Rules and Regulations

Federal Register
Vol. 66, No. 201
Wednesday, October 17, 2001

This section of the FEDERAL REGISTER contains regulatory documents having general applicability and legal effect, most of which are keyed to and codified in the Code of Federal Regulations, which is published under 50 titles pursuant to 44 U.S.C. 1510.

The Code of Federal Regulations is sold by the Superintendent of Documents. Prices of new books are listed in the first FEDERAL REGISTER issue of each week.

NUCLEAR REGULATORY COMMISSION

10 CFR Part 55

RIN 3150–AG40

Operator License Eligibility and Use of Simulation Facilities in Operator Licensing

AGENCY: Nuclear Regulatory Commission.

ACTION: Final rule.

SUMMARY: The Nuclear Regulatory Commission (NRC) is amending its regulations to permit applicants for operator and senior operator licenses to fulfill a portion of the required experience prerequisites by manipulating a plant-referenced simulator as an alternative to manipulation of the controls of the actual nuclear power plant. This change, along with other amendments contained in this rule, takes advantage of improvements in simulator technology and reduces unnecessary regulatory burden on licensees.

EFFECTIVE DATE: The final rule is effective November 16, 2001.

ADDRESSES: The final rule and any related documents are available on the NRC's rulemaking Website at *http://ruleforum.llnl.gov.* For information about the interactive rulemaking Web site, contact Carol Gallagher, 301–415–5905 (electronic mail: *cag@nrc.gov*)

Copies of certain documents related to this rulemaking may be examined at the NRC Public Document Room, 11555 Rockville Pike, Rockville, MD. These same documents may be viewed and downloaded electronically via the rulemaking Web site. Documents created or received at the NRC after April 1, 2000, are also available electronically at the NRC's Public Electronic Reading Room on the Internet at *http://www.nrc.gov/NRC/ADAMS/index.html.* From this site, the public can gain entry into the NRC's Agency Document Access and Management System (ADAMS) that provides text and image files of NRC's public documents. For more information, contact the NRC Public Document Room (PDR) Reference staff at 301–415–4737 or toll-free at 1–800–397–4209, or by e-mail at *pdr@nrc.gov.*

FOR FURTHER INFORMATION CONTACT: David Trimble, Office of Nuclear Reactor Regulation, U.S. Nuclear Regulatory Commission, Washington, DC 20555–0001, telephone 301–415–2942, or by electronic mail to *dct@nrc.gov.*

SUPPLEMENTARY INFORMATION: The Nuclear Regulatory Commission (NRC) is amending the regulations that govern operators' licenses to allow applicants for operator and senior operator licenses to fulfill a portion of the required experience prerequisites by manipulating a plant-referenced simulator as an alternative to manipulation of the controls of the actual nuclear power plant. This final rule also removes requirements for facility licensee certification of their simulation facilities and routine submittal of reports to the NRC for review that identify any uncorrected performance test failures and a related schedule for correction. Continued assurance of simulator fidelity is provided because a facility licensee must: (1) Conduct performance testing and retain results for four years; (2) correct modeling and hardware discrepancies and discrepancies identified from scenario validation and from performance testing; (3) make the results of any uncorrected performance test failures available onsite; and (4) maintain the provisions for license application, examination, and test integrity consistent with Section 55.49. The final rule also revises two definitions and adds clarity to the regulations by relocating language relating to the use of a simulation facility to a new section dedicated to ''Simulation Facilities.'' Lastly, the final rule facilitates voluntary licensee transition to an improved approach to simulator testing as described in an American National Standards Institute/American Nuclear Society (ANSI/ANS) standard, ANSI/ANS–3.5–1998, ''Nuclear Power Plant Simulators for Use in Operator Training and Examination.'' Revision 3 to Regulatory Guide 1.149, ''Nuclear Power Plant Simulation Facilities for Use in Operator Training and License Examinations,'' (RG 1.149) endorses this standard and is being published in conjunction with this final rule.

Background

Prior to 1987, the Commission's regulatory position was that simulator experience was not necessarily equivalent to actual nuclear power plant operating experience. The industry and the public supported this position, citing inherent problems and uncertainties in simulator technology, and the few plant-specific simulators in existence at the time.

The Commission became increasingly aware of the need to update its operator licensing requirements, in particular the need to clarify the extent to which simulators may be used in the operator licensing process. In 1987, the Commission amended substantial portions of 10 CFR part 55 to (1) formalize the requirement for license applicants to perform five significant manipulations to control reactivity or power level on the actual plant as a prerequisite for license eligibility; (2) require that every operating test be administered in a plant walk-through and a simulation facility that was either approved by the Commission or certified by the facility licensee as a plant-referenced simulator; and (3) require submittal of periodic performance tests on the simulation facility, and maintenance of records pertaining to the conduct of these tests and the results obtained. (See 52 FR 9453; March 25, 1987). Consequently, facility licensees began to develop simulators for operator licensing and training which were certified by licensees to be in accordance with national standard ANSI/ANS–3.5–1985, ''Nuclear Power Plant Simulators for Use in Operator Training.'' Eventually, every facility with a current Part 50 license procured a plant-referenced simulator and submitted a certification for its use to the Commission.

Since 1987, technology has allowed advances in the simulators' computing capability, model complexity, and fidelity. Consequently, the Commission has fewer concerns regarding the equivalence of experience gained on simulation facilities and that obtained

on the actual plant. Additionally, simulator testing has changed considerably since the current rule was published in 1987. Specifically, the ANS 3.5 Standard Committee Working Group (WG) initiated a new, improved approach to simulator testing with the issuance of ANSI/ANS–3.5–1998, ''Nuclear Power Plant Simulators for Use in Operator Training and Examination,'' which employs a scenario-based testing philosophy that is inconsistent with the testing assumptions and requirements of the current rule. The Commission has reviewed this new industry standard, found it acceptable, and determined that the existing regulatory requirements contain prescriptive aspects that are impediments to industry adoption of the 1998 standard and are no longer necessary to support required training and examination programs. The Commission has also determined that the current requirements for facility licensee certification of plant referenced simulators and routine submittal of simulation facility performance test failures, with a schedule for corrections, are unnecessarily burdensome for licensees. As an alternate approach, the NRC can review plant-referenced simulators for acceptability and performance test results of simulation facilities before the simulator facility is used for operating tests.

Discussion

With this final rule, the Commission is updating its positions regarding the use, certification, and reporting requirements for performance testing of simulation facilities. The final rule amends 10 CFR part 55 to take advantage of improvements in simulator technology and to reduce unnecessary regulatory burden on licensees by:

(1) Allowing applicants for operator and senior operator licenses to fulfill a portion of the required experience prerequisites by manipulating a plant-referenced simulator as an alternative to manipulation of the controls of the actual nuclear power plant,

(2) Removing current requirements for facility licensee certification of their simulation facilities, and

(3) Eliminating the necessity for routine submittal of reports to the NRC for review that identify any uncorrected performance test failures and a schedule for correction.

Finally, the final rule facilitates voluntary licensee transition to an improved approach to simulator testing as described in industry standard ANSI/ANS–3.5–1998, ''Nuclear Power Plant Simulators for Use in Operator Training and Examination.'' Revision 3 to Regulatory Guide 1.149, ''Nuclear Power Plant Simulation Facilities for Use in Operator Training and License Examinations,'' endorses this standard and is being published in conjunction with this final rule.

Performance of Control Manipulations on the Plant-Referenced Simulator

The current rule requires that applicants for operator and senior operator licenses perform five significant control manipulations that affect reactivity or power level on the actual plant. This final rule will allow applicants to perform the manipulations either on a plant-referenced simulator or on the actual plant at the facility licensee's discretion. When simulators are used to provide for performance of control manipulations, the final rule requires that: (1) Simulator models replicate the nuclear and thermal-hydraulic characteristics of the most recent core load in the nuclear power reference plant for which a license is being sought; and (2) significant control manipulations are completed without procedural exceptions, simulator performance exceptions, or deviation from the approved training scenario sequence. These requirements ensure that simulator experience replicates evolutions on the plant and that license applicants receive the same overall experience in safe plant operation as they would on the plant itself.

The use of a plant-referenced simulator of appropriate fidelity for these manipulations is acceptable because of improvements in simulator technology and 14 years of successful experience in using simulators after the 1987 revision of part 55. Plant-referenced simulators provide operator training and realistic examination scenarios on reactivity manipulations, other normal and abnormal procedure operations, complex plant operations, and emergency operating procedure evolutions, including the management of simultaneous tasks and faulted conditions. This final rule will allow license applicants to fulfill a portion of the required experience requirements in the facility's plant-referenced simulator without disrupting the operation of the actual plant.

During the public comment period, the Nuclear Energy Institute (NEI) and several additional commenters recommended changing proposed § 55.45(b)(3)(i)(A), which would have required that the simulator model replicate the plant ''at the time of the applicant's operating test.'' The commenters stated that the words ''at the time of the applicant's operating test'' could unnecessarily restrict the candidate's opportunities to conduct reactivity manipulations. The commenters also stated that the proposed language would create a problem if a refueling outage occurs near the time the applicant was scheduled for the operating test or if the date of the operating test changed. The Commission acknowledges the concern that the proposed wording of § 55.45(b)(3)(i)(A) (§ 55.46(c)(2)(i) of the final rule) would have restricted the candidates' opportunities to conduct the reactivity manipulations. The Commission does not intend to be unduly restrictive with regard to the timing for conduct of the five significant control manipulations on a plant-referenced simulator. Therefore, the Commission has revised § 55.46(c)(2)(i) of the final rule to require the plant-referenced simulator to ''replicate the most recent core load in the nuclear power reference plant for which a license is being sought,'' while deleting the words ''at the time of the applicant's operating test.'' It is the Commission's intent that the phrase ''most recent'' means the current core or if the plant is in a refueling outage, the core just previous to the outage.

Simulator Certification and Routine Submittal of Performance Test Reports

The current rule requires licensees who use plant-referenced simulators to certify on NRC Form 474, ''Simulation Facility Certification,'' that their simulator meets Commission regulations. The current regulations also require that test documentation and test schedules be submitted quadrennially. Currently licensed power reactor facilities have licensee-certified, plant-referenced simulators and the NRC staff's experience has shown that the submitted quadrennial reports are of minimal value.

The final rule eliminates current requirements in § 55.45(b) for: (1) Facility licensee certification of their simulation facilities, and (2) routine submittal of reports to the NRC for review which identify any uncorrected performance test failures and a schedule for correction. Continued assurance of simulator fidelity is provided, in the final rule in new § 55.46(d), by requiring licensees to: (1) Conduct performance testing and retain results for four years, (2) correct modeling and hardware discrepancies and discrepancies identified from scenario validation and from performance testing, (3) make the results of any uncorrected performance test failures available for NRC review, and (4) maintain the provisions for license application, examination, and test integrity consistent with Section

55.49. In addition, NRC reviews or inspections to ensure compliance with final rule requirements at simulation facilities will maintain safety without the unnecessary burden of certification and submittal of simulator performance test reports. If NRC reviews associated with operating tests for operator license applicants or inspections completed using the Requalification Inspection Procedure as part of the oversight process find that a plant-referenced simulator is unsuitable because it does not demonstrate expected plant performance or meet the requirement specified in items (1) and (4) above, then the simulator may not be used to conduct operating tests for operator license applicants, requalification training, or control manipulations until the simulator is made suitable. In any case, simulation facilities, including plant-referenced simulators, must additionally meet (2) and (3) of the requirements of § 55.46(d) for continued assurance of simulator fidelity. Further, NUREG–1021, Revision 8, ''Operator Licensing Examination Standards for Power Reactors,'' provides detailed policies, procedures, and practices for examining applicants for reactor operator and senior reactor operator licenses. NUREG–1021 essentially ensures that simulator scenarios for examinations are completed without procedure exceptions or simulator performance exceptions.

Facility licensees have trained licensed operators and applicants for operator and senior operator licenses on plant-referenced simulators that were certified in accordance with the 1985 edition of ANSI/ANS–3.5, ''Nuclear Power Plant Simulators for Use in Operator Training and Examination.'' This national industry standard specifies full-scope, stand-alone testing of system models and simulator training capabilities as part of initial simulator acceptance testing. Facility licensees have continued to test their plant-referenced simulators during initial development and to submit test schedules and reports on a quadrennial basis. The industry's approach to computer software development and simulator testing has changed considerably since 1987 through the issuance of the 1998 version of ANSI/ANS–3.5. The standard has moved away from continued full-scope, stand-alone testing of system models and simulator training capabilities toward a scenario-based testing and quality-control philosophy.

For facility licensees that adopt the 1998 revised national standard, the final rule revision allows for a change in the type of performance testing from a prescriptive simulator testing program in the context of initial simulator procurement to a scenario-based and operability performance testing program. The final rule does not require facility licensees to adopt the 1998 version of ANSI/ANS–3.5 or to modify existing simulator support programs or practices. Because the final rule continues to require performance testing, facility licensees that do not adopt the 1998 revised national standard will perform the same type of performance testing as before. The final rule will allow facility licensees to adjust their performance test programs to their end-user needs, as defined by their accredited systems-approach-to-training (SAT) programs, or to conform their existing simulator programs to the new revision of ANSI/ANS–3.5.

This rule and the associated Revision 3 of Regulatory Guide 1.149, ''Nuclear Power Simulation Facilities for Use in Operator Training and License Examinations,'' that endorses ANSI/ANS–3.5–1998 without exceptions, reduces inconsistencies between the operational needs of facility licensee programs and the simulator testing requirements.

Clarification of Part 55 Definitions

In 10 CFR 55.4, ''Definitions,'' the proposed rule would have defined performance testing as follows: ''Performance testing means validation, scenario-based, or operability testing conducted to verify a simulation facility's performance as compared to actual or predicted reference plant performance.'' During the public comment period, the ANS 3.5 Standards Committee WG recommended that the proposed definition be changed to eliminate the word ''validation.'' The Commission agrees with that suggestion and, further, the Commission has reconsidered the inclusion of the phrase ''* * * scenario-based, or operability * * *'' because it could be interpreted as limiting a facility licensee to the use of the ANSI/ANS–3.5–1998 standard. Therefore, the Commission has retained the original definition of performance testing in the final rule as ''Performance testing means testing conducted to verify a simulation facility's performance as compared to actual or predicted reference plant performance.''

The definition of ''plant-referenced simulator'' is revised to remove the last sentence and to relocate the substance of that sentence—a ''plant-referenced simulator demonstrates expected plant response to operator input, and to normal, transient, and accident conditions to which the simulator has been designed to respond''—to new § 55.46(c)(1). This is a conforming change that provides clarity to the regulation. The first sentence of the definition remains the same.

The term ''reference plant'' is defined in § 55.4 as ''the specific nuclear power plant from which a simulation facility's control room configuration, system control arrangement, and design data are derived.'' This definition remains the same in the final rule and continues to provide clarification that for a simulation facility, a specific plant (unit) at a multi-plant (unit) site is the ''reference plant.'' The Commission realizes that the use of inconsistent terminology can be confusing and has made clarifications where appropriate in preparing the final rule. However, the Commission intends to re-evaluate the use of the term ''reference plant'' in the future.

The term ''simulation facility'' is revised to include part-task and limited-scope simulator devices so that these devices can be used if a request were received and approved by the Commission for their use. The definition of ''simulation facility'' is also revised to remove ''the plant'' as a potential ''simulation facility.'' Use of ''the plant'' is now addressed in the new § 55.46(b). This is a conforming change that provides clarity to the regulation. The intent remains to allow facility licensees to use the plant, if approved, for the administration of the operating test and to meet experience requirements for applicants for operator and senior operator licenses. This conforming change is intended to continue to provide the regulatory flexibility that facility licensees have had since 1987.

New Section 55.46

The final rule includes administrative changes to move the requirements for the use of simulation facilities from § 55.45 to a new § 55.46, ''Simulation Facilities.'' Former §§ 55.45(b) (4) and (5) dealing with simulators have been separated from § 55.45 and consolidated in the new § 55.46. This is simply an administrative change to clarify the existing rule by separating requirements concerning simulation facilities from requirements in § 55.45 concerning operating tests.

Related Activities

To implement this rule the NRC staff is also developing revisions to the process for initial licensing, requalification, and examination of reactor and senior operators, including updating NUREG–1021, Revision 8, and the ''Licensed Operator Requalification Program Inspection Procedure,'' (IP–

71111.11) of the reactor oversight process. Training of examiners will be conducted as appropriate. The NRC staff expects that these revisions will be completed one year from the date the final rule is published. Since the proposed rulemaking notice, the staff has determined that it is not necessary to revise and update NUREG–1262, ''Answers to Questions at Public Meetings Regarding Implementation of Title 10, Code of Federal Regulations, part 55 on Operator's Licenses'' and NUREG–1258, ''Evaluation Procedure for Simulation Facilities Certified Under 10 CFR 55.'' Instead of revising the NUREG's listed above, answers to questions from a public meeting/workshop concerning this final rulemaking will be posted on the NRC's homepage at *www.nrc.gov* in the Nuclear Reactors icon under ''Principal Reactor Regulatory Programs'' under ''Operator Licensing Program.'' Additionally, the answers to any questions will be available and may be viewed as discussed above under the heading **ADDRESSES**.

Revisions to Regulatory Guide REG 1.149, Revision 3

A draft version of the associated regulatory guide (DG–1080, Proposed Revision 3 of Regulatory Guide 1.149) that proposed endorsing ANSI/ANS–3.5–1998 was made available for public comment (64 FR 45985). The final Regulatory Guide 1.149 is being made available concurrently with this final amendment. The regulatory guide is available for inspection in the NRC Public Document Room or it may be viewed and downloaded electronically through the interactive rulemaking web site established by the NRC for this rulemaking, as discussed above under the heading **ADDRESSES**. Single copies may be obtained from David Trimble, Office of Nuclear Reactor Regulation, U.S. Nuclear Regulatory Commission, Washington, DC 20555–0001, telephone 301–415–2942, or by electronic mail to *dct@nrc.gov.*

Analysis of Public Comments

The proposed rule was published in the **Federal Register** on July 3, 2000 (65 FR 41021), and the public comment period ended on September 18, 2000. The Commission received 15 comment letters on the proposed rule: 3 comments from individuals, 9 from nuclear power plant licensees (utilities), 1 from a utility organization (Nuclear Energy Institute), 1 from a licensed operator organization (the Professional Reactor Operators Society (PROS)), and 1 from a national consensus standard working group (Standards Committee WG ANS–3.5). One letter with a request for an extension to the comment deadline was also received. No public comments were received from any State agency. No public meetings were held to discuss the proposed rule nor were any requested. However, the general status of the proposed rule was discussed at NEI Initial Operator Licensing Focus Group Meetings open to the public. The comment letters may be viewed on the NRC's Web site, *http://www.nrc.gov/NRC/rule.html,* under ''NRC Rulemaking Web Site,'' at ''News, Information and Contacts for Current Rulemaking.''

Twelve of the 15 commenters expressed support for amending the rule. Several of the commenters provided specific recommendations for changes to the proposed rule. The comments and responses were grouped into five categories: (1) General support of the proposed rule, (2) general opposition to the proposed rule, (3) reactivity manipulations, (4) simulator issues, including certification of simulation facilities, and (5) definitions and wording.

General Support of the Proposed Rule

Comment 1–1: The majority of commenters supported the proposed changes to 10 CFR part 55, ''Operator's licenses'' to allow licensed operator candidate reactivity manipulations on a plant-referenced simulator as an alternative to use of the actual plant.

Response: No response necessary.

Comment 1–2: The Professional Reactor Operator Society (PROS) commented that the proposed rule would allow initial license candidates to perform required reactivity changes on a plant-referenced simulator is a welcome and acceptable change. PROS stated that the rule does not specify that license candidates cannot or should not perform manipulations on the actual plant. The amended rule will simply allow the requirement for performing five significant control manipulations that affect reactivity to be performed on either the actual plant or on the simulation facility.

Response: No response necessary.

Comment 1–3: One commenter stated that hands-on individual demonstrations of a reactivity manipulation on a simulator would seem to be a significant benefit of the rule change.

Response: The Commission agrees.

General Opposition to the Proposed Rule

Comment 2–1: One commenter stated that plant owners should not be able to shirk their responsibility for adequately training new operators. The commenter noted that there may be an enormous cost involved with the current rule and although it may be inconvenient, it does not justify diluting the licensing requirements to the point where a licensed operator does not even have to operate the real plant. The current cold license exceptions should not be used as justification because there are many extra controls and safeguards in place on a new startup. Another commenter stated that the industry needs clear guidelines, minimum deviations, and appropriate penalties for any noncompliance. The commenter also stated that safety dictates that initial license candidates are given the opportunity to move the plant without regard to real or perceived costs and that it has always been hard to put a dollar value on training until past mistakes are examined. The opportunity for actual reactivity manipulations reduces the stress-induced error rate, notably during transient conditions when clear decision-making counts.

Response: The Commission believes that the level of reactor safety established under the regulations is adequate and that the rule does not need to be strengthened. The Commission believes that the proposed changes are justified based not on an extension of the cold license exceptions (cold license examinations are those administered before the unit completes pre-operational testing and the initial start up test program) in the existing regulation, but rather on significant improvements in simulation technology, including increases in computing capability, model complexity, and fidelity. In addition, the NRC staff has conducted and observed operator licensing and requalification examinations on plant-referenced simulators for approximately 15 years and has found that scenarios are performed on simulators in a very realistic manner.

Further, this final rule does not change any of the training requirements of § 50.120 or the specific licensed operator training and requalification requirements in § 55.45(a) or § 55.59. The candidates are still required to spend a substantial amount of time actually performing the duties of their particular positions in an on-the-job training environment. In response to the concern that the industry needs clear guidelines, minimum deviations, and appropriate penalties for any noncompliance, the Commission believes that the final rule in conjunction with the regulatory guide endorsing the ANSI/ANS standard provides clear guidance to the industry.

Penalties for noncompliance are addressed by the Commission's enforcement program.

Although the NRC's primary mission is to maintain adequate levels of reactor safety, it must also give due consideration to the principle of regulatory efficiency. Because the Commission has concluded that the proposed regulatory change will not affect the existing level of reactor safety, it would be inappropriate not to take advantage of this opportunity to adopt a regulatory alternative that will minimize the burden on facility licensees. The Commission concludes that there is no measurable net benefit in requiring facility licensees to have license candidates perform reactivity control manipulations on the plant for experience purposes when doing so can entail significant expense for the facility licensee and a measure of risk to plant operations and safety. Therefore, no changes are warranted in response to this comment.

Reactivity Manipulations

Comment 3–1: The Nuclear Energy Institute (NEI) and several additional commenters recommended changing proposed § 55.45(b)(3)(i)(A), which requires that the simulator model replicate the plant ''at the time of the applicant's operating test.'' The commenters recommended that the words ''at the time of the applicant's operating test'' be deleted because this could unnecessarily restrict the candidate's opportunities to conduct reactivity manipulations to a short time just before the operating test. The commenters also stated that this would be a problem if a refueling outage occurs near the time the applicant was scheduled for the operating test or if the date of the operating test changed.

Response: The Commission agrees with this comment as discussed above in the ''Discussion'' section under ''Performance of Control Manipulations on the Plant-Referenced Simulator.'' This change has been incorporated in the final rule.

Comment 3–2: The NEI and several additional commenters recommended that because plant-referenced simulators are modeled to one plant, the reference plant, the regulatory text should be clarified to indicate that the simulator modeling is for the referenced plant.

Response: The Commission agrees with NEI's recommendation that the regulatory text be clarified to indicate that the simulator core model will replicate the reference plant for the simulation facility. This change has been incorporated in the final rule.

Comment 3–3: The NEI and several additional commenters recommended that training objectives could be met if the models reasonably represent the reference plant at the time of the manipulations. Therefore, they recommend that § 55.45(b)(3)(i)(A) be changed to read: ''The plant-referenced simulator uses models relating to nuclear and thermal-hydraulic characteristics that reasonably represent the core load that exists in the nuclear power reference plant for the facility at which a license is being sought; and ...'' Another commenter stated that ''replicate'' could be misleading in a more legal application. Another commenter stated that in discussing the requirements of the simulator that will be used for control manipulations, the terms ''replicate,'' ''represent,'' and ''reasonably represent'' are used interchangeably.

Response: The Commission does not agree with NEI's recommendation that the simulator core model ''reasonably represent'' rather than ''replicate'' the core load that exists in the reference plant. The Commission believes that the terminology in the proposed rule is appropriate and consistent with ANSI/ANS–3.5–1998, ''Nuclear Power Plant Simulators for Use in Operator Training and Examination,'' the current industry consensus standard. It means that the plant-referenced simulator's nuclear and thermal-hydraulics models operate within the tolerances specified in section 4.1.3, ''Steady-State and Normal Evolutions'' of the industry standard. The commenter did not explain and the Commission does not understand why ''replicate could be misleading in a more legal application.'' On the contrary, the NRC staff believes that using different terminology in the regulation than in the industry standard would be more confusing and misleading.

Comment 3–4: One commenter thought that the five reactivity manipulations should be ''evaluated'' manipulations. The commenter also stated that perhaps three of the five reactivity manipulations should be required to be evaluated by senior management.

Response: The Commission agrees with the commenter's suggestion that the five reactivity manipulations should be ''evaluated'' manipulations and believes that this expectation is already addressed in the Commission's regulations and guidance documents. Section 55.4, ''Definitions'' describes the five elements of a systems approach to training, including the requirement to evaluate the trainees' mastery of the objectives during training, that apply to all licensed operator training programs. Section 4.6 of NUREG–1220, ''Training Review Criteria and Procedures,'' that provides direction to NRC staff for reviewing training programs to verify compliance with the regulations, clarifies the Commission's expectations regarding the evaluation of tasks performed to ensure that the trainees master the actual job performance requirements. The Commission believes that requiring senior management to evaluate the reactivity manipulations would be overly prescriptive while adding little value. In practice, whenever license applicants are engaged in on-the-job training (OJT) in the actual control room, they have to be closely supervised and evaluated by the on-shift licensed operators. Generally, the more safety-significant activities, including reactivity and power changes, are more closely supervised and evaluated than others, regardless of whether they are performed in the actual control room or the simulator.

The Commission encourages communication and cooperation between plant operations and training management when making determinations regarding the license applicants' mastery of the training objectives and job requirements and, ultimately, their readiness for the licensing examination. Under § 55.31(a)(4), an authorized representative of the facility licensee, usually the plant manager or higher, must certify on the license application that the applicant has successfully completed the facility licensee's requirements to be licensed as an operator or senior operator. Based on the foregoing, no changes are warranted in response to this comment.

Comment 3–5: One commenter indicated that it would appear that there are so many required reactivity manipulations for each operator that the time constraint alone would preclude all manipulations from being currently performed on the reactor. The commenter stated that the simulator must already be used extensively in meeting reactivity manipulations requirements.

Response: Although it is true that simulators are already being used extensively for operator training and to practice reactivity manipulations, the control manipulations that are required by the regulations cannot be performed on the simulator, though, a few exceptions to this rule have recently been granted. These five required significant control manipulations, which affect reactivity or power level, must be performed by applicants, as trainees at the controls of the facility for

which a license is sought. The Commission believes that the proposed changes to the regulation will promote the original intent of the control manipulation requirement.

Comment 3–6: One commenter stated that ''as a minimum, one 10 percent power change should be mandatory prior to an unconditional license. If plant conditions warrant, a conditional license is issued. The condition is that an observed manipulation is performed. For those plants not in compliance with 100 percent of the fidelity issues as delineated by the guideline, the candidates must perform three 10 percent changes, that would include startups and responses to reactor trips.'' The commenter also stated that they believed strictly requiring compliance with fidelity issues will ensure the identified fidelity issues are addressed.

Response: The commenter appears to address two different issues: (1) The need for an explicit requirement that the control manipulations involve at least a 10 percent change and (2) where the simulator is not ''100 percent'' compliant with fidelity requirements, then three 10 percent changes must be accomplished by the operator applicant. However, no basis was provided for these two proposals. The Commission does not believe that either proposal is necessary. With regard to the first issue, neither the current nor the final rule address how much of a percentage power change is required for the control manipulations. The first proposal indicates that the commenter believes that the magnitude of a power level change must be at least 10 percent if it is to be a meaningful experience for an operator. The Commission believes that the magnitude of a power level change is a secondary issue. It is more important that a license candidate understand the operation of the systems involved and that the experience reinforce that knowledge and be conducted in an atmosphere as conducive to training as possible. A simulator setting in many ways is a more optimum setting for gaining this experience. To address the commenters' apparent concern, it is more likely that larger magnitude changes can be performed on the simulator than on the plant. The final rule does not alter the requirement for every license applicant to complete the control manipulations on the facility for which a license is sought, it simply gives facility licensees the flexibility to conduct some or all of the required manipulations on a plant-referenced simulator, but only if the simulator satisfies the NRC's core modeling and fidelity requirements. With regard to the second issue, the final rule does address the continued assurance of simulator fidelity issues in § 55.46(d) and also requires simulator fidelity to be demonstrated so that significant control manipulations can be completed without procedural exceptions, simulator performance exceptions, or deviation from the approved training scenario sequence.

Comment 3–7: One commenter thought that in the past the Commission has allowed utilities to deviate from the intent of the reactivity manipulation requirements. This allowed the utilities to use a wide range of interpretations for the required reactivity manipulations. The commenter also thought that deviations had become the norm rather than the rule. The commenter stated that wholesale deviations from this rule cannot be made.

Response: NRC expects that the rule is uniformly applied to all facility licensees. The Commission agrees that deviations cannot be made. Contrary to the commenters belief, the Commission does not allow anyone to deviate from the requirements without an exemption. Therefore, no changes are warranted in response to this comment.

Simulator Issues

Comment 4–1: A few commenters stated that an operator's license should not be issued based on only operating a simulator.

Response: The Commission acknowledges that operating a plant-referenced simulator is not identical to operating the actual plant despite all efforts to maximize realism and fidelity. However, today's plant-referenced simulators are of sufficient quality and fidelity that significant control manipulations can be completed without procedural exceptions, simulator performance exceptions, or deviation from the approved scenario sequence. The Commission does not believe that the rule will dilute the operators' licensing requirements. The rule will not change the requirement for every initial license applicant to complete five significant (power or reactivity) control manipulations, nor will it allow all of an applicant's training to be ''simulated'' because it does not change the requirement for every applicant to complete an on-the-job-training (OJT) program. OJT programs include hands-on experience in shift operations under the direct supervision of a licensed operator. Therefore, no changes are warranted in response to this comment.

Comment 4–2: One commenter stated that the difference between operating a real plant and a simulator is ''stress'' and further noted that the Commission did not mention the difference in operator stress while operating the real plant versus a simulator. Another commenter stated that the fidelity of the simulator is not proportional to the induced stressed from real plant operations.

Response: The level of stress experienced by licensed operators while performing the required significant control manipulations and other routine, controlled, and supervised evolutions are, in the Commission's opinion, insignificant when compared with the level of stress that they experience while responding to major plant transients (real or simulated as part of an examination scenario) that require the implementation of emergency operating procedures and response plans. Consequently, the Commission believes that there is little value in trying to distinguish between the levels of stress associated with routine control manipulations performed on a plant-referenced simulator and the actual plant. While undergoing OJT, the license applicants will still be given many opportunities to operate the real plant and experience ''the stress of knowing that the impact of a mistake may be much more dramatic than a call to 'reset the simulator.' '' The NRC staff has conducted and observed operator licensing and requalification examinations on plant-referenced simulators for approximately 15 years and has detected no discernible difference in the operators' and applicants' demeanor while performing control manipulations in simulators versus actual control rooms.

Comment 4–3: One commenter stated that the Commission should give very high priority to comments submitted by qualified operators and further stated that ''if qualified operators do not believe that plant-referenced simulators are an adequate replication for this purpose, or indicate that this proposal is a step toward degrading operator training, or judge that safety in reactor operation is compromised, then the rule should not go forward without modifications that can gain the operators' support.''

Response: The Commission agrees completely and has given high priority and serious consideration to comments submitted by qualified operators and to any concerns they have about this amendment. Only one formerly licensed senior operator and one instructor of licensed operators submitted comments in general opposition to the rule. PROS, who submitted comments on behalf of its members, portrayed the change to the rule as welcome and acceptable.

Comment 4–4: One commenter thought that with more reliance being placed on the plant-referenced simulator for operator qualification, it would seem logical that greater attention is paid to ensure that the simulator is the best possible replication of the plant. If removal of current requirements for certification of simulation facilities and routine submittal of simulator performance test reports to the Commission is not consistent with greater attention, then the proposal seems self-contradictory.

Response: The Commission agrees that, when a plant-referenced simulator is used for operator qualification, there must be assurance that the simulator is the best possible replication of the plant. The fact that this rule removes the current regulatory requirements for facility licensees to certify their simulator facilities and submit periodic performance test results to the Commission does not mean that the Commission is reducing the technical requirements for simulator fidelity. When simulators are used to provide control manipulation experience, the final rule requires the simulator to utilize models relating to nuclear and thermal-hydraulic characteristics that replicate the most recent core load in the nuclear power reference plant for which a license is being sought. It also requires simulator fidelity to be demonstrated so that significant control manipulations can be completed without procedure exceptions, simulator performance exceptions, or deviation from the approved training scenario sequence. These requirements should ensure that experience gained on the simulator essentially replicates that obtained from actual control manipulations on the plant. The final rule simply changes the nature of the reporting requirements for the performance test reports but does not eliminate the requirement for performance testing. No changes are warranted in response to this comment.

Comment 4–5: One commenter noted that there are licensed operators and senior licensed operators who have never seen or responded to an actual reactor trip. They should not experience an actual trip for the first time during real plant operations. The stress-induced error rate would be unacceptable.

Response: The Commission acknowledges that there may be licensed operators and senior operators who have never seen or responded to an actual reactor trip because many plants are experiencing record runs with unplanned reactor trip rates far below the levels seen several years ago. This simply highlights the importance of having high-quality, high-fidelity, plant-referenced simulators that enable operators to practice normal, abnormal, and emergency evolutions (most of which would never be possible to perform on the plant) without procedural or simulator performance exceptions. Although there is no regulatory requirement to do so, the Commission believes that facility licensees assign most new and inexperienced operators to crews containing other operators having greater levels of experience. Moreover, the Commission has encouraged teamwork between control room operators and, therefore, in 1987, significantly revised its requalification examination process to focus primarily on the crews' ability to successfully accomplish those activities deemed critical to safe plant operation.

Definitions and Other Rule Wording

Comment 5–1: The Standards Committee WG ANS–3.5 stated that the ANSI/ANS–3.5–1998 Standard defines performance testing as, ''testing characterized by a comparison of the results of integrated operation of the simulation facility to actual or predicted reference plant data. Performance testing encompasses testing other than software development testing.'' Also Section 4.4.3 states, ''Simulator performance testing comprises operability and scenario-based testing.'' In § 55.4, ''Definitions,'' the proposed rule would define performance testing as follows: ''Performance testing means validation, scenario-based, or operability testing conducted to verify a simulation facility's performance as compared to actual or predicted reference plant performance.'' The Standards Committee WG ANS–3.5 recommends that the proposed definition be changed to read as follows: ''Performance testing means scenario-based and operability testing conducted to verify a simulation facility's performance as compared to actual or predicted reference plant performance.''

Response: The Commission agrees that the proposed wording of the definition of ''performance testing'' (i.e., ''validation, scenario-based, or operability testing'') may have caused some confusion. Further, the Commission has reconsidered the inclusion of the phrase '' * * * scenario-based, or operability * * * '' because it could be interpreted as limiting a facility licensee to the use of the ANSI/ANS–3.5–1998 standard. Therefore, the Commission has retained the original definition of performance testing in the final rule as ''Performance testing means testing conducted to verify a simulation facility's performance as compared to actual or predicted reference plant performance.''

Comment 5–2: One commenter stated that the terms ''plant facility,'' ''plant,'' and ''nuclear power unit'' are used interchangeably when discussing the requirement for control manipulations. For a multi-unit facility, the three phrases can have distinctly different meanings and ramifications on the actual number of manipulations that would be required. The use of ''nuclear power unit'' could be slightly different on each unit at the time of an operator license application due to staggered outages and design upgrade implementation schedules. The use of ''plant'' could be interpreted as one of the units of a multi-unit facility or as a ''facility.'' A more appropriate term would be ''reference unit.''

Response: The Commission acknowledges the commenter's observation that the terms ''plant facility,'' ''plant,'' and ''nuclear power unit'' were used interchangeably when discussing the requirement for control manipulations. The Commission does not require that a plant-referenced simulator reflect multiple unit configurations or that the control manipulations would have to be completed on each configuration separately. The term ''reference plant'' is defined in § 55.4 as ''the specific nuclear power plant from which a simulation facility's control room configuration, system control arrangement, and design data are derived.'' This definition remains the same in the final rule and continues to clarify that for a simulation facility, a specific plant (unit) at a multi-plant (unit) site is the ''reference plant.'' The Commission realizes that the use of inconsistent terminology can be confusing and has made clarifications where appropriate in preparing the final rule. However, the Commission intends to re-evaluate the use of the term ''reference plant'' in the future.

Comment 5–3: One commenter stated that in discussing the testing that would be required by the Commission to take credit for a manipulation performed as a plant-reference simulator in the Statements of Consideration, the scope of testing is described as (1) to encompass verification, validation, and documentation and (2) developmental and verification testing. On the other hand, the proposed wording in § 55.45(b)(3)(i)(B) of the proposed rulemaking (65 FR 41021) describes the specific performance testing requirements as follows: ''Simulator fidelity has been demonstrated so that

significant control manipulations are completed without procedural exceptions, simulator performance exceptions, or deviation from approved training scenarios sequence.'' It is important to note that certain words with specific definitions in ANSI/ANS–3.5–1998 (i.e., verification and validation) are not used in the rule itself. The commenter recommends that the Statements of Consideration use the same language as the rule itself.

Response: The Commission acknowledges the commenter's observation that certain words with specific definitions in ANSI/ANS–3.5–1998 (i.e., verification and validation) were not used in the proposed rule and the recommendation that the Statements of Consideration use the same language as the rule itself. The intent of § 55.45(b)(3)(i)(B) of the proposed rule was not to establish specific performance testing requirements but to ensure that the significant control manipulations that are performed on the simulator are completed without procedural exceptions, simulator performance exceptions, or deviation from the approved training scenario sequence. It is important to remember that while the Commission has endorsed ANSI/ANS–3.5–1998, it is not requiring facility licensees to upgrade their commitments and requirements with respect to simulator testing. Therefore, no changes are warranted in response to this comment.

Comment 5–4: One commenter noted that § 55.45(b)(3)(i)(A) states in part that ''the plant-referenced simulator uses models related to nuclear and thermal-hydraulic characteristics that replicate the core load that exists in the nuclear power unit.'' Engineering and real-time numerical models contain approximations. Generally, neither reproduces physical processes exactly. Therefore, guidance identifying the level of modeling detail required and a definition for the term ''replicate'' need to be developed. The level of modeling detail required has to coincide with actual plant's response as seen by the operators. Paragraphs 4.1.3.1.3 and 4.1.3.1.4 of the 1998 ANSI/ANS–3.5 Standard do not provide any assistance. Additionally, no guidance is provided on rod worth, notch worth, SRM-IRM range performance, axial power distribution, radial power distribution, stored energy, fuel time constant, core coupling, etc., that are the actual plant responses that the operator sees. Also, older, coarser mesh models are less refined than the more recent wheel-up engineering look-alike models. Therefore, the commenter believes that guidance as to what level of modeling detail is acceptable to the Commission needs to be developed.

Response: When the Commission developed the proposed rule, it purposely excluded prescriptive guidance on the level of modeling detail for a plant-referenced simulator because the NRC staff believes that section 4.1, ''Simulator Capabilities Criteria'' of ANSI/ANS–3.5–1998, the latest industry consensus standard, provides adequate guidance in that area. The NRC staff believes that the concerns regarding paragraphs 4.1.3.1.3 and 4.1.3.1.4 of the standard and the specific parameters identified in the comment are unrelated to the proposed rule. Technical issues such as these should be brought to the attention of the Standards Committee WG ANS–3.5 for resolution. Therefore, no changes are warranted in response to this comment.

Comment 5–5: One commenter stated that clear guidance should be provided for multi-unit sites training on one simulator. In addition, the commenter stated that provisions have to be made that allow for training on a simulator that may not exactly replicate the reactor core in each reactor unit.

Response: The Commission acknowledges the commenter's concerns regarding training at multi-unit sites and has clarified the final rule language to indicate that the simulator core model will replicate the reference plant for the facility. The NRC does not expect that a plant-referenced simulator would reflect multiple unit configurations or that the control manipulations would have to be completed on each configuration separately. If a facility licensee wishes to use a simulation facility to simulate more than one nuclear power plant, it must be able to demonstrate to the NRC that the differences between the plants are not so significant that they have an impact on the ability of the simulation facility to meet the requirements and guidance of ANSI/ANS–3.5. Therefore, no additional changes are warranted in response to this comment.

Comment 5–6: One commenter noted that under the ''Discussion of Proposed Rule Change,'' the statement is made that ''absent certification, assurance of simulator suitability would be provided through Commission reviews and validation of operating test scenarios, with review of performance test results, and uncorrected modeling or hardware discrepancies, if needed.'' Objective guidance should be developed for Commission's review of ''uncorrected modeling or hardware discrepancies'' because such a review could render the simulator unsuitable for examination.

Response: As discussed in the proposed regulatory analysis attached to SECY–00–0083, the Commission is planning to revise and develop additional implementation guidance for use by the NRC staff in evaluating whether a plant-referenced simulator is suitable for use in conducting the required control manipulations and operating examinations. This effort is expected to include revisions of the appropriate sections of NUREG–1021, Revision 8, ''Operator Licensing Examination Standards for Power Reactors,'' and the Licensed Operator Requalification Inspection Procedure (IP–71111.11) of the reactor oversight process.

Comment 5–7: One commenter notes that, as stated in SECY–00–0083, dated April 12, 2000, the current revision of the national standard, ANSI/ANS–3.5–1998, ''Nuclear Power Plant Simulators for Use in Operator Training and Examination,'' employs a scenario-based testing and quality control philosophy that is inconsistent with the testing assumptions and requirements of the rule. With the elimination of the certification process and NRC Form 474, the commenter did not understand where the linkage between the proposed regulatory change, Regulatory Guide 1.149, ''Nuclear Power Plant Simulation Facilities for Use in Operator Training and License Examinations,'' and the ANSI/ANS–3.5–1998 Standard is maintained.

Response: The Commission believes that the rule will facilitate the voluntary implementation of ANSI/ANS–3.5–1998 because it deletes the prescriptive requirements for simulator test performance and scheduling that were implemented in connection with the industry standard that was in effect at the time of the 1987 rule change. If those requirements had not been deleted, facility licensees would have had little incentive to revise their programs to be compatible with the current industry standard. As with most other NRC regulations, the linkage between 10 CFR Part 55 and ANSI/ANS–3.5, the industry consensus standard for nuclear power plant simulation facilities, is established by the associated regulatory guide, in this case RG 1.149. Eliminating NRC Form 474 does not affect that linkage.

Section-by-Section Summary of Final Amendments

Part 55—Operator's Licenses, Table of Contents

In 10 CFR part 55, ''Operators's Licenses,'' the Table of Contents regarding subpart E-Written

Examinations and Operating Tests, is amended by reference to new § 55.46.

Section 55.4 Definitions

The term ''plant-referenced simulator'' is revised to remove the provision that ''a plant-referenced simulator demonstrates expected plant response to operator input, and to normal, transient, and accident conditions to which the simulator has been designed to respond'' from the definition and move it to new § 55.46(c)(1).

The term ''simulation facility'' is revised to include part-task and limited-scope simulator devices so that such devices can be used if a request were received and approved by the Commission for their use. The definition of ''simulation facility'' is also revised to relocate the ''the plant'' as a potential ''simulation facility'' to new § 55.46 (b).

Section 55.8 Information Collection Requirements: OMB Approval

NRC Form 474, ''Simulation Facility Certification'' no longer needs to be filed. Accordingly § 55.8(c)(3) is deleted.

Section 55.31 How to Apply

Section 55.31(a)(5) is revised to allow that the required five significant control manipulations that affect reactivity or power level to be performed either on a plant-referenced simulator or on the plant itself, at the facility licensee's discretion.

By providing an option for facility licensees to use plant-referenced simulators for control manipulations, the final rule makes unnecessary the need for current provisions in § 55.31(a)(5) addressing the use of simulators for performance of control manipulations for facilities that have not yet completed pre-operational testing and initial startup test programs and provisions addressing plants in extended shutdowns. Thus those provisions are removed.

Additionally, acceptable simulator training scenarios involving control manipulations that affect reactivity are identified in § 55.31(a)(5) for clarity by reference to current control manipulations and training scenarios described in § 55.59. Consistent with previously issued regulatory guidance, the list provides examples of acceptable control manipulations, which are a subset of evolutions in § 55.59 (c)(3)(i), and affect reactivity in a controlled manner and exclude those items on the list that are major transients and accidents.

Section 55.45 Operating Tests (b) Implementation—Administration

Former §§ 55.45(b)(4) and (5) dealing with simulators have been separated from the requirements for operating tests in § 55.45 and consolidated in a new § 55.46, ''Simulation Facilities.''

Section 55.45(b) requires that the operating test for an operators license be administered on either a Commission-approved simulation facility, a plant-referenced simulator, or on the actual plant, if approved by the Commission.

Facility licensees proposing to use a plant-referenced simulator meeting the definition in § 55.4 are not required to submit a request for Commission approval of that simulator. For cases when facility licensees propose to use a simulation facility not meeting the definition of a plant-referenced simulator, the Commission will continue to require additional information to determine the acceptability of the simulator and thus, will require an application for Commission approval.

Section 55.46 Simulation Facilities

The final rule implements administrative changes to former § 55.45(b) to move the requirements to a new § 55.46, ''Simulation Facilities.'' The new section has one general and three implementation criteria as discussed below.

(a) General.

Section 55.46(a) explains that the purpose of this section is to set forth the requirements for the use of a simulation facility for the administration of the operating licensing operator test, and for the use of a plant-referenced simulator for fulfilling a portion of the experience requirements for applicants for operator and senior licenses.

(b) Commission-approved simulation facilities and Commission approval of use of the plant in the administration of the operating test.

Section 55.46(b)(1) provides that facility licensees who propose to use a simulation facility, other than a plant-referenced simulator, or the plant in the administration of the operating test under § 55.45(b)(1) or § 55.45(b)(3) shall request approval of the simulation facility from the Commission and that this request must include certain criteria as described below.

Section 55.46(b)(1)(i) provides that the request for approval of the simulation facility, other than solely a plant-referenced simulator, must describe the components of the simulation facility or the plant intended to be used for each part of the operating test, unless previously approved.

Section 55.46(b)(1)(ii) provides that the request for approval of the simulation facility, other than solely a plant-referenced simulator, must describe the performance tests and the results of the tests. Section 55.46(b)(1)(iii) provides that the request for approval of the simulation facility, other than solely a plant-referenced simulator, must describe the procedures for maintaining examination and test integrity consistent with the requirements of § 55.49. Section 55.46(b)(2) provides that the Commission will approve a simulation facility or use of the plant for administration of operating tests if it finds that the simulation facility or the plant and their proposed use are suitable for the conduct of operating tests for the facility licensee's reference plant under § 55.45(a).

(c) Plant-referenced simulators.

Section 55.46(c) requires that a plant-referenced simulator used for the administration of the operator licensing operator test or to meet the experience requirements of § 55.31(a)(5) to demonstrate expected plant response to operator input and to normal, transient, and accident conditions to which the simulator has been designed to respond. Sections 55.46(c)(1)(i) and (ii) are revised to include the provision that a plant-referenced simulator is designed and implemented so that it: (1) Is sufficient in scope and fidelity to allow conduct of the evolutions listed in §§ 55.45(a)(1) through (13) and §§ 55.59(c)(3)(i)(A) through (AA), as applicable to the design of the reference plant; and, (2) allow for the completion of control manipulations for licensed operator applicant eligibility consistent with § 55.46(c)(2).

Section 55.46(c)(2)(i) provides that the plant-referenced simulator utilizes models relating to nuclear and thermal-hydraulic characteristics that replicate the most recent core load in the nuclear power reference plant for which a license is being sought. Section 55.46(c)(2)(ii) provides that simulator fidelity has been demonstrated so that significant control manipulations are completed without procedural exceptions, simulator performance exceptions, or deviation from the approved training scenario sequence. It is the Commission's intent that the phrase ''most recent'' means the current core or if the plant is in a refueling outage, the core just previous to the outage.

(d) Continued assurance of simulator fidelity.

Section 55.46(d) requires that facility licensees which maintain a simulation facility shall: (1) Conduct performance testing throughout the life of the

simulation facility in a manner sufficient to ensure that the criteria of § 55.46(c)(1)(ii), as applicable, and § 55.46(d)(3) are met, and retain the test results for four years after the completion of each performance test or until superseded by updated test results; (2) correct modeling and hardware discrepancies and discrepancies identified from scenario validation and from performance testing; (3) make the results of any uncorrected performance test failures that may exist at the time of the operating test or requalification program inspection available for NRC review, prior to or concurrent with preparations for each operating test or requalification program inspection; and, (4) maintain the provisions for license application, examination, and test integrity consistent with § 55.49.

Section 55.59 Requalification

As a result of the changes to § 55.45(b) that eliminate the simulator certification requirement, a conforming change to § 55.59(c)(4)(iv) deletes the terms ''certified'' when referring to a simulation facility in this section.

Electronic Reporting

The Commission is currently in the process of implementing an electronic document management and reporting program, known as the Agency Wide Documents Access and Management System (ADAMS) that will provide for electronic access of many types of reports. Accordingly, there is no separate rulemaking effort to provide for electronic access or submittal of reports.

State Input

Many States (Agreement States and Non-Agreement States) have agreements with power reactors to inform the States of plant issues. State reporting requirements are frequently triggered by Commission reporting requirements. Accordingly, the Commission sought State comment on issues related to the proposed amendment by letters to State Liaison Officers as well as by a specific request in the proposed rule. No comments on the proposed rule were received from any State agency.

Voluntary Consensus Standards

The National Technology Transfer and Advancement Act of 1995, Pub. L. 104–113, requires that Federal agencies use technical standards developed or adopted by voluntary consensus standards bodies unless the use of such a standard is inconsistent with applicable law or otherwise impractical. This final rule sets forth requirements with respect to training of operators, and removing current certification requirements for simulators. The Commission has determined that the industry consensus standard in this area, American National Standards Institute/American Nuclear Society (ANSI/ANS) 3.5, ''Nuclear Power Plant Simulators for Use in Operator Training and Examination'' is one acceptable means for complying with specific parts of the requirements of the final rule. Accordingly, Regulatory Guide 1.149, Revision 3, endorses the ANSI/ANS–3.5–1998 as an acceptable method by which facility licensees might implement specific parts of this rule.

Finding of No Significant Environmental Impact and Categorical Exclusion

The Commission has determined under the National Environmental Policy Act (NEPA) of 1969, as amended, and the Commission's regulations in subpart A of 10 CFR part 51 that this rule falls within the categorical exclusions of §§ 51.22(c)(1), (2), and (3)(i) and (iii). Therefore, neither an environmental impact statement nor an environmental assessment is required.

Paperwork Reduction Act Statement

This final rule eliminates all the information collection requirements for Office of Management and Budget approval number 3150–0138. Because the rule will reduce information collection requirements, the public burden for these information collections is expected to be decreased by 120 hours per response. This reduction includes the time required for reviewing instructions, searching existing data sources, gathering and maintaining the data needed and completing and reviewing the information collection. Send comments on any aspect of these information collections, including suggestions for further reducing the burden, to the Records Management Branch (T–6E6), U.S. Nuclear Regulatory Commission, Washington, DC 20555–0001, or by Internet electronic mail at *BJS1@nrc.gov.* and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB–10202, (3150–0138), Office of Management and Budget, Washington, DC 20503.

Public Protection Notification

If a means used to impose an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

Regulatory Analysis

The Commission prepared a draft regulatory analysis for the proposed rule to examine the costs and benefits of the alternatives considered by the Commission. Public comments on this analysis were requested in connection with the proposed rule. No significant comments were received. Minor changes have been made to the draft regulatory analysis to prorate the cost and benefit of the final rule over the average remaining years of operating life of the facility. The final regulatory analysis is available for inspection in the Commission Public Document Room or it may be viewed and downloaded electronically via the interactive rulemaking web site established by NRC for this rulemaking, as discussed above under the heading **ADDRESSES.** Single copies may be obtained from the contact listed above under the heading, ''For Further Information Contact.''

Regulatory Flexibility Act Certification

In accordance with the Regulatory Flexibility Act (5 U.S.C. 605(b)), the Commission certifies that this rule does not have a significant economic impact on a substantial number of small entities. This final rule affects only the licensing and operation of nuclear power plants. The companies that own these plants do not fall within the scope of the definition of ''small entities'' set forth in the Regulatory Flexibility Act or the size standards established by the Commission (10 CFR 2.810).

Backfit Analysis

The Commission has determined that the backfit rule, 10 CFR 50.109, does not apply to this final rule because it does not impose new requirements as defined in 10 CFR 50.109(a)(1). The final rule changes constitute either permissible relaxations from current requirements or provide an alternative regulatory approach without changing substantive existing requirements. Therefore, a backfit analysis has not been prepared. Facility licensees would not be required by this final rule to change existing programs. The final rule permits the five significant control manipulations to be conducted at either the actual facility or a plant-referenced simulator. The final rule clarifies criteria on simulator fidelity assurance. The final rule also eliminates certification of simulation facilities and submittal of quadrennial test reports and schedule information.

The final rule entails costs on the part of both the NRC and the industry for one-time revision of existing programs. However, the regulatory analysis suggests that industry could recover these costs and the final rule would be an overall burden reduction.

As discussed above, the Commission has prepared a regulatory analysis for

the proposed rule that examines the costs and benefits of the proposed requirements in this rule. The Commission regards the regulatory analysis as a disciplined process for assessing information collection and reporting requirements to determine that the burden imposed is justified in light of the potential safety significance of the information to be collected.

Small Business Regulatory Enforcement Fairness Act

In accordance with the Small Business Regulatory Enforcement Fairness Act of 1996, the Commission has determined that this action will have no adverse impact on small businesses and has verified this determination with the Office of Information and Regulatory Affairs of OMB.

List of Subjects in 10 CFR Part 55

Criminal penalties, Manpower training programs, Nuclear power plants and reactors, Reporting and recordkeeping requirements.

For the reasons set out in the preamble and under the authority of the Atomic Energy Act of 1954, as amended; the Energy Reorganization Act of 1974, as amended; and 5 U.S.C. 552 and 553; the NRC is adopting the following amendments to 10 CFR part 55.

PART 55—OPERATORS' LICENSES

1. The authority citation for part 55 continues to read as follows:

Authority: Secs. 107, 161, 182, 68 Stat. 939, 948, 953, as amended, sec. 234, 83 Stat. 444, as amended (42 U.S.C. 2137, 2201, 2232, 2282); secs. 201, as amended, 202, 88 Stat. 1242, as amended, 1244 (42 U.S.C. 5841, 5842).

Sections 55.41, 55.43, 55.45, and 55.59 also issued under Pub. L. 97–425, 96 Stat. 2262 (42 U.S.C. 10226). Section 55.61 also issued under secs. 186, 187, 68 Stat. 955 (42 U.S.C. 2236, 2237).

2. In § 55.4, Definitions, the terms *Plant-referenced simulator,* and *Simulation facility* are revised to read as follows:

§ 55.4 Definitions.

* * * * *

Plant-referenced simulator means a simulator modeling the systems of the reference plant with which the operator interfaces in the control room, including operating consoles, and which permits use of the reference plant's procedures.

* * * * *

Simulation facility means one or more of the following components, alone or in combination: used for either the partial conduct of operating tests for operators, senior operators, and license applicants, or to establish on-the-job training and experience prerequisites for operator license eligibility:

(1) A plant-referenced simulator;

(2) A Commission-approved simulator under § 55.46(b); or

(3) Another simulation device, including part-task and limited scope simulation devices, approved under § 55.46(b).

* * * * *

3. In § 55.8, paragraphs (c)(3) and (4) are removed and (b) is revised to read as follows:

§ 55.8 Information collection requirements: OMB approval.

* * * * *

(b) The approved information collection requirements contained in this part appear in §§ 55.11, 55.25, 55.27, 55.31, 55.40, 55.41, 55.43, 55.45, 55.46. 55.47, 55.53, 55.57, and 55.59.

4. In § 55.31, paragraph(a)(5) is revised to read as follows:

§ 55.31 How to apply.

(a) * * *

(5) Provide evidence that the applicant, as a trainee, has successfully manipulated the controls of either the facility for which a license is sought or a plant-referenced simulator that meets the requirements of § 55.46(c). At a minimum, five significant control manipulations must be performed that affect reactivity or power level. Control manipulations performed on the plant-referenced simulator may be chosen from a representative sampling of the control manipulations and plant evolutions described in § 55.59(c)(3)(i)(A–F), (R), (T), (W), and (X) of this part, as applicable to the design of the plant for which the license application is submitted. For licensed operators applying for a senior operator license, certification that the operator has successfully operated the controls of the facility as a licensed operator shall be accepted; and

* * * * *

5. In § 55.45, paragraph (b) is revised to read as follows.

§ 55.45 Operating tests.

* * * * *

(b) *Implementation—Administration.* The operating test will be administered in a plant walkthrough and in either—

(1) A simulation facility that the Commission has approved for use after application has been made by the facility licensee under § 55.46(b);

(2) A plant-referenced simulator (§ 55.46(c)); or

(3) The plant, if approved for use in the administration of the operating test by the Commission under § 55.46(b).

6. Section 55.46 is added to read as follows:

§ 55.46 Simulation facilities.

(a) *General.* This section addresses the use of a simulation facility for the administration of the operating test and plant-referenced simulators to meet experience requirements for applicants for operator and senior operator licenses.

(b) *Commission-approved simulation facilities and Commission approval of use of the plant in the administration of the operating test.*

(1) Facility licensees that propose to use a simulation facility, other than a plant-referenced simulator, or the plant in the administration of the operating test under §§ 55.45(b)(1) or 55.45(b)(3), shall request approval from the Commission. This request must include:

(i) A description of the components of the simulation facility intended to be used, or the way the plant would be used for each part of the operating test, unless previously approved; and

(ii) A description of the performance tests for the simulation facility as part of the request, and the results of these tests; and

(iii) A description of the procedures for maintaining examination and test integrity consistent with the requirements of § 55.49.

(2) The Commission will approve a simulation facility or use of the plant for administration of operating tests if it finds that the simulation facility and its proposed use, or the proposed use of the plant, are suitable for the conduct of operating tests for the facility licensee's reference plant under § 55.45(a).

(c) *Plant-referenced simulators.*

(1) A plant-referenced simulator used for the administration of the operating test or to meet experience requirements in § 55.31(a)(5) must demonstrate expected plant response to operator input and to normal, transient, and accident conditions to which the simulator has been designed to respond. The plant-referenced simulator must be designed and implemented so that it:

(i) Is sufficient in scope and fidelity to allow conduct of the evolutions listed in §§ 55.45(a)(1) through (13), and 55.59(c)(3)(i)(A) through (AA), as applicable to the design of the reference plant.

(ii) Allows for the completion of control manipulations for operator license applicants.

(2) Facility licensees that propose to use a plant-referenced simulator to meet

the control manipulation requirements in § 55.31(a)(5) must ensure that:

(i) The plant-referenced simulator utilizes models relating to nuclear and thermal-hydraulic characteristics that replicate the most recent core load in the nuclear power reference plant for which a license is being sought; and

(ii) Simulator fidelity has been demonstrated so that significant control manipulations are completed without procedural exceptions, simulator performance exceptions, or deviation from the approved training scenario sequence.

(3) A simulation facility consisting solely of a plant-referenced simulator must meet the requirements of paragraph (c)(1) of this section and the criteria in paragraphs (d)(1) and (4) of this section for the Commission to accept the plant-referenced simulator for conducting operating tests as described in § 55.45(a) of this part, requalification training as described in § 55.59(c)(3) of this part, or for performing control manipulations that affect reactivity to establish eligibility for an operator's license as described in § 55.31(a)(5).

(d) *Continued assurance of simulator fidelity.* Facility licensees that maintain a simulation facility shall:

(1) Conduct performance testing throughout the life of the simulation facility in a manner sufficient to ensure that paragraphs (c)(2)(ii), as applicable, and (d)(3) of this section are met. The results of performance tests must be retained for four years after the completion of each performance test or until superseded by updated test results;

(2) Correct modeling and hardware discrepancies and discrepancies identified from scenario validation and from performance testing;

(3) Make results of any uncorrected performance test failures that may exist at the time of the operating test or requalification program inspection available for NRC review, prior to or concurrent with preparations for each operating test or requalification program inspection; and

(4) Maintain the provisions for license application, examination, and test integrity consistent with § 55.49.

7. In § 55.59, paragraph (c)(4)(iv) is revised to read as follows:

§ 55.59 Requalification.

* * * * *

(c) * * *

(4) * * *

(iv) Simulation of emergency or abnormal conditions that may be accomplished by using the control panel of the facility involved or by using a simulator. When the control panel of the facility is used for simulation, the actions taken or to be taken for the emergency or abnormal condition shall be discussed; actual manipulation of the plant controls is not required. If a simulator is used in meeting the requirements of paragraph (c)(4)(iii) of this section, it must accurately reproduce the operating characteristics of the facility involved and the arrangement of the instrumentation and controls of the simulator must closely parallel that of the facility involved. After the provisions of § 55.46 have been implemented at a facility, the Commission approved or plant-referenced simulator must be used to comply with this paragraph.

* * * * *

Dated at Rockville, Maryland, this 10th day of October, 2001.

For the Nuclear Regulatory Commission.

J. Samuel Walker,

Acting Secretary of the Commission.

[FR Doc. 01–26108 Filed 10–16–01; 8:45 am]

BILLING CODE 7590–01–P

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. 2001–NM–171–AD; Amendment 39–12469; AD 2001–20–20]

RIN 2120–AA64

Airworthiness Directives; McDonnell Douglas Model MD–90–30 Series Airplanes

AGENCY: Federal Aviation Administration, DOT.

ACTION: Final rule; request for comments.

SUMMARY: This amendment supersedes an existing airworthiness directive (AD), applicable to certain McDonnell Douglas Model MD–90–30 series airplanes, that currently requires replacement of certain ground block screws with new screws; and retermination of the circuit ground wires of the electrical power control unit (EPCU) to separate grounding points. This amendment removes certain airplanes and adds certain other airplanes to the applicability of the existing AD. The actions specified in this AD are intended to prevent a loose electrical ground block of the circuit ground wires of the EPCU, which could result in complete loss of the primary electrical power of an airplane during flight.

DATES: Effective November 1, 2001.

The incorporation by reference of a certain publication, as listed in the regulations, is approved by the Director of the Federal Register as of November 1, 2001.

The incorporation by reference of certain other publications, as listed in the regulations, was approved previously by the Director of the Federal Register as of September 19, 2000 (65 FR 49728, August 15, 2000), and as of November 13, 2000 (65 FR 59707, October 6, 2000).

Comments for inclusion in the Rules Docket must be received on or before December 17, 2001.

ADDRESSES: Submit comments in triplicate to the Federal Aviation Administration (FAA), Transport Airplane Directorate, ANM–114, Attention: Rules Docket No. 2001–NM–171–AD, 1601 Lind Avenue, SW., Renton, Washington 98055–4056. Comments may be inspected at this location between 9:00 a.m. and 3:00 p.m., Monday through Friday, except Federal holidays. Comments may be submitted via fax to (425)–227–1232. Comments may also be sent via the Internet using the following address: 9-anm-iarcomment@faa.gov. Comments sent via fax or the Internet must contain ''Docket No. 2001–NM–171–AD'' in the subject line and need not be submitted in triplicate. Comments sent via the Internet as attached electronic files must be formatted in Microsoft Word 97 for Windows or ASCII text.

The service information referenced in this AD may be obtained from Boeing Commercial Aircraft Group, Long Beach Division, 3855 Lakewood Boulevard, Long Beach, California 90846, Attention: Data and Service Management, Dept. C1–L5A (D800–0024). This information may be examined at the FAA, Transport Airplane Directorate, 1601 Lind Avenue, SW., Renton, Washington; or at the FAA, Los Angeles Aircraft Certification Office, 3960 Paramount Boulevard, Lakewood, California; or at the Office of the Federal Register, 800 North Capitol Street, NW., suite 700, Washington, DC.

FOR FURTHER INFORMATION CONTACT: George Mabuni, Aerospace Engineer, Systems and Equipment Branch, ANM–130L, FAA, Los Angeles Aircraft Certification Office, 3960 Paramount Boulevard, Lakewood, California 90712–4137; telephone (562) 627–5341; fax (562) 627–5210.

SUPPLEMENTARY INFORMATION: On September 26, 2000, the FAA issued AD 2000–20–04, amendment 39–11915 (65 FR 59707, October 6, 2000). (A correction to that AD was published in