



DRAFT REGULATORY GUIDE

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DRAFT REGULATORY GUIDE DG-1194

(Proposed Revision 3 of Regulatory Guide 1.114, dated May 1989)

GUIDANCE TO OPERATORS AT THE CONTROLS AND TO SENIOR OPERATORS IN THE CONTROL ROOM OF A NUCLEAR POWER UNIT

A. INTRODUCTION

This guide describes a method that the staff of the U.S. Nuclear Regulatory Commission (NRC) considers acceptable for complying with the Commission's regulations that require the presence of an operator at the controls of a nuclear power unit and a senior operator in the control room from which the nuclear power unit is being operated. In addition, this guide clarifies and provides guidance on the acceptable boundaries of the control room. The "vital area," as identified in Title 10 Section 73.2, "Definitions," of the *Code of Federal Regulation* (10 CFR 73.2), and 10 CFR 73.55(c) serves as the basis for the "control room vital area" as used in this regulatory guide.

The regulation at 10 CFR 50.54(k) requires that an operator or senior operator licensed pursuant to 10 CFR Part 55, "Operators' Licenses," be present at the controls at all times during the operation of a facility. General Design Criterion 19, "Control Room," of Appendix A, "General Design Criteria for Nuclear Power Plants," to 10 CFR Part 50, "Domestic Licensing of Production and Utilization Facilities," requires, in part, that a control room be provided from which actions can be taken to operate the nuclear power unit safely under normal conditions and to maintain the nuclear power plant in a safe condition under accident conditions. As defined in 10 CFR 50.2, "Definitions," and 10 CFR 55.4, "Definitions," the term "controls," when used with respect to nuclear reactors, means apparatus and mechanisms, the manipulation of which directly affects the reactivity or power level of the reactor. Under 10 CFR 50.54(m)(2)(iii), when a nuclear power unit is in an operational mode other than cold shutdown or refueling, as defined by the unit's technical specifications, each licensee must have a person holding a

This regulatory guide is being issued in draft form to involve the public in the early stages of the development of a regulatory position in this area. It has not received final staff review or approval and does not represent an official NRC final staff position.

Public comments are being solicited on this draft guide (including any implementation schedule) and its associated regulatory analysis or value/impact statement. Comments should be accompanied by appropriate supporting data. Written comments may be submitted to the Rulemaking, Directives, and Editing Branch, Office of Administration, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001; emailed to NRCREP@nrc.gov; submitted through the NRC's interactive rulemaking Web page at <http://www.nrc.gov>; faxed to (301) 415-5144; or hand-delivered to Rulemaking, Directives, and Editing Branch, Office of Administration, US NRC, 11555 Rockville Pike, Rockville, Maryland 20852. Between 7:30 a.m. and 4:15 p.m. on Federal workdays. Copies of comments received may be examined at the NRC's Public Document Room, 11555 Rockville Pike, Rockville, MD. Comments will be most helpful if received by June 6, 2008.

Electronic copies of this draft regulatory guide are available through the NRC's interactive rulemaking Web page (see above); the NRC's public Web site under Draft Regulatory Guides in the Regulatory Guides document collection of the NRC's Electronic Reading Room at <http://www.nrc.gov/reading-rm/doc-collections/>; and the NRC's Agencywide Documents Access and Management System (ADAMS) at <http://www.nrc.gov/reading-rm/adams.html>, under Accession No. ML080220459.

senior operator license for the nuclear power unit in the control room at all times. In addition to this senior operator, a licensed operator or senior operator must be present at the controls at all times for each fueled nuclear power unit.

The NRC issues regulatory guides to describe to the public methods that the staff considers acceptable for use in implementing specific parts of the agency's regulations, to explain techniques that the staff uses in evaluating specific problems or postulated accidents, and to provide guidance to applicants. Regulatory guides are not substitutes for regulations, and compliance with them is not required.

This regulatory guide contains information collection or record keeping requirements covered by 10 CFR Parts 50, 55, and 73, and approved by the Office of Management and Budget (OMB) under OMB control numbers 3150-0011, 3150-0018, and 3150-0002, respectively. The NRC may neither conduct nor sponsor, and a person is not required to respond to, an information request or requirement unless the requesting document displays a currently valid OMB control number.

B. DISCUSSION

1. Operator at the Controls

Operating experience has shown that a need exists for guidance on acceptable methods of complying with the Commission's requirement for the presence of an operator at the controls of a facility. The operator at the controls of a nuclear power unit has many responsibilities that include, but are not limited to, (1) adhering to the unit's technical specifications, plant operating procedures, and NRC regulations, (2) reviewing operating data, including data logging and review, to ensure safe operation of the unit, and (3) being able to manually initiate engineered safety features during various transient and accident conditions.

For the operator at the controls of a nuclear power unit to be able to carry out these and other responsibilities in a timely fashion, the operator's attention must be given to the condition of the unit at all times. The operator must be alert to ensure that the unit is operating safely and must be capable of taking action to prevent any progress toward a condition that may be unsafe. This is facilitated by control room design and layout in which all controls, instrumentation displays, and alarms required for the safe operation, shutdown, and cooldown of the unit are readily available to the operator in the control room.

2. Senior Operator in the Control Room

A need exists for guidance on acceptable methods of complying with the Commission's requirement in 10 CFR 50.54(m)(2)(iii) that a senior operator be present in the control room at all times when a nuclear power unit is in an operational mode other than cold shutdown or refueling as defined by the unit's technical specifications. A senior operator currently assigned to control room duties and within the confines of the control room is expected to be in sight of, or in audible range of, the operator at the controls or be in audible range of the control room annunciators. A senior operator's technical expertise is required in the control room, in addition to a reactor operator's technical expertise, because of the differences in their training programs and experience.

The staffing rule requires the continuous presence of a senior operator in the control room to ensure that (1) an individual is available who can provide the oversight function of the supervisor so that the probability of correctly detecting abnormal events early enough to mitigate potential adverse consequences is increased, (2) the senior operator in the control room is aware of plant conditions before

and resulting from an abnormal event so that the senior operator's extra experience, training, and knowledge can be used to act promptly to mitigate that event, and (3) the operator at the controls is able to direct attention to performing the immediate actions necessary to mitigate an event, rather than having to brief the senior operator about the background of that event, if the senior operator had been absent from the control room.

C. REGULATORY POSITION

1. Operator at the Controls

1.1 The operator at the controls of a nuclear power unit should have an unobstructed view of and access to the operational control panels, including instrumentation displays and alarms, to be able to initiate prompt corrective action when necessary on receipt of any indication (instrument response or alarm) of a changing condition. Operational control panels are defined as control panels that enable the operator at the controls to perform required manual safety functions and equipment surveillance and to monitor plant conditions under normal and accident conditions.

1.2 The operator at the controls should not normally leave the area where continuous attention, including visual surveillance of annunciators and instrumentation, can be given to reactor operating conditions and where the operator has access to the reactor controls. For example, the operator should not routinely enter areas behind control panels where plant performance cannot be monitored. If the control room design is such that back panels must be monitored, either a senior operator or reactor operator assigned to the current control room shift must be within view of the control panels during the time that the normally assigned operator is monitoring the back panels. The operator at the controls should not, under any circumstances, leave the surveillance area (defined by the administrative procedures described in response to Regulatory Position 1.3 of this guide) for any nonemergency reason (e.g., to confer with others or for personal reasons) without ensuring that a qualified relief operator is at the controls. In an emergency affecting the safety of operations, the operator at the controls may momentarily be absent from the defined surveillance area in order to verify the receipt of an annunciator alarm or to initiate corrective action, provided that the operator remains within the confines of the control room.

1.3 Administrative procedures should be established that define and outline (preferably with sketches) the specific area within the control room designated as the "surveillance area" where the operator at the controls should remain. The procedures should define the surveillance area and the areas that the operator at the controls may enter to verify receipt of an annunciator alarm or to initiate corrective action in an emergency affecting the safety of operations.

1.4 Before assuming responsibility as the operator at the controls, the relief operator should be properly briefed on the unit's status. Administrative procedures should describe what is required to ensure the proper transfer of responsibility during the change of shifts or when an operator on duty is relieved as operator at the controls during a shift, and should include, as a minimum, a definition of proper relief (e.g., what information is required to be passed on and acknowledged between the two operators).

1.5 A single operator should not assume responsibility as the operator at the controls for more than one nuclear power unit at the same time. This is one of the minimum requirements per shift for onsite staffing of nuclear power units by licensed operators contained in 10 CFR 50.54(m)(2)(i).

2. Senior Operator in the Control Room

2.1 A designated senior operator, as defined in 10 CFR 55.4, should be present in the control room to meet the requirements of 10 CFR 50.54(m)(2)(iii).

2.2 The senior operator in the control room should spend most of the time in that portion of the control room where there is direct and prompt access to information on current unit conditions and where the senior operator can directly supervise and communicate with the operator at the controls.

2.3 The senior operator should have the flexibility to move periodically for a brief time to other parts of the control room, as long as the senior operator is at all times within the control room vital area and meets either of the following conditions.

- a. The senior operator is in sight of or in the audible range of the reactor operator at the controls.
- b. The senior operator is in the audible range of the control room annunciators.

2.4 Administrative procedures should be established that define and outline (preferably with sketches) the specific area within the control room (Section 2.2, above) where the senior operator normally should remain while performing designated duties.

2.5 Before assuming responsibility as senior operator in the control room, the relief senior operator should be properly briefed on the unit's (or units') status. Administrative procedures should describe what is required to ensure the proper transfer of responsibilities occurs when a senior operator on duty in the control room is relieved of control room responsibility during a shift or during a change of shifts. The procedures should include, as a minimum, a definition of proper relief (e.g., what information is required to be passed on and acknowledged between the two senior operators) and notification to the control room shift crew by the senior operator in charge.

2.6 A single senior operator in the control room should not assume the responsibility for more than one control room but may have responsibility for all units operated from a single control room. This is one of the minimum requirements in 10 CFR 50.54(m)(2)(i) for onsite staffing per shift of nuclear power units by senior operators.

D. IMPLEMENTATION

The purpose of this section is to provide information to applicants and licensees regarding the NRC's plans for using this draft regulatory guide. No imposition or backfit is intended or approved in connection with its issuance.

The NRC has issued this draft guide to encourage public participation in its development. The NRC will consider all public comments received in development of the final guidance document. Except in those cases in which an applicant or licensee proposes or has previously established an acceptable alternative method for complying with specified portions of the NRC's regulations, the methods described in the active guide will be used in evaluating compliance with the regulations as discussed in this guide for license applications, license amendment applications, and exemption requests. The staff will also use this guide to evaluate licensee submittals which open the licensing basis for review.

REGULATORY ANALYSIS

1. Statement of the Problem

The NRC published Revision 2 of Regulatory Guide 1.114 in May 1989 to provide licensees with agency-approved guidance for complying with the then-current version of 10 CFR 50.54, “Conditions of Licenses.” Updates and revisions to the regulations make the current regulatory guide outdated.

2. Objective

The objective of this regulatory guide is to provide guidance on an acceptable method for complying with the requirements for licensed operator staffing as, described in the current revision of 10 CFR 50.54(m).

3. Alternative Approaches

The NRC staff considered the following alternative approaches:

- Do not revise Regulatory Guide 1.114.
- Update Regulatory Guide 1.114.

3.1 Alternative 1: Do Not Revise Regulatory Guide 1.114

Under this alternative, the NRC would not revise this guidance, and the original version of this regulatory guide would continue to be used. This alternative is considered the baseline or “no action” alternative and, as such, involves no value/impact considerations.

3.2 Alternative 2: Update Regulatory Guide 1.114

The current revision of this regulatory guide contains outdated regulatory references. Failure to revise this regulatory guide will result in the continued use of the current regulatory guide with its references to incorrect regulatory requirements.

4. Conclusion

Based on this regulatory analysis, the staff recommends that the NRC revise Regulatory Guide 1.114 to incorporate the new format and correct regulatory requirements. The regulatory guide does not require a backfit analysis as described in 10 CFR 50.109(c), because the use of this guide is voluntary for licensees of currently operating nuclear power plants.