



October 3, 1995

United States Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, D.C. 20555-0001

Subject: Application for Amendment to Appendix A, Technical Specifications,
for Facility Operating Licenses:

Byron Nuclear Power Station, Units 1 and 2
Facility Operating Licenses NPF-37 and NPF-66
NRC Docket Nos. 50-454 and 50-455

Braidwood Nuclear Power Station, Units 1 and 2
Facility Operating Licenses NPF-72 and NPF-77
NRC Docket Nos. 50-456 and 50-457

Generic Letter 93-05 Line Item Improvements

- References:
1. NUREG-1366, "Improvements to Technical Specifications Surveillance Requirements," dated December 1992
 2. United States Nuclear Regulatory Commission Generic Letter 93-05, "Line-Item Technical Specifications Improvements to Reduce Surveillance Requirements for Testing during Power Operation," dated September 27, 1993

Ladies and Gentlemen:

Pursuant to Title 10, Code of Federal Regulations, Part 50, Section 90 (10 CFR 50.90), Commonwealth Edison Company (ComEd) proposes to amend Appendix A, Technical Specifications, for Facility Operating Licenses NPF-37, NPF-66, NPF-72, and NPF-77 for Byron Nuclear Power Station, Units 1 and 2 (Byron), and Braidwood

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Nuclear Power Station, Units 1 and 2 (Braidwood), respectively. ComEd proposes to revise 10 of the line item technical specification improvements recommended by Generic Letter (GL) 93-05, Reference (2). Most of the proposed changes revise the allowable time intervals for performing certain technical specification surveillance requirements (TSSRs) on plant components during power operation, delete the TSSR entirely, or delete the TSSR under specified conditions. Editorial changes are also proposed on the affected pages.

This license amendment request package consists of the following:

- Attachment A: Description and Safety Analysis of the Proposed Changes
- Attachment B-1: Proposed Changes to Appendix A, Technical Specifications, for the Byron Nuclear Power Station, Units 1 and 2
- Attachment B-2: Proposed Changes to Appendix A, Technical Specifications, for the Braidwood Nuclear Power Station, Units 1 and 2
- Attachment C: Evaluation of Significant Hazards Considerations
- Attachment D: Environmental Assessment

The proposed changes in this license amendment request have been reviewed and approved by both On-site and Off-site Review in accordance with ComEd procedures. A detailed description and a safety analysis of the proposed changes are presented in Attachment A. The proposed changes to Appendix A, Technical Specifications, are presented in Attachments B-1 and B-2 for Byron and Braidwood, respectfully. ComEd has reviewed this proposed license amendment request 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.

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

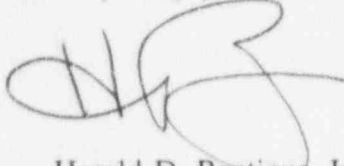
October 3, 1995

ComEd requests USNRC review and approval of this license amendment request prior to the Byron Unit 1 Cycle 7 Refuel Outage (B1R07) currently scheduled to begin on March 29, 1996. The amendment would relieve Byron of a significant burden associated with performing the containment spray header flow test during this outage. The test requires 100-200 person-hours plus approximately \$5,000 for equipment rental.

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 ComEd 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 comments or questions regarding this matter to this office.

Very truly yours,



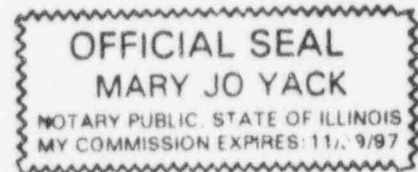
Harold D. Pontious, Jr.
Nuclear Licensing Administrator

Attachments

- cc: H. J. Miller, Regional Administrator - RIII
- G. F. Dick Jr., Byron Project Manager - NRR
- R. R. Assa, Braidwood Project Manager - NRR
- H. Peterson, Senior Resident Inspector - Byron
- S. P. Ray, Acting Senior Resident Inspector - Braidwood
- Office of Nuclear Facility Safety - IDNS

Signed before me

on this 3rd day of October, 1995



by Mary Jo Yack
Notary Public

ATTACHMENT A

DESCRIPTION AND SAFETY ANALYSIS OF PROPOSED CHANGES

Description of the Proposed Changes

Commonwealth Edison Company (ComEd) proposes to implement 10 of the line item technical specification improvements recommended by Generic Letter (GL) 93-05, "Line-Item Technical Specification Improvements to Reduce Surveillance Requirements for Testing during Power Operation," dated September 27, 1993, for Byron Nuclear Power Station, Units 1 and 2 (Byron), and Braidwood Nuclear Power Station, Units 1 and 2 (Braidwood). The items in GL 93-05 are based on the recommendations of a United States Nuclear Regulatory Commission (USNRC) study that included a comprehensive examination of surveillance requirements and is reported in NUREG-1366, "Improvements to Technical Specifications Surveillance Requirements," dated December 1992. Most of the proposed changes revise the allowable time intervals for performing certain technical specification surveillance requirements (TSSRs) on plant components during power operation, delete the TSSR entirely, or delete the TSSR under specified conditions. Editorial changes are also proposed on the affected pages.

The marked up technical specification pages for each station indicating the proposed changes are provided in Attachments B-1 and B-2 for Byron and Braidwood, respectively. Implementing the proposed changes would save over 4000 person-hours/year due to the reduced number of routine TSSRs that must be performed. A discussion of each proposed change follows:

1. **Proposed Change to TSSR 4.1.3.1.2 (GL 93-05, Item 4.2)**

Description and Bases of the Current Requirement

TSSR 4.1.3.1.2 requires each full-length rod not fully inserted in the core to be determined operable by movement of at least 10 steps in any one direction at least once per 31 days. The surveillance detects immovable control rods that would prevent meeting rod insertion limits.

Description and Bases of the Requested Revision

ComEd proposes to increase the allowable interval between tests to demonstrate the operability of any partially or fully withdrawn control rod from 31 days to 92 days. This change is consistent with the recommendation in GL 93-05.

Impact of the Proposed Change

NUREG-1366 reported that most stuck rods are discovered during plant startup during initial pulling of the control rods or during rod drop testing. The proposed change does not affect these types of surveillances.

Reducing the frequency for control rod movement testing reduces inadvertent reactor trips, dropped rods, and unnecessary challenges to safety systems. The current testing practices require temporary power reductions that result in lost electrical generation while adding to the number of thermal cycles on the piping, valves and the turbine.

The proposed change would save approximately 3 person-hours per month including the time for performing the surveillance and completing administrative requirements.

2. Proposed Change to Table 4.3-3 (GL 93-05, Item 5.14)

Description and Bases of the Current Requirement

Table 4.3-3 lists TSSRs for radiation monitoring instrumentation. The TSSRs include a monthly digital channel operational test for the following functional units: 0RE-AR055/56, Fuel Building Isolation-Radioactivity-High and Criticality, 1/2RE-AR011/12, Containment Isolation-Containment Radioactivity-High, 1/2RE-PR011B, Gaseous Radioactivity-RCS Leakage Detection, 1/2RE-PR011A, Particulate Radioactivity-RCS Leakage Detection, 0RE-PR031B/32B/33B/34B, Main Control Room Isolation-Outside Air Intake-Gaseous Radioactivity High.

The radiation monitors send actuation signals to initiate alarms and automatic actuation of systems in the event that setpoints are exceeded. The surveillances verify the response of the radiation monitors.

Description and Bases of the Requested Revision

ComEd proposes to extend the interval for the digital channel operational test for the instruments listed Table 4.3-3 from monthly to quarterly. This change is consistent with the recommendation in GL 93-05.

Impact of the Proposed Change

The affected radiation monitors all provide an interlock function, however, no credit is taken in the plant accident analyses in Chapter 15 of the Updated Final Safety Analysis Report (UFSAR) for any automatic actuation function generated as a result of a radiation monitor signal. A monitor failure is quickly identified by equipment in the main control room and by shiftly channel checks. The monitors fail in a safe position. The monitors have redundant channels. All of the monitors except 1/2RE-PR011A and B have redundant technical specification monitors.

The monthly digital channel operational test has the potential to cause damage to the delicate instruments. Disconnecting and reconnecting the signal cable can shorten the life of the connector; turning the alternating current (AC) power on and off can cause a surge that damages the circuit boards. Previous failures of the instruments have been due to sub-component design, not calibration or setpoint problems. New components have been installed to correct identified failures.

In NUREG-1366, the USNRC noted that it is reasonable to give relief on the frequency of channel functional tests since these tests do not involve the sensor (detector) itself. The USNRC recommended that channel functional test be performed quarterly. Changing the frequency from monthly to quarterly will increase the availability of radiation monitors and decrease the potential for equipment degradation during testing. At Byron and Braidwood, the digital channel operational test corresponds to the channel functional test listed in GL 93-05 and NUREG-1366.

The proposed change would save approximately 2800 person-hours per year, including the time for performing the surveillance and completing administrative requirements.

3. **Proposed Change to TSSR 4.4.3.2 (GL 93-05, Item 6.6)**

Description and Bases of the Current Requirement

TSSR 4.4.3.2 requires that the capacity of each of the required groups of pressurizer heaters be verified by energizing the heaters and measuring circuit current at least once per 92 days. The surveillance demonstrates that the capacity of the heaters has not degraded. The pressurizer heaters enhance the capability of the plant to control reactor coolant system (RCS) pressure and establish natural circulation.

Description and Bases of the Requested Revision

ComEd proposes to increase the allowable interval between tests to verify pressurizer heater capacity from 92 days to once each refueling outage. This change is consistent with the recommendation in GI 93-05 for plants that do not have dedicated safety-related pressurizer heaters.

Impact of the Proposed Change

In NUREG-1366, the USNRC noted that most pressurizer heaters are in constant use. Therefore, operators should be aware of problems that may arise with the heaters. The USNRC also noted that the heaters are fairly reliable and concluded that the 92 day interval is too frequent. An evaluation of Byron and Braidwood operating experience has demonstrated the high availability of the required pressurizer heaters.

The proposed change would save approximately 3 person-hours per month including the time for performing the surveillance and completing administrative requirements.

4. **Proposed Change to TSSR 4.4.6.2.2.b (GL 93-05, Item 6.1)**

Description and Bases of the Current Requirement

TSSR 4.4.6.2.2.b requires each RCS pressure isolation valve (PIV) specified in Table 3.4-1 to be demonstrated operable by verifying leakage to be within its limit prior to entering Mode 2 whenever the plant has been in cold shutdown for 72 hours or more and if leakage testing has not been performed in the previous 9 months. The TSSR provides added assurance of valve integrity, thereby reducing the probability of gross valve failure and consequent intersystem loss-of-coolant-accident (LOCA).

Description and Bases of the Requested Revision

ComEd proposes to increase the time the plant may be in cold shutdown before PIV testing is required prior to entering Mode 2 from 72 hours to 7 days. This change is consistent with the recommendation in GL 93-05.

Impact of the Proposed Change

In NUREG-1366, the USNRC noted that extending the surveillance test interval does not significantly alter the associated risk. The USNRC also expressed a concern that the 72 hour interval causes plant personnel to rush to recover from short forced outages. Extending the interval will allow plant personnel to perform repairs under less stress with an insignificant difference in risk. The proposed change would also reduce occupational exposure.

The proposed change would save approximately 50 person-hours per forced outage, including the time for performing the surveillance and completing administrative requirements.

5. **Proposed Change to TSSR 4.5.1.1.b (GL 93-05, Item 7.1)**

Description and Bases of the Current Requirement

TSSR 4.5.1.1.b requires verifying the boron concentration of the accumulator solution at least once per 31 days and within 6 hours after each solution volume increase of greater than or equal to 70 gallons. Maintaining the required boron concentration ensures that the assumption used for accumulator injection in the safety analysis is met.

Description and Bases of the Requested Revision

The proposed change eliminates the need to perform TSSR 4.5.1.1.b when the volume increase makeup source to the accumulators is the refueling water storage tank (RWST) and the RWST has not been diluted since verifying that the RWST boron concentration is within the accumulator boron concentration limits. This change is consistent with the recommendation in GL 93-05, however, there has been a slight wording change. ComEd's proposed change is slightly more restrictive than the GL 93-05 wording in that there is also an upper boron concentration limit that must be met before the surveillance could be skipped.

Impact of the Proposed Change

The minimum boron concentration requirement for the RWST is 2300 parts per million (ppm), therefore, no dilution can be caused by adding water from the RWST to the accumulator, which has a minimum boron concentration limit of 2200 ppm. ComEd's deviation from the wording suggested in GL 93-05 is more restrictive. GL 93-05 would not require verifying the boron concentration of the accumulator solution as long as the RWST boron concentration is greater than 2200 ppm. ComEd would not require the surveillance if the RWST boron concentration is between 2200 and 2400 ppm. This change would ensure that the accumulator would not exceed the upper boron concentration limit. Since the RWST boron may be as high as 2500 ppm, the additional control is appropriate to ensure that the safety analysis boron concentration in the accumulators is maintained.

The proposed change would save approximately 25 person-hours per month including the time for performing the surveillance and completing administrative requirements.

6. Proposed Change to TSSR 4.6.2.1 (GL 93-05, Item 8.1)

Description and Bases of the Current Requirement

TSSR 4.6.2.1.d requires each containment spray system to be demonstrated operable at least once per 5 years by performing an air or smoke flow test through each spray header and verifying each spray nozzle is unobstructed. The surveillance ensures that the containment spray system will be available to cool and depressurize containment in the event of a LOCA or main steam line break (MSLB) and remove iodine from the containment atmosphere.

Description and Bases of the Requested Revision

The allowable interval between tests to verify that each containment spray nozzle is unobstructed is increased from 5 years to 10 years. This change is consistent with the recommendation in GL 93-05.

Impact of the Proposed Change

In NUREG-1366, the USNRC reported that the only reported problems with this test have been construction related, so blockage is not expected during normal operation. Furthermore, the test is qualitative only; it does not measure the flow rate. Increasing the surveillance interval to 10 years is not expected to impact the ability of the containment spray system to perform its safety function. The Byron and Braidwood system components are all stainless steel. There have been no reported in-service problems noted with spray nozzle testing from plants with stainless steel headers and nozzles, and there is no indication that lines would corrode and become obstructed. This experience supports the conclusion that functional checks of the spray nozzles every 10 years is adequate to detect degradation or blockage of the spray nozzles.

The proposed change would save approximately 200 person-hours plus \$5,000 for equipment rental each time the surveillance is skipped.

7. **Proposed Change to TSSR 4.6.4.1 (GL 93-05, Item 5.4)**

Description and Bases of the Current Requirement

TSSR 4.6.4.1 requires that each hydrogen monitor be demonstrated operable by performing an analog channel operational test at least once per 31 days and a channel calibration at least once per 92 days. The hydrogen monitors are used after a LOCA so that operators know when to initiate the hydrogen recombiners, which maintain hydrogen concentration within containment below its flammable limit.

Description and Bases of the Requested Revision

ComEd proposes to increase the frequency for the allowable interval between analog channel operational tests used to demonstrate operability of the containment hydrogen monitors from 31 days to 92 days. ComEd also proposes to increase the frequency for the channel calibration from 92 days to once each refueling outage. This change is consistent with the recommendation in GL 93-05.

Impact of the Proposed Change

In NUREG-1366, the USNRC recommended the frequency changes, in part, because there are other operability checks of the system and there are alarms to indicate electronic system and power failures. The monitors provide an indicating function only and are only required after an accident involving core damage. The operators monitor the indication daily and note any changes in indication. Extending the calibration interval reduces the time when containment isolation valves must remain open.

The proposed change would save approximately 15 person-hours per month including the time for performing the surveillance and completing administrative requirements.

8. Proposed Change to TSSR 4.6.4.2 (GL 93-05, Item 8.5)

Description and Bases of the Current Requirement

TSSR 4.6.4.2.a requires that each hydrogen recombiner system be demonstrated operable at least once per 6 months by verifying that the minimum heater sheath temperature is reached within 90 minutes and that the minimum heater power is reached. The hydrogen recombiner system is required to maintain hydrogen gas concentration in the containment atmosphere below its flammable limit during post-LOCA conditions.

Description and Bases of the Requested Revision

ComEd proposes to increase the allowable interval between tests to demonstrate operability of each hydrogen recombiner system from 6 months to once each refueling outage. This change is consistent with the recommendation in GL 93-05.

Impact of the Proposed Change

In NUREG-1366, the USNRC documented that hydrogen recombiners have a high reliability and there is sufficient redundancy with the opposite train or alternate system to ensure that the system would be operable when called upon. For these reasons, the USNRC staff recommended that the surveillance test interval be extended. ComEd's hydrogen recombiners have proven to be highly reliable. The changes to the surveillance interval have no effect on the operation of the hydrogen recombiner system.

The proposed change would save approximately 12 person-hours per year including the time for performing the surveillance and completing administrative requirements.

9. **Proposed Change to TSSR 4.7.1.2.1 (GL 93-05, Item 9.1)**

Description and Bases of the Current Requirement

TSSR 4.7.1.2.1.a.1 requires that each auxiliary feedwater (AFW) pump be demonstrated operable at least once per 31 days by verifying that the pump develops the required differential pressure and flow. The surveillance ensures that the AFW pumps will be capable of supplying adequate feedwater flow to remove decay heat until the residual heat removal system may be placed into operation.

Description and Bases of the Requested Revision

ComEd proposes to increase the allowable interval between tests of the AFW pumps from 31 days to 92 days on a staggered test basis. This change is consistent with the recommendation in GL 93-05. TSSRs are renumbered to be consistent with NUREG-1431, Standard Technical Specifications for Westinghouse Plants, and GL 93-05. Specifically, TSSR 4.7.1.2-1.a.2 is renumbered to TSSR 4.7.1.2-1.a.1; TSSR 4.7.1.2-1.a.1 is renumbered to TSSR 4.7.1.2-1.b.1, and TSSR 4.7.1.2-1.b is renumbered to TSSR 4.7.1.2-1.c.

Impact of the Proposed Change

In NUREG-1366, the USNRC describes two studies of the AFW system. Both studies concluded that a significant cause of failures of the AFW pumps is testing the pumps by recirculating flow through a minimum flow line that is not adequately sized. Manufacturers currently recommend that the pumps be tested at a flow no less than 25% of the best efficiency point flow. At Byron and Braidwood, the AFW pumps takes suction from the condensate storage tank and return the water to the tank through a recirculation line. In this test, a minimum flow of 85 gallons per minute (gpm) is required. Each AFW pump is designed to deliver 220 gpm to each steam generator (880 gpm total) when it is required to remove decay heat. The studies concluded that testing in this range (approximately 10% flow) causes hydraulic instability of the pumps and leads to degradation of the pumps. The USNRC concluded that the best solution would be modifying the orifice to allow testing with a higher flow rate but recognized that this solution would be complicated. The USNRC also concluded that a reasonable step would be to extend the test interval to reduce the rate of wear.

In NUREG-1366, the USNRC reported that extending the surveillance interval would decrease failures by 23% for turbine driven AFW pumps and 26% for motor driven AFW pumps. The projections are based on Electric Power Research Institute (EPRI) data of past AFW pump failures. Performing the tests on a staggered basis would also allow ComEd to detect AFW system failures without decreasing equipment availability.

The proposed change in testing frequency to quarterly is consistent with the requirements of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code), which requires testing of Class 2 centrifugal pumps, such as the AFW pumps, "normally every three months." The ASME Code also requires testing that is not required by the Byron and Braidwood Technical Specifications. The proposed change has no impact on the inservice testing required by the ASME Code.

The proposed change would save approximately 4 person-hours per month including the time for performing the surveillance and completing administrative requirements.

10. Proposed Change to TSSR 4.11.2.6 (GL 93-05, Item 13)

Description and Bases of the Current Requirement

TSSR 4.11.2.6 requires that the quantity of radioactive material contained in each gas decay tank be determined to be within the limit at least once per 24 hours when radioactive materials are being added to the tank. A tank activity limit is established so that dose limits are not exceeded in the event of an uncontrolled release of the tank contents.

Description and Bases of the Requested Revision

ComEd proposes to increase the surveillance interval for determining the quantity of radioactivity contained in each gas decay tank from 24 hours to 7 days when radioactive materials are being added to the tank. The 24 hour frequency is maintained during primary coolant degassing operation. This change is consistent with the recommendation in GL 93-05.

Impact of the Proposed Change

In NUREG-1366, the USNRC agreed that the current limit placed on allowed curies in the waste gas decay tanks is considerably above the value that would occur, even if the reactor were operating at the technical specification RCS specific activity limit of 1 microCurie per gram ($\mu\text{Ci/g}$) Dose Equivalent I-131. The worst case activity in a tank was calculated using each station's actual operating data. For Byron, the maximum waste gas decay tank activity during plant operations was calculated to be 8,800 Curies. For Braidwood, the calculation shows a maximum activity of 19,700 Curies. Since it has been shown that the tank activity limit of 50,000 Curies will not be exceeded, the dose limits will be met.

The 24 hour frequency is maintained during primary coolant system degassing operation since noble gas activity can accumulate and approach technical specifications limits during degassing operations.

The proposed change would save approximately 3 person-hours per day including the time for performing the surveillance and completing administrative requirements. In addition, the proposed change will reduce radiation exposure to the technicians who perform the surveillance.

11. **Proposed Editorial Changes**

Description and Bases of the Requested Revisions

TSSR 4.5.1.1.c clarifies that the motor control center (MCC) compartment for each accumulator isolation valve is open.

A footnote referencing Cycle 1 is deleted from TSSR 4.5.1.2 since the cycle is over for each unit.

TSSR 4.4.6.2.1.c is revised to change "from" to "to" for consistency with NUREG-1431.

Impact of the Proposed Change

The proposed changes are administrative in nature, and do not reduce the requirements of any technical specification. They improve readability and provide consistency with station procedures and company programs.

Schedule Requirements

ComEd requests USNRC review and approval of this license amendment request prior to the Byron Unit 1 Cycle 7 Refuel Outage (B1R07) currently scheduled to begin on March 29, 1996. The amendment would relieve Byron of a significant burden associated with performing the containment spray header flow test during this outage. The test requires 100-200 person-hours plus approximately \$5,000 for equipment rental.

Identification and Discussion of Any Irreversible Consequences

There were no irreversible consequences identified.