Commonwealth Edison
1400 Opus Place
Downers Grove, Illinois 60515

September 16, 1994

Mr. William Russell, Director
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Attention: Document Control Desk

Subject: Application for Amendment to Facility Operating Licenses:

Byron Station Units 1 and 2
(NPF-37/66; NRC Docket Nos. 50-454/455)

Braidwood Station Units 1 and 2
(NPF-72/77; NRC Docket Nos. 50-456/457)

"Response Time Testing"

Dear Mr. Russell,

Pursuant to 10 CFR 50.90, Commonwealth Edison Company (ComEd) proposes to amend Appendix A, Technical Specifications of Facility Operating Licenses NPF-37, NPF-66, NPF-72, and NPF-77. The proposed amendment request revises Technical Specification 4.3.1.2 "Reactor Trip System Response Time" and 4.3.2.2 "Engineered Safety Features Response Time, " and the associated bases.

This proposed amendment revision eliminates periodic response time testing and indicates that the system response time shall be verfied using a sensor response time. EPRI initiated a program to determine if response time testing could be eliminated for specific pressure and differential pressure transmitters and switches. The results of the EPRI program are delineated in EPRI Report NP-7243, "Investigation of Response Time Testing Requirements, Rev. 1." Enclosed is WCAP-13632 ,"Elimination of Pressure Sensor Response Time Testing Requirment, Revision 1." The program described in WCAP-13632 uses the recommendations contained in the EPRI report.

As WCAP-13632, Revision 1 contains information proprietary to Westinghouse Electric Corporation, it is supported by an affidavit signed by Westinghouse, the owner of the information. The affidavit sets forth the basis on which the information may be withheld from public disclosure by the Commission and addresses with specificity the considerations listed in paragraph (b)(4) of Section 2.790 of the Commission's regulations. Accordingly, it is respectfully requested that the information which is proprietary to Westinghouse be withheld from public disclosure in accordance with 10 CFR 2.790 of the Commission's regulations.

Correspondence with respect to the proprietary aspects of the items listed above or supporting Westinghouse Affidavit should reference CAW-94-705 and should be addressed to N. J. Liparulo, Manager of Nuclear Safety & Regulatory Activities, Westinghouse Electric Corporation, P. O. Box 355, Pittsburgh, Pennsylvania 15230-0355.

The amendment request is subdivided as follows:

Attachment A: Description and Safety Analysis of Proposed Changes

Attachment B: Proposed Revision to the Technical Specifications

Attachment C: Evaluation of Significant Hazards Considerations

Attachment D: Environmental Assessment

Attachment E: WCAP-13632 ,"Elimination of Pressure Sensor Response Time Testing Requirment, Revision 1" Proprietary Version

Attachment F: WCAP-13632 ,"Elimination of Pressure Sensor Response Time Testing Requirment, Revision 1" Non-Proprietary Version

The proposed changes have been reviewed and approved by the On-site and Off-site Review Committees in accordance with ComEd procedures. ComEd has reviewed this proposed amendment in accordance with 10 CFR 50.92(c) and has determined that no significant hazards consideration exists.

ComEd is notifying the State of Illinois of our application for these amendments by transmitting a copy of this letter and the associated attachments to the designated State Official.

This proposed license amendment request is considered a Cost Beneficial Licensing Action which would realize a savings of approximately $50,000 per unit per cycle for contracted services required to perform response time testing for pressure and differential pressure transmitters. Because of this savings, ComEd requests that this proposed amendment be reviewed and approved by June 30, 1995, to allow sufficent time for scheduling of ComEd manpower and contracted services for the Braidwood Unit 1 Cycle 5 Refuel Outage, currently scheduled for September, 1995.

To the best of my knowledge and belief, the statements contained in this document are true and correct. In some respects these statements are not based on my personal knowledge, but on information furnished by other CECo employees, contractor employees, and/or consultants. Such information has been reviewed in accordance with company practice, and I believe it to be reliable.

Please address any further comments or questions regarding this matter to this office.

Sincerely,

Denise M. Saccomando
Nuclear Licensing Administrator

Attachments

cc: R. Assa, Braidwood Project Manager - NRR
G. Dick, Byron Project Manager - NRR
H. Peterson, Senior Resident Inspector - Byron
S. G. Dupont, Senior Resident Inspector - Braidwood
J. Martin, Regional Administrator - Region III
Office of Nuclear Facility Safety - IDNS

Maryellen D. Long 9-16-94

OFFICIAL SEAL
MARYELLEN D LONG
NOTARY PUBLIC, STATE OF ILLINOIS
MY COMMISSION EXPIRES 04/15/98

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ATTACHMENT A

DESCRIPTION AND SAFETY ANALYSIS OF PROPOSED CHANGES TO APPENDIX A TECHNICAL SPECIFICATIONS OF FACILITY OPERATING LICENSES NPF-37, NPF-66, NPF-72, AND NPF-77

A. DESCRIPTION OF THE PROPOSED CHANGE

Commonwealth Edison Company (ComEd) proposes to change Technical Specifications Surveillance Requirements 4.3.1.2, Reactor Trip System Response Time and 4.3.2.2, Engineered Safety Features Response Time. Also, changes are proposed to the bases for Technical Specifications 3/4.3.1 and 3/4.3.2 that deal with the measurement of response time in order to allow deletion of sensor response time testing. This proposed license amendment request is considered a Cost Beneficial Licensing Action (CBLA).

A summary of the proposed changes follows:

Surveillance Requirement 4.3.1.2

Surveillance Requirement 4.3.1.2 will be changed to accommodate the deletion of sensor response time testing. These changes involve replacing the words "demonstrate", "test", and "tested" with "verified", and "verification".

Surveillance Requirement 4.3.2.2

Surveillance Requirement 4.3.2.2 will also be changed to accommodate the deletion of sensor response time testing as described above.

Reactor Trip System and Engineered Safety Features Actuation System Instrumentation Bases.

This section of the bases will be revised from a discussion of testing of response times and the methodologies for determining these times to a discussion of the reasons for verification.

B. DESCRIPTION AND BASES OF THE CURRENT REQUIREMENT

Surveillance Requirement 4.3.1.2

Currently, Surveillance Requirement 4.3.1.2 requires that the Reactor Trip System Response Time of each reactor trip function shall be demonstrated to be within its limit at least once per 18 months.

Each test shall include at least one train such that both trains are tested at least once per 36 months and one channel such that all channels are tested at least once every N times 18 months where N is the total number of redundant channels in a specific reactor trip function.

Surveillance Requirement 4.3.2.2

Surveillance Requirement 4.3.2.2 currently requires that the Engineered Safety Features Response Time of each Engineered Safety Features Actuation Signal (ESFAS) shall be demonstrated to be within its limit at least once per 18 months. Each test shall include at least one train such that both trains are tested at least once per 36 months, and one channel per function such that all channels are tested at least once per N times 18 months where N is the total number of redundant channels in a specific ESFAS function.

Surveillance Requirements 4.3.1.2 and 4.3.2.2 provide assurance that the Reactor Trip and Engineered Safety Features (ESF) actuation associated with each channel is completed within the time limits assumed in the safety analyses. Response time may be demonstrated by any series of sequential, overlapping or total channel test measurements provided that such tests demonstrate the total channel response time as defined. Sensor response time verification may be demonstrated by either: (1) in place, onsite, or offsite test measurements, or (2) using replacement sensors with certified response times.

C. NEED FOR REVISION OF THE REQUIREMENT

Since its inception, Response Time Testing (RTT) has proven to be resource intensive. RTT is generally performed in discrete steps, with the sensor response time being one of the steps. RTT of sensors is especially expensive, since many of the tests require special equipment and technical skills in addition to extensive test times. Additionally, a data review conducted by the Electric Power Research Institute (EPRI) has shown that RTT has not detected response time failures. This can be attributed in a large part to the fact that a calibration surveillance is typically performed first and has discovered failures that would affect response time.

Therefore, since RTT is not performing the function for which it was intended, and results in increased operating costs, ComEd is requesting this amendment to eliminate the requirement to perform RTT of certain instrument sensors.

D. DESCRIPTION AND BASES OF THE REQUESTED REVISION

RTT of Reactor Trip System (RTS) instrumentation and ESFAS instrumentation has been required by Technical Specifications since the mid 1970's. The purpose of the RTT was to demonstrate that the instrumentation met the response time performance requirements assumed in the plant safety analyses. The first RTT guidelines were established by the Institute of Electrical and Electronic Engineers in ANSI/IEEE Standard 338-1975, "Criteria for the Periodic Testing of Class 1E Power and Protection Systems." In 1977 this standard was revised and accepted by the Nuclear Regulatory Commission (NRC) with NRC Regulatory Guide (RG) 1.118, "Periodic Testing of Electric Power and Protection Systems, Revision 1." Following the issuance of RG 1.118, Revision 2, the Instrument Society of America approved Standard ISA S67.06, "Response Time Testing of Nuclear Safety Related Instrument Channels in Nuclear Power Plants," August 29, 1986.

IEEE Standard 338-1977 defines a basis for eliminating RTT. Section 6.3.4 states:

"Response time testing of all safety-related equipment per se, is not required if, in lieu of response time testing, the response time of the safety system equipment is verified by functional testing, calibration check, or other tests, or both."

EPRI initiated a program to determine if RTT requirements could be eliminated for specific pressure and differential pressure transmitters and switches. The results of the EPRI program are delineated in EPRI Report NP-7243, "Investigation of Response Time Testing Requirements, Revision 1."

WCAP-13632, "Elimination of Pressure Sensor Response Time Testing Requirements, Revision 1," provides the technical justification for deletion of periodic response time testing of selected pressure sensing instruments. The program described in WCAP-13632 uses the recommendations contained in EPRI Report NP-7243 for justifying elimination of response time testing surveillance requirements on certain pressure and differential pressure sensors. To address other sensors installed in Westinghouse designed plants, WCAP-13632 contains a similarity analysis to sensors in EPRI Report NP-7243 or a Failure Modes and Effects Analysis (FMEA) to provide justification for elimination of response time testing requirements.

The specific sensors installed at Byron and Braidwood are listed below.

	Byron 1 & 2	Braidwood 1 & 2
Pressurizer Water Level	Barton 764	Barton 764
Steam Generator Water Level	Barton 764	Barton 764
Pressurizer Pressure	Barton 763	Barton 763A
Steamline Pressure	Barton 763	Barton 763
Containment Pressure	Barton 752	Barton 752
Reactor Coolant Flow	Barton 752	Barton 752
Reactor Coolant System Wide Range Pressure	Barton 763 Tobar 32PA2	Barton 763 Tobar 32PA2
Refueling Water Storage Tank Level	Barton 752	Barton 752

The basis for eliminating periodic response time testing for each of the above sensors is discussed in WCAP-13632 and/or EPRI Report NP-7243. These reports provide justification that any sensor failure that significantly degrades response time will be detectable during surveillance testing such as calibration and channel checks.

Based on these results, ComEd proposes to amend Surveillance Requirements 4.3.1.2, and 4.3.2.2 for Specifications 3/4.3.1 "Reactor Trip System Instrumentation" and 3/4.3.2 "Engineered Safety Feature Actuation System Instrumentation" and the associated bases. This proposed revision indicates that the system response time shall be verified using a sensor response time justified by the methodology described in WCAP-13632 Revision 1. The sensor response times may be obtained from: (1) historical records based on acceptable response time tests (hydraulic, noise, or power interrupt tests), (2) inplace, onsite, or offsite (e.g. vendor) test measurements, or (3) using vendor engineering specifications.

E. IMPACT OF THE PROPOSED CHANGE

This revision does not involve installing any new equipment, or making any changes to existing equipment. No current system interfaces are modified, and no new system interfaces are created. Thus, the performance of the pressure and differential pressure transmitters and switches remains unchanged, and no new failure modes, accident initiators, or accident scenarios are introduced. Also, the total system response time as evaluated in the safety analyses is unaffected. The system response time verification method is modified to allow other means of sensor response verification, but the method still provides assurance that the total system response is within that defined in the safety analyses. Byron and Braidwood will administratively ensure that testing is performed in accordance with the "Summary of EPRI Recommendations" as detailed in WCAP-13632 Section 4.5.

Changes to the method of verifying time response do not alter the time response allocation/modeling assumptions made in the Updated Final Safety Analysis Report (UFSAR), Chapter 15, Accident Analyses. Therefore no accident probabilities or consequences are changed. Therefore, the proposed amendment request has no negative impact on any system, operating mode, or accident analysis.

F. SCHEDULE REQUIREMENTS

This proposed license amendment request is considered a Cost Beneficial Licensing Action (CBLA) which would realize quantifiable of approximately $50,000 per unit per cycle for contracted services required to perform RTT for pressure and differential pressure transmitters. There would be additional savings in reduced ComEd manpower required to perform RTT that has not been quantified. Therefore, ComEd requests NRC review and approval of this proposed license amendment request by June 30, 1995, to allow sufficient time for scheduling of ComEd manpower and contracted services for the Braidwood Unit 1 Cycle 5 Refuel Outage, currently scheduled to begin in September, 1995.