



Commonwealth Edison
1400 Opus Place
Downers Grove, Illinois 60515

April 15, 1992

Dr. Thomas E. Murley, Director
Office Of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Attn: Document Control Desk

Subject: Byron Station Units 1 and 2
Braidwood Station Units 1 and 2
Application for Amendment to Facility
Operating License NPF-37, NPF-66, NPF-72 and NPF-77
NRC Docket Nos. 50-454, 455, 456 and 457

Reference: (a) Letter from A.H. Hsia, U.S. NRC, dated May 30, 1991
(b) Letter from A.H. Hsia, U.S. NRC, dated August 21, 1991

Dear Dr. Murley:

Pursuant to 10 CFR 50.90, Commonwealth Edison (CECo) proposes to amend Appendix A, Technical Specification of Facility Operating License NPF-37, NPF-66, NPF-72 and NPF-77. The proposed amendment involves a revision to Technical Specifications 2.2.1, Table 2.2-1, 3.3.2, Table 3.3-4 and their associated bases.

The proposed amendment request provides the changes that have resulted from the Setpoint Reconciliation Program. The details of this program were previously discussed with the NRC on several occasions as documented in References (a) and (b) above. The changes that are requested by this letter are consistent with those that were presented to the NRC.

A detailed description of the proposed change is presented in Attachment A. The revised Technical Specification and bases pages are contained in Attachment B.

The proposed change has been reviewed and approved by both on-site and off-site review in accordance with CECo procedures. CECo has reviewed this proposed amendment in accordance with 10 CFR 50.92(c) and has determined that no significant hazards consideration exists. This evaluation is documented in Attachment C. An Environmental Assessment has been completed and is contained in Attachment D. Attachment E provides the correct values for the setpoint parameters as determined by the Setpoint Reconciliation Program. These values are provided in support of the discussion in Attachment A.

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CECo is notifying the State of Illinois of our application for this amendment by transmitting a copy of this letter and its attachments to the designated State Official.

To the best of my knowledge and belief the statements contained herein are true and correct. In some respects, these statements are not based on my personal knowledge but upon information received from other Commonwealth Edison and contractor employees. Such information has been reviewed in accordance with Company practice and I believe it to be reliable.

Please direct any questions regarding this matter to this office.

Sincerely,

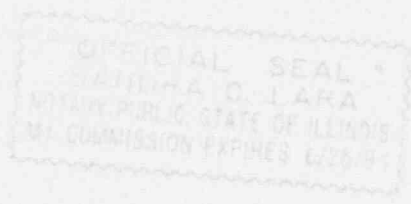
Terrence W. Simpkin

T.W. Simpkin
Nuclear Licensing Administrator

Attachments

- cc: R.M. Pulsifer, Project Manager - NRR
- A.H. Hsia, Project Manager - NRR
- S. Dupont, Resident Inspector - Braidwood
- W. Kropp, Resident Inspector - Byron
- Document Control Desk - NRR
- Region III Office
- Office of Nuclear Facility Safety - IDNS

State of Ill County of Cook
 Signed before me on this 15th
 of April 1992 by T.W.S.
 Notary Public [Signature]



ATTACHMENT A

DETAILED DESCRIPTION OF PROPOSED CHANGE

Description of Current Requirements:

The existing Technical Specifications 2.2.1, Table 2.2-1, 3.3.2 and Table 3.3-4 provide the required values for the Functional Unit, Total Allowance (TA), Z, Sensor Error (SE), Trip Setpoint and Allowable Value (AV) for the Reactor Trip System (RTS) and Engineered Safety Features Actuation System (ESFAS) Instrumentation. The Z value represents the statistical summation of errors assumed in the safety analysis excluding those associated with sensor and rack drift and the accuracy of their measurement. The purpose of these values is to provide an optional means of assessing channel operability when greater than expected drift is encountered.

Bases for the Current Requirements:

The operability of the RTS and ESFAS instrumentation ensures that the required Reactor Trip or ESF actuation occurs when the parameter being monitored reaches its setpoint. The initial values for the setpoints were determined by Westinghouse for the RTS and by Westinghouse and Sargent and Lundy (S&L) for the ESFAS. With few exceptions, the RTS and ESF values for TA, Z, SE, Trip Setpoint and AV have not changed since the licensing of Byron and Braidwood Stations. One exception involved a change to the Overtemperature Delta T reactor trip setpoint as part of the transition to Vantage 5 fuel. The new trip setpoint was provided by Westinghouse. The remaining two cases involve changes to the setpoints and associated parameters for Steam Generator (SG) Level Channels (Amendment 45 for Byron Units 1 & 2, Amendment 34 for Braidwood Units 1 & 2). The setpoints for these changes were developed by CECO Engineering utilizing the approved Westinghouse methodology.

Description of the Need for Amending the Technical Specifications:

In November 1990, Westinghouse issued a revision of their Setpoint Error Analysis. Upon review of this document, Commonwealth Edison (CECO) Engineering noted some discrepancies regarding assumptions about the as-built condition of our plans and the measurement and test equipment (MTE) used. CECO Engineering determined that some of these discrepant assumptions could affect the values in Technical Specifications for TA, Z, SE, Trip Setpoint and AV. CECO contacted the NRC and discussed our plans to evaluate and resolve the situation. Follow-up Setpoint Study Briefings were held with the NRC on April 30, 1991 and August 6, 1991.

Twenty-five setpoints were evaluated in the Setpoint Study. Ten of these setpoints initially resulted in zero or negative margin in the safety analysis. Eight of the ten setpoints were found to render positive margins by increasing the accuracy of various portions of the calibration process.

The two remaining setpoints with negative margins, Steam Generator Level Hi-Hi (D4) and RCS Low Flow, were re-evaluated by Westinghouse. This evaluation showed that sufficient analytical margin existed to revise the safety analysis limits. The SAL represents the assumed initial values for the purposes of conducting the analysis. This re-evaluation resulted in positive margins for both of the setpoints without affecting the results of the safety analysis. Based on these results, CECo Engineering concluded that no RTS or ESFAS setpoints needed to be changed. However, the results of the Setpoint Study indicated that a number of changes are required for the values of TA, Z, SE and AV.

Description of the Proposed Amendments:

The Setpoint study results indicate that various TA, Z, SE and AV values need to be changed for 12 of the 22 RTS Functional Units and 7 of the 9 ESFAS Functional Units. The result is that for approximately three-quarters of the entries on Tables 2.2-1 and 3.3-4 the TA, Z and SE values would be listed as N.A. (Not Applicable). These values are considered N.A. because they cannot satisfy the Technical Specification Equation 2.2-1:

$$Z + RE + \zeta E < TA \quad \text{where RE is the "as measured value of Rack Error for the affected channel."}$$

Many of the revised values can no longer meet Equation 2.2-1 because of reduced excess margin in the RTS and ESFAS Allowable Values. Excess margin is that margin between the safety analysis limit and the Allowable Value which is above that required to account for instrument error and other uncertainties. The Setpoint Study values calculated for TA, Z and SE utilized excess margin in order to preserve existing setpoints. Although the existing setpoints were maintained, the resulting decrease in excess margin resulted in values for TA, Z and SE that can no longer meet equation 2.2-1 if the Allowable Value is exceeded. Therefore, these values would be listed as N.A. on Tables 2.2-1 and 3.3-4. This methodology is consistent with that presented in our previous submittals for changes to the Steam Generator TA, Z and SE values.

The TA, Z and SE values provide a mechanism to determine the acceptability of an instrument channel that has drifted beyond the Allowable Value. Equation 2.2-1 is provided to aid in the determination of operability and reportability. If the as-found channel parameters are such that the equation is satisfied, the channel is considered operable and the setpoint is required to be restored. If the channel parameters do not satisfy the equation, the channel is considered inoperable, the setpoint must be restored and a Licensee Event Report made, as necessary.

Since approximately three-fourths of the Functional Units would have N.A. listed for the TA, Z and SE values, CECo requests that these columns be removed from the Technical Specifications. The purpose of Equation 2.2-1 is to provide additional options for channels that drift beyond the Allowable Value. The utility of this flexibility is greatly reduced as a result of the recent CECo effort.

During surveillance testing, instrumentation channels are rendered inoperable and the appropriate Action is followed. In all cases, the setpoint must be restored prior to returning the channel to service. Any equipment that could not be calibrated to within its Allowable Value would be repaired or replaced. Therefore, the flexibility provided by Equation 2.2-1 is not utilized by CECo. In addition, after making the changes required by the Setpoint Reconciliation Program, the equation would provide this potential flexibility for only one-fourth of the Functional Units. Therefore, CECo no longer considers this additional operational flexibility useful.

CECo proposes to remove the T, Z and SE values and maintain them in administrative programs. Relocating the subject parameters to CECo administrative programs will allow changes to the values through the 10CFR50.59 process. Changes to these values may be required due to the use of different test equipment, plant modifications and similar activities. It must be emphasized that the methodology for determining setpoints and associated parameters is not changed. The Westinghouse methodology continues to be used, ensuring that the values assumed in the safety analysis remain valid. Positive controls will be established to ensure that changes in plant configuration and/or test equipment will be adequately evaluated to preserve the integrity of the current setpoints.

The actual values calculated for TA, Z and SE are listed in Attachment 5 for all the RTS and ESFAS instrumentation. These values are included for information only and will be subject to change per the 10CFR50.59 process.

Since the values of TA, Z and SE are being removed from the tables, we request that ACTION b.1 and Equation 2.2-1 be deleted from Specifications 2.2.1 and 3.3.2. For clarity, ACTION b.2 is combined with the preface in ACTION b. Also, the corresponding Bases for 2.2.1 and 3.3.2 are revised to reflect the removal of Equation 2.2-1.

With the removal of Equation 2.2-1, the Allowable Value will become the threshold for purposes of operability. This proposed change is conservative since Equation 2.2-1 permitted operability for some instrumentation at setpoints beyond the Allowable Value.

An additional benefit in removing the TA, Z and SE columns is that it simplifies the instrumentation tables. The values used by operators, the Trip Setpoint and the Allowable Value, are retained. The operators do not utilize the values in Equation 2.2-1. These values are not process variables that the operator can control. In the interest of improving the Technical Specifications from a human factors perspective, we request the simpler three-column table format.

An administrative change is requested for Note 1 on page 2-8. Parts (i), (ii) and (iii) contain information specific to previous fuel cycles. We request that this information be deleted since it is no longer applicable. A similar administrative change is requested for Braidwood page 3/4 3-13. The note being deleted is no longer applicable.

In addition to the format and administrative changes above, CECo requests changes to the Allowable Values for the following:

<u>RTS FUNCTIONAL UNIT</u>	<u>FROM</u>	<u>TO</u>
2.a. Power Range, Neutron Flux, High Setpoint	<111.1% RTP	<111.36% RTP
2.b. Power Range, Neutron Flux, Low Setpoint	≤ 27.1% RTP	≤ 27.36% RTP
5. Intermediate Range, Neutron Flux	≤ 30.9% RTP	≤ 31.5% RTP
6. Source Range, Neutron Flux	≤ 1.4 cps	≤ 1.42 cps
7. Overtemperature Delta T	≤ 3.9% span	≤ 3.71% span
8. Overpower Delta T	≤ 2.6% span	≤ 2.31% span
9. Pressurizer Pressure - Low	≥ 1871 psig	≥ 1869 psig
10. Pressurizer Pressure - High	≤ 2396 psig	≤ 2393 psig
11. Pressurizer Water Level - High	≤ 93.8% span	≤ 93.5% span
12. Reactor Coolant Flow - Low	≥ 89.2% flow	≥ 89.3% flow
13.b. Steam Generator Water Level Low-Low (U 2)*	≥ 35.4% span	≥ 34.8% span
14. Undervoltage - Reactor Coolant Pumps	≥ 4728 volts	≥ 4920 volts
15. Underfrequency - Reactor Coolant Pumps	≥ 56.5 Hz	≥ 56.08 Hz

<u>ESFAS Functional Unit</u>	<u>From</u>	<u>To</u>
1. Safety Injection		
c. Containment Pressure - High-1	≤ 5.8 psig	≤ 4.6 psig
d. Pressurizer Pressure - Low	≥ 1823 psig	≥ 1813 psig
e. Steam Line Pressure - Low	≥ 617 psig	≥ 614 psig
2. Containment Spray		
c. Containment Pressure - High-3	≤ 21.0 psig	≤ 21.2 psig
3. Containment Isolation		
b.3) Containment Pressure - High-3	≤ 21.0 psig	≤ 21.2 psig
4. Steam Line Isolation		
c. Containment Pressure - High-2	≤ 9.2 psig	≤ 9.4 psig
d. Steam Line Pressure - Low	≥ 617 psig	≥ 614 psig
e. Steam Line Pressure Negative Rate-High	≤ 111.5 psi	≤ 165.3 psi
5. Turbine Trip and Feedwater Isolation		
b.1) Steam Generator Water Level High-High - Unit 1	≤ 82.7% span	≤ 83.4% span
6. Auxilliary Feedwater		
c.2) Steam Generator Water Level Low - Low Start Motor-Drive Pump and Diesel-Driven Pump - Unit 2*	≥ 35.4% span	≥ 34.8% span
d. Undervoltage-RCP Bus-Start Motor-Driven and Diesel-Driven Pump	≥ 4728 volts	≥ 4920 volts
9. Engineered Safety Feature Actuation System Interlocks		
c. Low - Low Tavg, P-12	≥ 547.6 degF	≥ 547.2 degF

*Byron and Braidwood, Cycle 4. Braidwood Cycle 3 values change from 15.3 to 16.3% span.

In addition to the changes resulting from the Setpoint Study, CECo requests one additional change on Table 2.2-1, Functional Unit 16.a, Turbine Trip, Emergency Trip Header Pressure. The change to this item is not related to CECo's review of the Westinghouse Setpoint Error Analysis.

Both the original and the revised Turbine Trip setpoint were calculated by S&L using their setpoint methodology. The changes being made are as follows:

<u>RTS Functional Unit</u>	<u>From</u>	<u>To</u>
16. Turbine Trip		
a. Emergency Trip Header Pressure		
Trip Setpoint	>540 psig	>1000 psig
Allowable Value	>520 psig	> 815 psig

This change is being made due to a modification that installed new pressure switches designed for higher fluid pressure. The new Trip Setpoint and Allowable Value are currently permitted by Technical Specifications since they are greater than the minimum values specified. This change is being requested to place more meaningful values in the Technical Specifications. The revised setpoint will result in a reactor trip sooner than the existing setpoint following a decrease in Emergency Trip Header Pressure. The purpose of the Functional Unit is to initiate a reactor trip on a turbine trip above 30 percent power (P-8) when the electro-hydraulic fluid pressure drops below the setpoint. The turbine trips on low header pressure for equipment protection. This change moves the setpoint in the conservative direction with respect to the intended protective function. The turbine trip is an anticipatory trip and is not assumed in the accident analysis.

Basis for the Proposed Amendment:

The results of the CECo Engineering calculations support the basis for the new Allowable Values except for RTS Functional Unit 16, Turbine Trip, which was provided by S&L. The methodology used by CECo Engineering to determine the new AVs is the same as the used by Westinghouse (WCAP-12583, Westinghouse Setpoint Methodology for Protection Systems, May 1990.) CECo Engineering reviewed the assumptions of calibration tolerances and MTE and revised them to reflect those that will actually be used at the stations. No changes have been made that affect the ability of the RTS or ESFAS instrumentation to perform the intended design functions. CECo also reviewed the basis for the existing setpoints to assure that the safety analysis assumptions remain valid.

Schedule Requirements:

As documented in Reference 2, the validity of the Setpoint Study results are contingent upon the completion of several changes. First, the use of new measurement and test equipment must be implemented. Second, temperature compensation transmitters must be installed for instruments that do not already have them. Third, analysis was to be completed for RTS Functional Unit 12, Reactor Coolant Flow - Low, and ESFAS Functional Unit 5.b Steam Generator Water Level - High-High for Unit 1. This analysis was completed as discussed above.

Fourth, tighter calibration tolerances must be used for some bistables. Based on these required actions, CECO will be ready to implement the proposed Technical Specification change by January 1, 1993.

Some of the proposed Allowable Values provide a more restrictive limit for the respective Trip Setpoints. By January 1, 1993, CECO will administratively impose any Allowable Values that are more restrictive than the currently approved value in Technical Specifications. This is permissible since Allowable Values are listed in Technical Specifications as minimum or maximum values. The AV can be raised above a minimum value or lowered below a maximum value and remain in compliance with current Technical Specifications. This will ensure all safety analysis assumptions remain valid during the interim while this proposed amendment is being processed.