



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION  
RELATED TO AMENDMENT NO. 49 TO FACILITY OPERATING LICENSE NO. NPF-37,  
AMENDMENT NO. 49 TO FACILITY OPERATING LICENSE NO. NPF-66,  
AMENDMENT NO. 38 TO FACILITY OPERATING LICENSE NO. NPF-72,  
AND AMENDMENT NO. 38 TO FACILITY OPERATING LICENSE NO. NPF-77  
COMMONWEALTH EDISON COMPANY  
BYRON STATION, UNIT NOS. 1 AND 2  
BRAIDWOOD STATION, UNIT NOS. 1 AND 2  
DOCKET NOS. STN 50-454, STN 50-455, STN 50-456 AND STN 50-457

1.0 INTRODUCTION

By letter dated November 30, 1988, as supplemented on May 30, 1990, April 19, 1991, and February 27, 1992, Commonwealth Edison Company (CECo, the licensee) requested amendments to Facility Operating License Nos. NPF-37 and NPF-66 for Byron Station, Unit Nos. 1 and 2, and Facility Operating License Nos. NPF-72 and NPF-77 for Braidwood Station, Unit Nos. 1 and 2, respectively. The proposed amendment would change the plant Technical Specifications (TS) based on the recommendations provided by the staff in Generic Letter (GL) 87-09 related to the applicability of limiting conditions for operations (LCO) and the surveillance requirements of TS 3.0 and 4.0. Specifically, the licensee has requested the following revisions to TS 3.0.4, 4.0.3 and 4.0.4 as follows:

Specification 3.0.4 is revised to define when its provisions apply; i.e., when the affected action statements permit continued operation for an unlimited period of time, instead of defining when the provisions of Specification 3.0.4 do not apply.

Specification 4.0.3 is revised to incorporate a 24-hour delay in implementing Action Requirements due to a missed surveillance when the Action Requirements provide a restoration time that is less than 24 hours.

Specification 4.0.4 is revised to clarify that "This provision shall not prevent passage through or to OPERATIONAL CONDITIONS as required to comply with Action Requirements."

2.0 EVALUATION

The changes proposed by the licensee have been reviewed considering the limitations set forth in GL 87-09 for TS 3.0.4, 4.0.3, and 4.0.4 as follows:

## 2.1 Specification 3.0.4

GL 87-09 recognizes, in part, that TS 3.0.4 unduly restricts facility operations when conformance to the Action Requirements provides an acceptable level of safety for continued operation in any mode. For an LCO that has Action Requirements permitting continued operation for an unlimited period of time, entry into an operational mode or other specified condition of operation should be permitted in accordance with those Action Requirements. The restriction on change in operational modes or other specified conditions should apply only when the Action Requirements establish a specified time interval in which the LCO must be met or a shutdown of the facility would be required or where entry into that operational mode would result in entry into an Action Statement with such time constraints. However, nothing in the staff position stated in GL 87-09 should be interpreted as endorsing or encouraging plant startup with inoperable equipment. The GL 87-09 itself states that startup with inoperable equipment should be the exception rather than the rule.

The licensee has provided confirmation that the remedial measures prescribed by the ACTION STATEMENT for each change involving TS 3.0.4 is consistent with the updated Safety Analysis Report and its supporting safety analyses. Further, the licensee has provided confirmation and certification that appropriate administrative controls and procedures are in place for limiting the use of TS 3.0.4 exceptions in conjunction with its proposed TS change submitted in response to GL 87-09. Additionally, no changes are proposed that affect plant configurations, setpoints, operating parameters, or the operator/equipment interface.

Based on review of the licensee's proposal, and confirmations related above, we conclude in granting the exceptions proposed in response to GL 87-09 that: 1) the remedial measures prescribed by the ACTION STATEMENT for each change involving the applicability of the TS 3.0.4 exception should provide a sufficient level of protection to permit operational mode changes and safe long-term operation consistent with the plant's Updated Safety Analysis Report; and 2) the licensee has in place adequate administrative controls and procedures which will ensure that it will be the exception rather than the rule that startup of the plant with important safety features inoperable will occur.

We therefore, find the following change to TS 3.0.4 proposed by the licensee to be acceptable:

"Entry into an OPERATIONAL MODE or other specified condition shall not be made when the conditions for the Limiting Conditions for Operation are not met and the associated ACTION requires a shutdown if they are not met within a specified time interval. Entry into an OPERATIONAL MODE or specified condition may be made in accordance with ACTION requirements when conformance to them permits continued operation of the facility for an unlimited period of time."

## 2.2 Specification 4.0.3

In GL 87-09, the staff stated that it is overly conservative to assume that systems or components are inoperable when a surveillance requirement has not been performed, because the vast majority of surveillances demonstrate that systems or components in fact are operable. Because the allowable outage time limits of some Action Requirements do not provide an appropriate time limit for performing a missed surveillance before shutdown requirements apply, the TS should include a time limit that would allow a delay of the required actions to permit the performance of the missed surveillance.

This time limit should be based on considerations of plant conditions, adequate planning, availability of personnel, the time required to perform the surveillance, as well as the safety significance of the delay in completion of the surveillance. After reviewing possible limits the staff concluded that, based on these considerations, 24 hours would be an acceptable time limit for completing a missed surveillance when outage times of the Action Requirements are less than that time limit or when skutdown Action Requirements apply. The 24-hour time limit would balance the risks associated with an allowance for completing the surveillance within this period against the risks associated with the potential for a plant upset and challenge to safety systems when the alternative is a shutdown to comply with Action Requirements before the surveillance can be completed.

This limit does not waive compliance with TS 4.0.3. Under TS 4.0.3, the failure to perform a surveillance requirement will continue to constitute noncompliance with the operability requirements of an LCO and to bring into play the applicable Action Requirements.

Based on the above, the following change to TS 4.0.3 is acceptable:

Failure to perform a Surveillance Requirement within the allowed surveillance interval, defined by Specification 4.0.2, shall constitute noncompliance with the OPERABILITY requirements for a Limiting Condition for Operation. The time limits of the ACTION Requirements are applicable at the time it is identified that a Surveillance Requirement has not been performed. The ACTION Requirements may be delayed for up to 24 hours to permit the completion of the surveillance when the allowable outage time limits of the ACTION Requirements are less than 24 hours.

The licensee proposes two changes to reflect a different parameter instead of the 24 hours because they are more appropriate as follows:

In Section 4.2.2.2a, the licensee proposes to place an upper power level limit of 50% where a power distribution map is to be completed. This 5% to 50% power level window would allow more meaningful results to be obtained, yet have significant margin between existing peaking factors and limiting values. The 24-hour completion time provisions of TS 4.0.3 will not apply. The staff accepts this alternative to TS 4.2.2.2a.

The second proposal is to insert a provision into TS 4.2.3.5 to indicate that a heat balance is to be completed to determine the reactor coolant system (RCS) total flow rate prior to exceeding 75% of rated thermal power. The heat balance will provide better results than if accomplished at lower power levels. It will be more representative of full power values and the RCS flowrate will be calculated before full power operation. The 24-hour completion time provisions of TS 4.0.3 will not apply. The staff accepts this change to TS 4.2.3.5.

### 2.3 Specification 4.0.4

TS 4.0.4 prohibits entry into an OPERATIONAL CONDITION or other specified condition until all required surveillances have been performed. This could cause an interpretation problem when OPERATIONAL CONDITION changes are required in order to comply with ACTION statements. Specifically, two possible conflicts between TS 4.0.3 and 4.0.4 could exist. The first conflict arises because TS 4.0.4 prohibits entry into an operational mode or other specified condition when surveillance requirements have not been performed within the specified surveillance interval. The CECO proposed modification to resolve this conflict involves the revision to TS 4.0.3 to permit a delay of up to 24 hours in the application of the Action Requirements, as explained above, and a clarification of TS 4.0.4 to allow passage through or to operational modes as required to comply with Action Requirements. The second potential conflict between TS 4.0.3 and 4.0.4 arises because an exception to the requirements of TS 4.0.4 is allowed when surveillance requirements can only be completed after entry into a mode or condition. However, after entry into this mode or condition, the requirements of TS 4.0.3 may not be met because the surveillance requirements may not have been performed within the allowable surveillance interval.

The licensee proposes to resolve these conflicts by providing the following clarifying statement to TS 4.0.4:

"This provision shall not prevent passage through or to OPERATIONAL MODES as required to comply with ACTION requirements."

The NRC staff has provided in GL 87-09 a clarification that: (a) it is not the intent to 4.0.3 that the Action Requirements preclude the performance of surveillance allowed under any exception to TS 4.0.4; and (b) that the delay of up to 24 hours in TS 4.0.3 for the applicability of Action Requirements provides an appropriate time limit for the completion of surveillance requirements that become applicable as a consequence of any exception to TS 4.0.4.

The NRC staff finds the proposed changes to TS 4.0.4 acceptable.

### 2.4 Specification 4.2.1.3

This change proposes that the initial determination of target axial flux difference following a refueling outage will be based on design predictions.

This is necessary because it is desirable to have some limits in place for the time period between unit restart from refueling and the establishment of proper plant conditions necessary to complete surveillance. Equilibrium xenon conditions with the control rods at or near the normal full power location are necessary before doing the axial target flux surveillance. This Technical Specification change does not represent a change in present procedures. It is merely a clarification and, thus, is acceptable.

#### 2.5 Specification 4.2.2.2.a

This change will establish a defined window between 5% and 50% Rated Thermal Power in which the surveillance must be accomplished. This change establishes an upper bound in power ascension rather than a time limit. A time limit is inappropriate because the time required to achieve the plant conditions necessary to accomplish this surveillance is dependent on several factors: the time taken for low power testing, duration of holding periods necessary to achieve secondary side chemistry, and availability of secondary side equipment to support operation at higher power. The 50% power level was chosen because it is a convenient plateau to do the power distribution map in parallel with other tests and it is appropriate because meaningful results will be obtained. Further, at this power significant margin exists between peaking factors and limiting values. This change will provide a definite window for performing the flux map and will provide baseline data prior to the unit approaching full power where the peaking factors are limiting. Thus, this change is acceptable.

#### 2.6 Specification 4.2.3.5

The proposed change deletes the words "at least once per 18 months" and adds the phrase "prior to completion of PHYSICS TEST after each refueling". This change will ensure that the RCS flow precision heat balance measurement is performed prior to resuming normal power operations following each refueling. This wording meets the intent of the original specification because it ensures that the surveillance is performed prior to extended power operations. In addition it allows flexibility if the interval is longer than 18 months due to extended refueling or maintenance outages.

Consistent with the original specification, no power level is specified for the test. In WCAP-12523, Westinghouse analyzed the design basis for the reactor protection system setpoints, with specific guidance on the proper methods for accounting for instrumentation uncertainties. On this basis, CECo's Engineering determined that the precision heat balance should be performed at greater than 90% rated thermal power (RTP). The test will be performed at greater than 90% RTP. This change is, therefore, acceptable.

#### 2.7 Table 4.3-1 - Notations 3 and 6

The proposed change to Notation 3 will provide further definition of the initial performance of the incore-excore comparison following a refueling. The 75% power level was chosen because it is sufficiently high that the power

shape will closely represent that at full power conditions and there is substantial margin between the 75% level and the high flux trip. The proposed change measures the surveillance interval in equivalent full-power days (EFPD) rather than simple calendar days. This is because of the burnup-dependent nature of the measured parameter. This will allow for performing the incore-excore comparison at approximately equal exposure intervals over the duration of the cycle. For similar reasons Notation 6 is being changed to have the surveillance interval measured in terms of EFPD. This change is, therefore, acceptable.

## 2.8 Administrative Changes

Specification 4.2.3.4 note indicated by an "\*" on page 3/4 2-9 and notation "#" on page 3/4 3-12 were deleted because they are no longer applicable for both Byron and Braidwood Stations.

Specification 4.9.7 note indicated by an "\*" was deleted for Byron Station and Specification 3.3.3.1 note indicated by an "\*" was deleted for Braidwood Station. These are no longer applicable.

The last sentence in Table Notations (14) and (16) on page 3/4 3-12a for Byron and Braidwood were deleted. These notes are no longer applicable. The staff finds these administrative changes acceptable.

Sections 3.11.2.1, 3.11.2.2, 3.11.2.3, and 3.11.2.4 on page 3/4 11-2 had previously been deleted. To provide continuity they were added to this page indicating that these sections are deleted.

## 3.0 STATE CONSULTATION

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

## 4.0 ENVIRONMENTAL CONSIDERATION

The amendments change 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 and change surveillance requirements. The NRC staff has determined that the amendments involve no significant increase in the amounts, and no significant change in the types, of any effluent 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 the amendments involve no significant hazards consideration, and there has been no public comment on such finding (56 FR 11775, 56 FR 22462, and 57 FR 24665). Accordingly, the amendments meet 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 the amendments.

5.0 CONCLUSION

The Commission 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 the amendments will not be inimical to the common defense and security or to the health and safety of the public.

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