or COL, the findings will summarize the staff's evaluation of the applicant's proposed changes to the operating organization.~~

~~3. For Design Certifications For DC reviews, the findings will also summarize the staff's evaluation of requirements and restrictions (e.g., interface requirements and site parameters) and COL action items relevant to this SRP section.~~

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~~Commission's regulations, the staff will use the method described herein to evaluate conformance with Commission regulations.

~~The methods described in this section will be used in evaluations of submittals in connection with applications for construction permits, design certifications, operating licenses, combined licenses, and license transfers.~~

~~The provisions of this SRP section apply to reviews of applications submitted six months or more after the date of issuance of this SRP section, unless superseded by a later revision.~~

VI. REFERENCES

1. ~~4.~~ 10 CFR Part 50, "Domestic Licensing of Production and Utilization Facilities."
2. ~~2.~~ Regulatory Guide 1.8, "Qualification 10 CFR Part 52, "Licenses, Certifications, and Training of Personnel Approvals for Nuclear Power Plants."
3. ~~Regulatory Guide 1.33, "Quality Assurance Program Requirements (Operation)" (endorses ANSI N18.7-1976/ANS-3.2, "Administrative Controls and Quality Assurance for the Operational Phase of Nuclear Power Plants," as supplemented by its regulatory positions).~~
4. ~~Regulatory Guide 1.114, "Guidance to Operators at the Controls and to Senior Operators in the Control Room of a Nuclear Power Unit."~~
3. 10 CFR Part 55, "Operator's Licenses."
4. GL 86-04, "Policy Statement on Engineering Expertise on Shift" (50 FR).
5. NRC, Inspection Manual Chapter (IMC) 2504, "Construction Inspection Program – Non-ITAAC Inspections."
6. NUREG-0660, "NRC Action Plan Developed as a Result of the TMI-1 Accident."
- 3-7. NUREG-0694, "TMI-Related Requirements for Operating Licenses."
- 4-8. NUREG-0711, "Human Factors Engineering Program Review Model."
9. NUREG-0718, "Licensing Requirements for Pending Applications for Construction Permits and Manufacturing License."
- 5-10. NUREG-0737, "and Supplement 1, "Clarification of TMI Action Plan Requirements."

- 6-11. NUREG/CR-6838, ~~““Technical Basis for Regulatory Guidance for Assessing Exemption Requests from the Nuclear Power Plant Licensed Operator Staffing Requirements Specified in 10 CFR 50.54(m).”.”~~
- 7-12. NUREG-1791, ~~““Guidance for Assessing Exemption Requests from the Nuclear Power Plant Licensed Operator Staffing Requirements Specified in 10 CFR 50.54(m).”.”~~

~~5. The Commission's Policy Statement on Engineering Expertise on Shift (50 FR 43621).~~

- 13. RG 1.8, "Qualification and Training of Personnel for Nuclear Power Plants."
- 14. RG 1.28, "Quality Assurance Program Criteria (Design and Construction)."
- 15. RG 1.33, "Quality Assurance Program Requirements (Operation)."
- 16. RG 1.68, "Initial Test Programs for Water-cooled Nuclear Power Plants."
- 17. RG 1.114, "Guidance to Operators at the Controls and to Senior Operators in the Control Room of a Nuclear Power Unit."
- 18. RG 1.160, "Monitoring the Effectiveness of Maintenance at Nuclear Power Plants."
- 19. RG 1.174, "An Approach for Using Probabilistic Risk Assessment in Risk-Informed Decisions on Plant-Specific Changes to the Licensing Basis."
- 20. RG 1.175, "An Approach for Plant-Specific, Risk-Informed Decisionmaking: Inservice Testing."
- 21. RG 1.177, "An Approach for Plant-Specific, Risk-Informed Decisionmaking: Technical Specifications."
- 22. RG 1.178, "An Approach for Plant-Specific Risk-Informed Decisionmaking for Inservice Inspection of Piping."
- 23. RG 1.182, "Assessing and Managing Risk Before Maintenance Activities at Nuclear Power Plants."
- 24. RG 1.206 "Combined License Applications for Nuclear Power Plants (LWR Edition)."

Paperwork Reduction Act Statement

The information collections contained in the Standard Review Plan are covered by the requirements of 10 CFR Part 50 and 10- CFR- Part 52, and were approved by the Office of Management and Budget, approval ~~numb~~numbers 3150-0011 and 3150-0151.—

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 13.1.2-13.1.3
Description of Changes**

Section 13.1.2 - 13.1.3 Operating Organization

This revision of SRP Section 13.1.2 - 13.1.3 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.