ATTACHMENT A

PROPOSED CHANGES TO APPENDIX A

TECHNICAL SPECIFICATION OF FACILITY

OPERATING LICENSES NPF-37, AND NPF-66, NPF-72 and NPF-75

	BYRON STATION	BRAIDWOOD STATION
Revised Pages:	3/4 6-5	3/4 6-5

4.6.1.3 Each containment air lock shall be demonstrated OPERABLE:

a. Within 72 hours following each closing, except when the air lock is being used for multiple entries, then at least once per 72 hours, by: ~~verifying seal leakage is less than 0.01 L_a when the volume between the door seals is pressurized to greater than or equal to 10 psig, for at least 15 minutes;~~

b. By conducting overall air lock leakage tests at not less than P_a, 44.4 psig, and verifying the overall air lock leakage rate is within its limit:

1) At least once per 6 months,* and

2) Prior to establishing CONTAINMENT INTEGRITY when maintenance has been performed on the air lock that could affect the air lock sealing capability.**

c. At least once per 6 months by verifying that only one door in each air lock can be opened at a time.

1) Verifying that the seal leakage is less than 0.0024La (1.11 SCFH) when the volume between the door seals is pressurized to greater than or equal to 3 psig by means of a permanently installed continuous pressurization and leakage monitoring system, or

2) Verifying that the seal leakage is less than 0.01La (4.63 SCFH) as determined by precision flow measurements when measured for at least 30 seconds with the volume between the seals at a constant pressure of greater than or equal to 10 psig;

*The provisions of Specification 4.0.2 are not applicable.

**This represents an exemption to Appendix J of 10 CFR Part 50, Paragraph III D.2(b)(ii).

SURVEILLANCE REQUIREMENTS

4.6.1.3 Each containment air lock shall be demonstrated OPERABLE:

a. Within 72 hours following each closing, except when the air lock is being used for multiple entries, then at least once per 72 hours, by: ~~verifying seal leakage is less than 0.01 L_a when the volume between the door seals is pressurized to greater than or equal to 10 psig, for at least 15 minutes;~~

b. By conducting overall air lock leakage tests at not less than P_a, 44.4 psig, and verifying the overall air lock leakage rate is within its limit:

1) At least once per 6 months,* and

2) Prior to establishing CONTAINMENT INTEGRITY when maintenance has been performed on the air lock that could affect the air lock sealing capability.**

c. At least once per 6 months by verifying that only one door in each air lock can be opened at a time.

1) Verifying that the seal leakage is less than 0.0024L_a (1.11 SCFH) when the volume between the door seals is pressurized to greater than or equal to 3 psig by means of a permanently installed continuous pressurization and leakage monitoring system, or

2) Verifying that the seal leakage is less than 0.01L_a (4.63 SCFH) as determined by precision flow measurements when measured for at least 30 seconds with the volume between the seals at a constant pressure of greater than or equal to 10 psig;

*The provisions of Specification 4.0.2 are not applicable.

**This represents an exemption to Appendix J of 10 CFR Part 50, Paragraph III D.2(b)(ii).

ATTACHMENT B

Description and Summary of Proposed Changes

The proposed changes involve Technical Specification 4.6.1.3a, Containment Air Locks, that currently requires the containment air lock be demonstrated operable by the periodic pressurization of the volume between the door seals to 10 psig and verification that seal leakage is within limits. Byron Station has installed a modification on Unit 1 which would permit reduced pressure (3 psig) testing of the air lock door seals using a continuous pressurization and leakage monitoring system. The modification involved installing two separate instrument air lines, one each for both the inner and outer air lock door gasket interspace. The tubing is connected to the existing 1/4" fittings [illegible] used to perform the type B testing. Installation of the [illegible] for the inner door required replacing the blind flange on a [illegible]on through the air lock door outer wall with a flange with [illegible] a 1/2" pipe welded to it. Each of the lines provides a [illegible] instrument air supply of greater than or equal to 3 psig [illegible] door gasket interspace. The leakage rate of each air [illegible] is monitored by a common flow instrument. If excessive [illegible] is detected the condition will alarm in the control room. A common annunciator is also located on the main control board for high flow and pressure alarms. These alarms will provide indication of [illegible] door seal failure before exceeding the Technical [illegible]ation limit on allowable leakage.

The proposed change, to allow reduced pressure testing and continuous monitoring, is in conformance with 10CFR50 Appendix J, Paragraphs III.B.1 (c)and III.D.2.(b)(i-iv). The installation of the automatic leakage detection system is expected to significantly reduce the radiation dosage to the personnel monitoring the leakage of the seals. The current manual testing of the door gaskets is manhour intensive and directly proportional to the frequency of containment entry. The continuous monitoring, with main control room alarms, would alleviate the 10CFR50 Appendix J requirements for manual air lock testing within 3 days of containment entries during periods when containment integrity is required by the plant's Technical Specifications. This would reduce personnel exposure as well as provide for more effective use of Station manpower.

At this time, only Byron Unit 1 has implemented this modification. The proposed Technical Specification change allows for either continuous monitoring or periodic local leak rate testing to satisfy the requirements as outlined in 10CFR50 Appendix J. Therefore, this Technical Specification revision would allow the modification to be completed on Byron Unit 2 and Braidwood Units 1 and 2 without further Technical Specification changes.

Byron's containment leakage rate testing system is similar to a system currently installed and used at Zion Station. Byron used the same method as Zion Station to extrapolate seal testing at reduced pressure to 10 psig to determine the allowed leakage limit. This method was obtained from a Technical Evaluation Report - Containment Leakage Rate Testing at Zion Station, dated June 8, 1981. The Technical Evaluation Report was prepared for the NRC by the Franklin Research Center. The Franklin Research Center reviewed the method for extrapolating the results of air lock testing at reduced pressures to larger pressures and determined that this extrapolation provides a conservative correlation between leakage rates. To extrapolate leakage flow rates in different pressure conditions, the following formula is used:

$$\frac{L_1}{L_2} = \frac{P_1^2 - 1}{P_2^2 - 1}$$

Where

L_1 = Leakage rate at pressure P_1 (SCFH)
L_2 = Leakage rate at pressure P_2 (SCFH)
P_1 = Pressure in areas where leakage rate is L_1 (ATM)
P_2 = Pressure in areas where leakage rate is L_2 (ATM)

Specifications 4.6.1.3a currently permits air lock testing at 10 psig with an allowed leakage rate of 0.01La. The continuous pressure testing will be performed at greater than or equal to 3 psig. Therefore the equation is reduced as follows:

$$\frac{L_{10}}{L_3} = \frac{\left(\frac{24.7}{14.7}\right)^2 - 1}{\left(\frac{17.7}{14.7}\right)^2 - 1} = 4.05$$

L_{10} = 0.01 La where La = 463 SCFH as determined from the overall integrated containment leakage rate test. Therefore:

L_3 = 1.14 SCFH

The valve of L_3 = 1.11 SCFH was conservatively selected for the Technical Specification valve.

This proposed change will not affect the overall air lock leakage test performed at the calculated peak containment internal pressure, Pa, every six months. This leakage testing will continue to be performed as required by Specification 4.6.1.3b.

The second change proposed for Technical Specification 4.6.1.3a revises the wording to be more consistent with NUREG-452 Revision 5 "Standard Technical Specifications for Westinghouse Pressurized Water Reactors". Current Technical Specification wording requires the volume between the door seals be pressurized to greater than or equal to 10 psig for at least 15 minutes before verifying seal leakage is less than 0.01 La. However, the volume between the door seals is small and requires only a short time period to stabilize at a constant pressure rather than 15 minutes. Therefore, the proposed wording change requires the volume between the seals to be pressurized to a constant pressure of greater than or equal to 10 psig and then to measure leakage for a period of 30 seconds.

ATTACHMENT C

Evaluation of Significant Hazards Considerations

Commonwealth Edison has evaluated this proposed amendment and determined that it involves no significant hazards considerations. According to 10CFR 50.92(c), a proposed amendment to an operating license involves no significant hazards considerations if operation of the facility in accordance with the proposed amendment would not:

(1) Involve a significant increase in the probability or consequences of an accident previously evaluated; or

(2) Create the possibility of a new or different kind of accident from any accident previously evaluated; or

(3) Involve a significant reduction in a margin of safety.

The proposed amendment involves two revisions. The first change revises wording in Specification 4.6.1.3a to be more consistent with NUREG-0452 draft Revision 5 "Standard Technical Specifications for Westinghouse Pressurized Water Reactors". The second change reflects the installation of an automatic leakage rate detection system to provide continuous pressure testing of the containment air lock door seal gaskets. This automatic leak rate detection system will monitor air leakage and verify containment integrity on a continuous basis with local indication and alarm in the control room.

Containment air lock operability is required to maintain containment integrity and containment leak rate within required limits. The limits ensure that the total containment leakage volume will not exceed the value assumed in the accident analysis at the accident pressure. The proposed Technical Specification change will permit manual testing using the existing Technical Specification or continuous testing through the installation of an automatic leak rate detection system.

Testing using either of these methods is consistent with 10CFR50 Appendix J. These testing methods are also in accordance with the descriptions provided in the FSAR. Both methods can adequately determine containment air lock operability to ensure containment integrity is maintained.

Revising the wording for the manual testing to be more consistent with draft Revision 5 of the Standard Technical Specifications simply clarifies the method of leakage detection. Instead of pressurizing the volume between the door seals for 15 minutes, the proposed amendment requires pressurization until a constant pressure is achieved and then leakage is measured for 30 seconds.

Therefore, the proposed change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

The proposed change provides an alternate method for verifying containment air lock operability. Installation of the continuous leakage monitoring system utilizes the existing test fittings at the door gasket interspaces for performing the type B leakage testing. Therefore, installation of the alternate leakage monitoring system does not affect the sealing capability of the air lock door gaskets. It merely provides an alternate method to monitor air lock operability to verify containment integrity. The change to the existing Technical Specification wording is a clarification in the method of testing and does not alter the ability of the manual method to detect leaks. Therefore, the proposed change does not create the possibility of a new or different kind of accident from any accident previously evaluated.

The proposed amendment will allow air lock operability to be verified within 72 hours following air lock opening during periods when containment integrity is required, as is currently allowed by the Technical Specifications, or by use of the continuous leakage monitoring system. The continuous leakage monitoring system is not intended to be a substitute for the 6 month test of the entire air lock at the calculated peak containment pressure related to the design basis accident pressure (Pa). The required overall air lock periodic leakage tests at not less than Pa (44.4 psig) will still be conducted at least once every 6 months as required by the Technical Specifications. The proposed amendment can enhance the verification of containment integrity through continuous monitoring for air leakage by installation of the automatic leak rate detection system. This method allows detection of air lock leakage at all times rather than the testing that is currently performed within 72 hours following closing of the air lock. Therefore, the proposed amendment could increase the margin of safety by detecting air lock leakage in a more timely manner to facilitate maintaining containment integrity.

Changing the wording to be consistent with draft Revision 5 of the Standard Technical Specification does not affect the margin of safety. The volume between the door seals is small and only requires a short time period to stabilize at a constant pressure. The manual testing will continue to be performed at a pressure of greater than or equal to 10 psig. Therefore, the proposed changes do not involve a significant reduction in the margin of safety.

Based upon the preceding discussion, Commonwealth Edison has determined that these changes involve no significant hazards considerations.