



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NO. 41 TO FACILITY OPERATING LICENSE NO. NPF-58
THE CLEVELAND ELECTRIC ILLUMINATING COMPANY, ET AL.
PERRY NUCLEAR POWER PLANT, UNIT NO. 1
DOCKET NO. 50-440

1.0 INTRODUCTION

By letter dated March 28, 1991, the Cleveland Electric Illuminating Company (the licensee) requested changes to the Technical Specifications (TSs) for the Perry Nuclear Power Plant, Unit 1. The proposed changes would provide statements of exception to TS 4.0.4 for certain surveillance requirements relating to the Intermediate Range Monitors (IRMs), the Source Range Monitors (SRMs) and the Average Power Range Monitor (APRM), in order to allow entry into plant Operational Conditions prior to conducting the applicable surveillances. In addition, other proposed changes would clarify the surveillance requirements for plant startup, and would revise the SRM Control Rod Block Channel Calibration frequency for consistency with that of the IRMs and other SRM functions.

2.0 EVALUATION

NRC Generic Letter (GL) 87-09, dated May 4, 1987, discussed three problems encountered by licensees in applying the requirements of Section 3.0/4.0 of the Standard Technical Specifications. In the GL, the NRC staff provided recommendations on acceptable revisions to plant TSs to resolve the identified problems. Amendment No. 30 to Facility Operating License No. NPF-58 for the Perry Nuclear Power Plant, Unit 1, issued on May 24, 1990, revised the TSs in accordance with the guidance of GL 87-09. The licensee has subsequently identified additional examples of similar problems in the Perry TSs that were not revised as part of Amendment No. 30.

The GL addressed one possible conflict between TSs 4.0.3 and 4.0.4 in noting that:

"A second conflict could arise because, when Surveillance Requirements can only be completed after entry into a mode or specified condition for which the Surveillance Requirements apply, an exception to the requirements of Specification 4.0.4 is allowed. However, upon entry into this mode or condition, the requirements of Specification 4.0.3 may not be met because the Surveillance Requirements may not have been performed within the allowed surveillance interval. Therefore, to avoid any conflict between

Specifications 4.0.3 and 4.0.4, the staff wants to make clear: (a) that it is not the intent of Specification 4.0.3 that the Action Requirements preclude the performance of surveillances allowed under any exception to Specification 4.0.4; and (b) that the delay of up to 24 hours in Specification 4.0.3 for the applicability of Action Requirements now provides an appropriate time limit for the completion of those Surveillance Requirements that become applicable as a consequence of allowance of any exception to Specification 4.0.4."

TS 4.0.4 Exceptions for IRMs and SRMs

The licensee proposes to add TS 4.0.4 exceptions to TS Sections 3/4.3.1, "Reactor Protection System Instrumentation"; 3/4.3.6, "Control Rod Block Instrumentation"; and 3/4.3.7.6, "Source Range Monitors". These exceptions would state that the provisions of TS 4.0.4 are not applicable to the Channel Functional Test and Channel Calibration surveillances performed on the IRMs and SRMs for entry into their applicable Operational Conditions from Operational Condition 1, provided the surveillances are performed within 12 hours after such entry.

In Operational Condition 1, the IRMs and SRMs are not required and are fully withdrawn from the core, with the associated scram and/or rod block functions automatically bypassed. Under the current requirements, all IRM and SRM channels would have to be declared inoperable upon entry into the applicable lower Operational Conditions, and the Action statements would require that at least one trip system be placed in the tripped condition within one hour. This action would place the unit in a half-scram condition until the completion of the required IRM surveillance (and would also insert half of the signals necessary to complete the control rod block logic in the case of the IRMs and SRMs). This situation would create a significant potential for an unnecessary reactor scram and challenge to plant safety systems.

The licensee has justified the proposed changes on the following bases:

- (1) The APRM functions would be operable and would provide scram protection for the brief period needed to perform the IRM surveillances upon changing modes from Operational Condition 1;
- (2) The TS 4.0.4 exceptions would only apply to reductions from Operational Condition 1 to the applicable lower Operational Conditions (reactor shutdown), not to startup;
- (3) The instruments are not necessarily inoperable because the surveillances have not been performed, and the delay in performing them will be limited to within 12 hours of entry into the applicable Operational Condition (versus the 24-hour limit allowed by GL 87-09);
- (4) The changes will provide a significant reduction in the potential for inadvertent reactor scrams and associated challenges to plant safety systems.

The staff agrees with the licensee's justification for these changes and finds that they are consistent with the intent of GL 87-09, and are therefore acceptable.

TS 4.0.4 Exception for APRM RPS Functions

The licensee has proposed an addition to Note (d) of TS Table 4.3.1.1-1, "Reactor Protection System (RPS) Instrumentation Surveillance Requirements". This note applies to the Channel Calibration of the APRM Flow-Biased Simulated Thermal Power-High and Neutron Flux-High RPS functions, which are required to be operable only in Operational Condition 1. The note currently states, "This calibration shall consist of the adjustment of the APRM channel to conform to the power values calculated by a heat balance during OPERATIONAL CONDITION 1 when THERMAL POWER is greater than or equal to 25% of RATED THERMAL POWER. Adjust the APRM channel if the absolute difference is greater than 2% of RATED THERMAL POWER."

The licensee proposes to clarify the intent of this requirement by adding the following statement to Note (d):

"The provisions of Specification 4.0.4 are not applicable, provided the surveillance is performed within 12 hours after reaching 25% of RATED THERMAL POWER."

The staff finds this change to be acceptable, as it clarifies the intent of the current surveillance, which, as stated, must be performed following entry into Operational Condition 1. The addition of a time limit on the performance of the surveillance is an additional limitation or restriction not previously imposed, and is acceptable.

Clarification of Startup Surveillance Requirements

The current TS Table 4.3.1.1-1, Note (c), requires a channel functional test of the APRM Neutron Flux-High, Setdown and IRM Neutron Flux-High functions to be performed within 24 hours prior to startup, if not performed within the previous seven days. Surveillance Requirement (SR) 4.3.7.6.b.1 requires a Channel Functional Test of the SRMs to be performed within 24 hours prior to moving the reactor mode switch from the Shutdown position, if not performed within the previous seven days. To avoid potential confusion, the licensee proposes to remove the 24 hour clauses in these statements, as the actual requirements are satisfied if the tests are performed within the previous seven days. As a result, Table 4.3.1.1-1 is revised to require only the weekly Channel Functional Tests for the specified functions and Note (c) is deleted. Since the weekly Channel Functional Tests of the IRM Neutron Flux-High function will continue to be required during plant Operational Conditions 2 through 5 (including plant startups), the existing limitation will be retained. The weekly Channel Functional Test of the APRM Neutron Flux-High, Setdown function will also continue to ensure that the test is performed within seven days prior to entry into Operational Condition 2 from any Operational Condition. Similarly, SR 4.3.7.6.b.1 is revised to indicate that a Channel Functional Test will be

each SRM channel within 7 days prior to moving the reactor mode to the shutdown position. The staff finds these changes acceptable, as they are within the current limitations on surveillance test frequencies for the instrumentation functions.

SRM Control Rod Block Channel Calibration Frequency

Technical Specifications 3/4.3.7.5, "Accident Monitoring Instrumentation" and 3/4.3.7.6, "Source Range Monitors" currently require SRMs to be calibrated at least once per 18 months ("R"). However, TS 3/4.3.6 currently requires the SRM Upscale and Downscale control rod block functions to be calibrated at least once per 184 days ("SA"). The licensee proposes to change the latter calibration frequency to at least once per 18 months, for consistency with the other SRM and IRM calibration requirements.

There is no specific design basis that requires the trip channels for the SRM control rod block function to be calibrated more often than those for the accident monitoring or source range monitoring functions. Furthermore, the instrumentation for all channels is essentially the same at the channel level, and the setpoint drift allowance is the same for all functions. No credit is taken for the SRM control rod block function in any of the accidents analyzed in Chapter 15 of the Perry Final Safety Analysis Report. As addressed earlier, the SRM control rod blocks are automatically bypassed in Operational Condition 1 and the channel functional test (and channel calibration) cannot be performed until a lower mode is entered.

Amendment No. 31 to Facility Operating License NPF-58, issued on July 18, 1990, revised the Channel Calibration frequency for the IRM Upscale and Downscale functions from once per 184 days to at least once per 18 months, which was consistent with the frequency for the other IRM functions. That amendment added Note (d) to Table 4.3.6-1 to indicate that these IRM control rod block trip setpoints are verified during weekly channel functional tests. That note will also be applied to the SRM control rod block Upscale and Downscale functions. During these verifications, if setpoints are found outside the allowable values, a channel calibration would be performed. The addition of Note (d) represents an additional limitation or restriction not previously imposed. Based on these considerations, the staff finds the revision to the calibration frequency for the SRM control rod block Upscale and Downscale functions to be acceptable.

3.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Ohio State official was notified of the proposed issuance of the amendment. The State official had no comments.

4.0 ENVIRONMENTAL CONSIDERATION

This amendment involves a change to a requirement with respect to the installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 or a change to a surveillance requirement. The staff has determined that the amendment involves no significant increase in the

amounts, and no significant change in the types, of any effluents that may be released offsite and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that this amendment involves no significant hazards consideration and there has been no public comment on such finding (56 FR 22480). Accordingly, this amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the issuance of this amendment.

5.0 CONCLUSION

The staff has concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributor: James R. Hall

Date: March 20, 1992