



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION  
RELATED TO AMENDMENT NO. 105 TO FACILITY OPERATING LICENSE NO. NPF-37,  
AMENDMENT NO. 105 TO FACILITY OPERATING LICENSE NO. NPF-66,  
AMENDMENT NO. 97 TO FACILITY OPERATING LICENSE NO. NPF-72,  
AND AMENDMENT NO. 97 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 August 23, 1996, the Commonwealth Edison Company (ComEd, the licensee) proposed changes to the Technical Specifications (TSs) for Byron Station, Units 1 and 2, and Braidwood Station, Units 1 and 2. The proposed changes to TS 3/4.7.7, "Non-Accessible Area Exhaust Filter Plenum Ventilation System," provide clarification of acceptable system alignments which satisfy the design bases and provide action requirements to accommodate maintenance and surveillance activities.

Currently, TS 3/4.7.7 does not reflect the acceptable system design alignments for the Non-Accessible Area Exhaust Filter Plenum Ventilation System (VAS). The current TS requires three plenums to be operable. The VAS is designed to operate with two of three operable charcoal filter plenums aligned for service, and the third operable plenum in standby. In addition, during maintenance or testing of an inoperable plenum, it is necessary to place one of the other operable plenums in standby. The standby plenum can be realigned for service to filter any radioactive materials from the air of emergency core cooling system (ECCS) equipment rooms in the event of a postulated loss-of-coolant accident (LOCA).

2.0 BACKGROUND

Operability of the VAS ensures that any airborne radioactive material leaking from ECCS (following a LOCA) is filtered prior to being released to the environment through the plant stack. The VAS consists of three parallel filter plenums (50 percent capacity each). Each plenum consists of an inlet damper, three parallel charcoal filter banks (consisting of a pre-filter, an upstream high efficiency particulate air (HEPA) filter, a charcoal adsorber and a downstream HEPA filter), two parallel booster fans (six fans total) and discharge dampers on the outlet of

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each booster fan. The normal exhaust for the VAS is connected via a charcoal adsorber bypass line between the upstream HEPA filter and the charcoal adsorber. The plenums are connected to ECCS equipment rooms for both units. During normal operation, the charcoal booster fans are not running.

Following a LOCA, the charcoal adsorber bypass dampers close automatically and the charcoal booster fans are started. The booster fans will start automatically on a safety injection (SI) signal when the inlet damper is open. When the plenum is in standby, the booster fans will be started manually as required by emergency procedures. During a loss-of-offsite-power (LOOP), at least one VAS plenum will always be in service initially.

Two plenums are required to achieve minimum design-basis air flow for non-accessible equipment areas. The flow is based on maintaining radiation doses that are as low as reasonably achievable (ALARA) and on maintaining acceptable temperatures in the non-accessible areas. Therefore, the design function of the VAS is to ensure that the ECCS cubicles are maintained at a negative pressure and any airborne post-LOCA leakage is filtered prior to release.

### 3.0 EVALUATION

The licensee proposed revisions to TS 3/4.7.7 to change (1) the Limiting Condition for Operation (LCO) to state, "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," and (2) the action statement to add the statement, "During testing of any inoperable plenum, it is acceptable to place one of the two OPERABLE plenums in standby." Accordingly, a paragraph is added to the bases to support the TS revisions.

Under certain surveillance or corrective maintenance conditions, it is sometimes necessary to have less than two operable plenums aligned for normal operation. For example, corrective maintenance may require an air flow test on a plenum prior to declaring it operable. This plenum must be aligned to accomplish the test. However, the VAS 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. A plenum is in standby when its inlet damper is operable, but closed and all remaining components are operable. This alignment (one plenum in test and one plenum in standby) prevents stalling of charcoal booster fans and possible fan damage. Since the resulting alignment does not meet the requirements of the revised LCO, it is appropriate to limit the time that this condition can exist. The proposed action statement in TS 3/4.7.7 accommodates this condition, while at the same time limiting its duration.

Following an accident, the VAS is required to provide ECCS equipment room filtration after the suction of the ECCS pumps is switched from the refueling water storage tank to the containment recirculation sump. The switch can occur in approximately 11 minutes following a LOCA. On receipt of the SI signal during a LOCA, the plenums aligned for operation will realign immediately or, with LOOP, following the re-energization of its engineered safety

feature (ESF) bus, which will occur within 10 seconds. Thus, there will always be at least one plenum (assuming a single failure) in operation automatically following a LOCA.

Plant emergency procedures provide direction for realigning the standby plenum before the ECCS pump suction swap-over. Observations of licensed operators undergoing simulator requalification training have verified that the VAS is realigned well before the ECCS swap-over to the containment recirculation sump. Since the standby plenum will be realigned before filtration of the ECCS equipment room air is required, the Updated Final Safety Analysis Report (UFSAR) assumptions and offsite dose calculation assumptions remain valid. Therefore, the proposed changes will not result in an increase in the consequences of the accident previously evaluated.

Therefore, based on the information provided by the licensee, the staff concludes that the proposed changes to TS 3/4.7.7 are acceptable.

#### 4.0 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.

#### 5.0 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. The NRC staff has determined that the amendments involve no significant increase in the amounts, and no significant change in the types, of any effluents 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 (62 FR 11488). 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.

#### 6.0 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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