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August 23, 1996

U.S. Nuclear Regulatory Commission
Washington D.C. 20555
Attention: Document Control Desk

Subject: Application for Amendment to Facility Operating Licenses:

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

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

"Non-Accessible Area Exhaust Filter Plenum Ventilation System"

Reference: 1. Teleconference between Commonwealth Edison, NRC Region III, and NRR
on July 26, 1996

Reference 1 discussed the need to revise Appendix A Technical Specification 3/4.7.7, "Non-Accessible Area Exhaust Filter Plenum Ventilation System," of Facility Operating Licenses NPF-37, NPF-66, NPF-72 and NPF-77, to reflect the design lineup for the Non-Accessible Area Exhaust Filter Plenum Ventilation System, and to make provisions for the performance of maintenance and testing on this system. During the referenced teleconference, Commonwealth Edison (ComEd) committed to supply to the NRC an amendment to Technical Specification 3/4.7.7 within 30 days. Pursuant to this commitment, ComEd is supplying the attached Application for Amendment to Appendix A, Technical Specifications, of Facility Operating Licenses NPF-37, NPF-66, NPF-72, and NPF-77.

This package consists of the following:

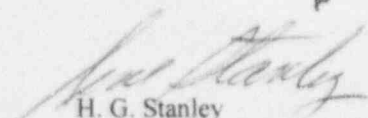
- Attachment A Description and Safety Analysis of Proposed Changes to Appendix A
- Attachment B Proposed Changes to the Technical Specification Pages for Byron and Braidwood Stations
- Attachment C Evaluation of No Significant Hazards Consideration
- Attachment D Environmental Assessment.

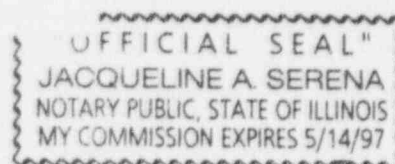
To the best of my knowledge and belief, the statements contained in this document are true and correct. In some respects these statements are not based on my personal knowledge, but on information furnished by other ComEd employees, contractor employees, and/or consultants. Such information has been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

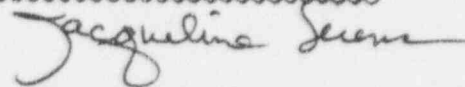
Please address any further comments or questions regarding this matter to Mr. Douglas Huston at (815) 458-2801, extension 2511.

Sincerely,

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P PDR


H. G. Stanley
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C. Phillips, Senior Resident Inspector - Braidwood
Office of Nuclear Facility Safety - IDNS

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 (ComEd) proposes to amend Byron and Braidwood Technical Specification (TS) 3.7.7, "Non-Accessible Area Exhaust Filter Plenum Ventilation System," and the bases for this TS. This amendment will provide clarification of acceptable system lineups which satisfy the requirements of TS 3.7.7, and provide action requirements to accommodate required maintenance and surveillance activities.

The changes proposed in this request are discussed in detail in Section E of this attachment. Copies of the affected TS pages with the changes indicated are included in Attachment B of this request.

B. DESCRIPTION OF THE CURRENT REQUIREMENT

TS 3.7.7 requires three independent non-accessible area exhaust filter (VA) plenums (50% capacity each) to be operable in Modes 1, 2, 3, and 4.

With one VA plenum inoperable, TS 3.7.7 requires that the inoperable plenum be restored to operable status within 7 days or place the plant in hot standby within the next 6 hours and in cold shutdown within the following 30 hours.

C. BASES FOR THE CURRENT REQUIREMENT

The operability of the VA system ensures that radioactive materials leaking from the Emergency Core Cooling System (ECCS) equipment within the pump rooms following a Loss Of Coolant Accident (LOCA) are filtered prior to reaching the environment. The operation of this system and the resultant effect on offsite dosage calculations was assumed in the safety analyses.

D. NEED FOR REVISION OF THE REQUIREMENT

The current TS does not reflect the VA system design lineup. Under normal operating conditions, the VA system is designed to operate with two of the three VA filter plenums aligned. The third plenum is in standby. Each VA plenum consists of an inlet

damper, three parallel filter banks, two 100% capacity booster fans per plenum (six fans total) with discharge dampers on the outlet of each booster fan.

In the event of a LOCA, the charcoal booster fans in the aligned plenums auto start to filter air from the ECCS pump cubicles. The standby plenum receives the auto start signal, however, an interlock prevents the charcoal booster fan from starting with the inlet damper closed to prevent damage to the fan. Should the standby plenum be required to operate, the inlet damper can be opened manually from the control room. The charcoal booster fan would then start.

Under certain surveillance or corrective maintenance conditions, it is sometimes necessary to have one operable plenum aligned for operation. For example, a post maintenance test may require a flow test on a plenum prior to declaring it operable. This plenum must be aligned to accomplish this test. However, the system is not designed to have all three plenums in operation simultaneously. Two plenums are required to achieve the minimum design basis flow for the non-accessible areas. The flow is based on maintaining radiation doses As Low As Reasonably Achievable (ALARA) and temperature considerations for the non-accessible areas. The ECCS pump rooms are cooled by dedicated room coolers. Thus the design function of the VA system is to ensure the ECCS cubicles are kept at a negative pressure and any airborne post LOCA leakage is filtered prior to release.

Running the charcoal booster fans with all three plenums aligned could result in stalling the charcoal booster fans which could result in damage to the fans. To prevent this, it is necessary to align one of the plenums in standby, per system design. Since the resulting lineup, one plenum in test and one plenum in standby, does not meet the revised Limiting Condition for Operation (LCO), it is appropriate to limit the amount of time this condition can exist.

Therefore, the TS should be revised to reflect the system design and establish controls over the conditions and the amount of time that only one operable plenum can be aligned.

E. DESCRIPTION OF THE REVISED REQUIREMENT

ComEd proposes to revise the LCO for TS 3.7.7 to reflect the design lineup for the VA system. The revised LCO reads:

"Three independent non-accessible area exhaust filter plenums (50% capacity each) shall be OPERABLE with two plenums aligned for operation and one plenum in standby."

The action statement for TS 3.7.7 is revised to add provisions for maintenance and surveillance on VA plenums. The revised action statement reads:

"With one non-accessible area exhaust filter plenum inoperable, restore the inoperable plenum to OPERABLE status within 7 days or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours. During testing of any inoperable plenum, it is acceptable to place one of the two OPERABLE plenums in standby."

Finally, a paragraph is added to the bases section of TS to describe and explain the basis for the design system lineup and the revised action statement. The bases paragraph reads:

"The Non-Accessible Area Exhaust Filter Plenum Ventilation System is designed such that two plenums are on line and one plenum is in standby. A plenum is in standby if its inlet damper is operable but closed, and all remaining components are operable. This alignment ensures proper air flow and prevents fan stall and possible fan damage. The action statement provisions for standby plenums are necessary to accommodate required post maintenance and surveillance testing activities. These provisions allow an operable plenum to be placed in standby while performing testing on an inoperable plenum. The standby plenum will still be capable of being realigned and filtering ECCS cubicle air in the event of a LOCA."

The affected TS pages indicating the proposed changes are provided in Attachment B.

F. BASES FOR THE REVISED REQUIREMENT

TS 3.7.7 is revised to reflect the design lineup for the VA system, and to provide action statement provisions to accommodate required maintenance and surveillance activities.

The VA system consists of three parallel plenums. Each of these plenums consists of an inlet damper, three parallel filter banks with a pre-filter, an upstream High Efficiency Particulate Air (HEPA) filter, a charcoal adsorber, a downstream HEPA filter, and two 100% capacity booster fans per plenum (6 fans total) with discharge dampers on the outlet of each booster fan. The normal exhaust for the Non-Accessible Area Exhaust Filter Plenum Ventilation System is connected to the VA system between the upstream HEPA filter and the charcoal adsorber. This connection is referred to as the charcoal adsorber bypass line. These plenums are connected to the ECCS equipment cubicles and other non-accessible areas for both Units 1 and 2.

During normal operation, the air from the ECCS equipment cubicles is drawn by the normal auxiliary building exhaust system through

the VA inlet damper, the pre-filter, the upstream HEPA filter then out the charcoal adsorber bypass line upstream of the charcoal adsorber and the downstream HEPA filter into the auxiliary building exhaust plenum. The charcoal booster fans do not run under these conditions.

The normal, design lineup consists of two of the three filter plenums in service. The plenum that is in standby has its inlet damper closed to minimize unnecessary filter and charcoal degradation during normal operation and to prevent exceeding VA system flow design limits, and possible stall of the charcoal booster fans should three charcoal booster fans start on an accident.

Following a LOCA, the charcoal adsorber bypass dampers close automatically and the charcoal booster fans are started. The charcoal booster fans will start automatically on the Safety Injection (SI) signal if the inlet damper is open. If the plenum is in standby, the fans will be started manually as directed by the emergency procedures.

The design basis accident for the VA system is the LOCA with Loss Of Offsite Power (LOOP). On a LOOP, it is assumed that one diesel starts and re-energizes its Emergency Safeguards Features (ESF) bus. Re-energization of the bus is required to take place within 10 seconds and the VA charcoal booster fans for the in service plenum start immediately. The charcoal booster fans in each VA plenum are each 100% capable, and are powered from different ESF buses on the same unit for the A and B plenums, and from different units for the C plenum. For example, Unit 1, plenum A fans are powered from ESF buses 141 and 142. Each of these buses has its own diesel. Thus, on a LOOP, there will always be at least one VA plenum initially running. Also, the emergency procedures direct the realignment of the standby plenum. This direction is contained in Byron and Braidwood Emergency Procedure (BEP/BwEP)-0, "Reactor Trip or Safety Injection," and is performed prior to conducting event diagnostic steps. Immediate realignment of the standby plenum is not necessary since filtration of the air from the ECCS cubicles is not critical until the suction of the ECCS pumps switches from the Refueling Water Storage Tank (RWST) to the containment recirculation sump. This is postulated to occur, at the earliest, 11 minutes after event initiation. Observations conducted on licensed operators undergoing simulator requalification training have verified that the emergency procedures realign the standby VA plenum well within the time constraints mentioned above.

Under certain surveillance or corrective maintenance conditions, it is sometimes necessary to have less than two operable plenums aligned for normal operation. For example, a corrective maintenance item may require a flow test on a plenum prior to

declaring it operable. This plenum must be aligned to accomplish this test. However, the system is not designed to have all three plenums in operation simultaneously. To prevent this, it is necessary to place one of the other operable plenums in standby. The action statement for TS 3.7.7 is revised to accommodate this condition, while at the same time limiting its duration.

A review of the Byron and Braidwood Probabilistic Risk Assessment (PRA) model was conducted to assess the effect of these proposed changes on Core Damage Frequency (CDF) and Uncontrolled Release Frequency (URF). This review showed that the VA system is not modelled in either the Byron or Braidwood PRA. This is because the operation of the equipment necessary to prevent core damage is not dependant on the operation of the VA system. In addition, the URF model does not take credit for the VA system.

G. IMPACT OF THE PROPOSED CHANGE

On the postulated LOCA with LOOP, the operating plenum will either realign immediately or following the re-energization of its ESF bus, which will occur within 10 seconds. Thus, there will always be at least one VA plenum operating immediately during an accident. The emergency procedures will direct the realignment of the standby plenum. Filtration of the air from the ECCS equipment cubicles becomes critical when the ECCS pumps begin pumping accident water from the containment recirculation sump. Prior to this, the water flowing in these pumps is RWST water. This swap over from the RWST is expected to occur, at the earliest, 11 minutes following accident initiation, leaving time to realign the standby VA plenum. Thus, since the standby plenum will be realigned before filtration of the ECCS equipment cubicle air is required, the Updated Final Safety Analysis Report (UFSAR) assumptions, and offsite dose calculation assumptions remain valid. The realignment process is straightforward, procedurally directed, and readily accomplished entirely from the control room. Observations conducted on licensed operators undergoing simulator training verified that the VA system is realigned well before the swap-over to the containment recirculation sump under these conditions.

The action statement provisions for standby plenums are necessary to accommodate required maintenance and surveillance activities. These provisions allow an operable plenum to be placed in standby while performing testing on an inoperable plenum. The standby plenum will still be capable of being realigned and filtering ECCS cubicle air in the event of a LOCA prior to the need for this filtration. A review of the Byron and Braidwood PRA shows that these proposed changes will have no effect on either CDF or URF.

The proposed change will not require any new equipment to be installed nor will any existing equipment be modified. No system

interfaces will be changed and no new operating modes will be created. Design basis requirements will continue to be met. Thus, these proposed changes will have no significant negative impact on any system or operating mode.

H. SCHEDULE REQUIREMENTS

Byron and Braidwood Stations request that these proposed changes be approved in a timely manner.