

UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
OFFICE OF NUCLEAR REACTOR REGULATION  
WASHINGTON, D.C. 20555-0001

August 21, 1997

**NRC INFORMATION NOTICE 97-67: FAILURE TO SATISFY REQUIREMENTS FOR  
SIGNIFICANT MANIPULATIONS OF THE CONTROLS  
FOR POWER REACTOR OPERATOR LICENSING**

Addressees

All holders of operating licenses for nuclear power reactors except those who have permanently ceased operations and have certified that fuel has been permanently removed from the reactor vessel.

Purpose

The U.S. Nuclear Regulatory Commission (NRC) is issuing this information notice to alert addressees that operator license applicants are required to perform at least five significant control manipulations on the facility for which a license is sought (Section 55.31(a)(5) of Title 10 of the Code of Federal Regulations [10 CFR 55.31(a)(5)]). Licensees have erred on the interpretation of the requirements of this section of 10 CFR Part 55. It is expected that recipients will review information for applicability to their facilities and consider actions, as appropriate, to avoid similar problems. However, suggestions contained in this information notice are not NRC requirements; therefore, no specific action or written response is required.

Description of Circumstances

Operator license applicants are required to provide evidence that they, as trainees, have successfully manipulated the controls of the facility for which an operator or senior operator license is sought. At a minimum, applicants must perform five significant control manipulations which affect reactivity or power level on the facility for which the license is sought (10 CFR 55.31(a)(5)). Controls as defined in 10 CFR 55 are apparatus and mechanisms, the manipulation of which directly affects the reactivity or power level of the reactor. Licensees have erred on the interpretation of what constitutes a significant control manipulation.

During a review of operator license applications for the Pilgrim facility, NRC inspectors determined that the requirements for operator and senior operator applicants to perform at least five significant control manipulations on the facility were not satisfied. The Pilgrim licensee incorrectly assumed that a single 30 percent decrease in power with recirculation pumps was equivalent to three 10 percent or greater power reductions and counted this as three of the five required significant control manipulations. The licensee contacted other licensees regarding the practice at their facilities and reported that there was a wide range of interpretations by the other licensees contacted.

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updated on 8/21/97



The NRC administered examinations to the individuals but did not issue operator licenses until the facility submitted revised applications and provided details of how the applicants satisfied the requirements to perform the required significant control manipulations. As documented in "Pilgrim Examination Report 50-293/97-006 and Notice of Violation," (Accession No. 9707290261), dated July 18, 1997, the NRC determined that a violation of NRC requirements had occurred because two applicants had not completed the five significant control manipulations required by 10 CFR 55.31(a)(5) in an acceptable manner.

#### Discussion

Before 1987, the operator license application required the licensee to certify that the applicant had learned to operate the facility and also to provide the details of the training and experience of the applicant. A 1987 NRC rule changed the requirement to provide the details of the applicant's training and experience and requested instead a simple check mark in the boxes on the application form (NRC-398) to indicate that the applicant has successfully completed an Institute of Nuclear Power Operations (INPO) accredited operator training program that is based on a systems approach to training, and that a certified simulation facility is used in the operator training program.

During rule making, the nuclear industry requested clarification of the phrase "learned to operate" (Federal Register Vol. 52, No. 57 Wednesday, March 25, 1987, page 9456) and NRC added 10 CFR 55.31(a)(5) to specify the minimum number of control manipulations that the applicant had to conduct on the facility.

Examples of significant control manipulations are contained in Regulatory Guide (RG) 1.8, Revision 2, "Qualification and Training of Personnel for Nuclear Power Plants."

Paragraph C.1.h. of RG 1.8 states in part that:

Control room operating experience ...should include manipulation of controls of the facility during a minimum of five reactivity changes. Every effort should be made to have a diversity of reactivity changes for each applicant. Startups, shutdowns, large load changes, and changes in rod programming are some examples and could be accomplished by manually using such systems as rod control, chemical shim control, or recirculation flow.

Additional examples of significant control manipulations include, but are not limited to, items A-F of 10 CFR 55.59(c)(3) (on-the-job training for requalification):

- A. Plant or reactor startups to include a range that reactivity feedback from nuclear heat addition is noticeable and heatup rate is established.
- B. Plant shutdown.
- C. Manual control of steam generators or feedwater or both during startup and shutdown.
- D. Boration or dilution during power operation.
- E. Significant ( $\geq 10$  percent) power changes in manual control or recirculation flow.
- F. Reactor power change of 10 percent or greater where load change is performed with load limit control or where flux, temperature, or speed control is on manual (for HTGR).

As defined in 10 CFR 55.59(c)(3)(E), a 10 percent or greater power change is considered to be a significant control manipulation. Additional clarification was provided in NUREG-1262, "Answers to Questions at Public Meetings Regarding Implementation of Title 10, Code of Federal Regulations, Part 55 on Operators' Licenses," dated November 1987, which was transmitted to all licensees on November 12, 1987, as an attachment to Generic Letter 87-16 (Accession No. 8712030029). Some of the guidance included in NUREG 1262 is reiterated below; licensees should refer to NUREG 1262 for additional details.

The situation in which an applicant performs a 30 percent change in power in a short period (i.e., on the same shift) with no diversity of controls would be evaluated as one significant control manipulation. The situation in which an applicant reduces power from 100 percent to 95 percent and then increases power from 95 percent to 100 percent would be evaluated as one significant control manipulation.

The situation when an applicant performs a 50 percent change in power in a short period of time with diversity of controls (recirculation flow and control rods, or chemical shim and control rods) can be evaluated as two significant control manipulations. The situations when an applicant reduces power by 10 percent then holds there for performance of other work or testing and then later in the shift increases power by 10 percent can be evaluated as two significant control manipulations.

Diversity of significant control manipulations on the plant are expected; however, it is not required. If the applicant does not have experience in diverse significant control manipulations, this fact should be noted in the comments section of NRC form 398.

This information notice requires no specific action or written response. If you have any questions about the information in this notice, please contact one of the technical contacts listed below or the appropriate Office of Nuclear Reactor Regulation (NRR) project manager.

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*Attachments filed in Ticket.*

Tech Editor has reviewed and concurred on 7/8/97

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Information Notice No.	Subject	Date of Issuance	Issued to
97-66	Failures to Provide Special Lenses for Operators Using Respirator or Self-Contained Breathing Apparatus During Emergency Operations	08/20/97	All holders of operating licenses or construction permits for nuclear power and non-power reactors and all licensed reactor operators and senior operators
97-65	Failures of High-Dose-Rate (HDR) Remote After-loading Device Source Guide Tubes, Catheters, and Applicators	08/15/97	All high-dose-rate (HDR) remote afterloader licensees
97-64	Potential Problems Associated with Loss of Electrical Power in Certain Teletherapy Units	08/13/97	All U.S. Nuclear Regulatory Commission medical teletherapy licensees
97-63	Status of NRC Staff's Review of BWRVIP-05	08/07/97	All holders of OLs or CPs for boiling water reactors
97-62	Unrecognized Reactivity Addition During Plant Shutdown	08/06/97	All holders of OLs or CPs for nuclear power reactors
97-61	U.S. Department of Health and Human Services Letter, to Medical Device Manufacturers, on the Year 2000 Problem	08/06/97	All U.S. Nuclear Regulatory Commission medical licensees, veterinarians, and manufacturers/distributors of medical devices

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OL = Operating License  
CP = Construction Permit

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