ATTACHMENT B

PROPOSED CHANGES
TO FACILITY OPERATING LICENSES
NPF-37, NPF-66, NPF-72, AND NPF-77

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PROPOSED CHANGES
TO APPENDIX A, TECHNICAL SPECIFICATIONS,
FOR FACILITY OPERATING LICENSES
NPF-37, NPF-66, NPF-72, AND NPF-77

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CHANGES TO FACILITY OPERATING LICENSE NPF-37

(16) Steam Generator Sleeving Corrosion Testing

The licensee shall conduct additional corrosion testing to establish the design life for the ~~kinetically or~~ laser welded sleeved tubes in the presence of a crevice. The corrosion testing shall demonstrate the corrosion resistance for the ~~kinetically or~~ laser welded joints in tubes that bound the material parameters in the steam generators. The corrosion testing results shall be reviewed and accepted by the Nuclear Regulatory Commission prior to the Beginning-of-Cycle 9. If conformance with the requirements of the plant Technical Specifications for tube structural integrity is not confirmed, the tubes containing the sleeves in question shall be removed from service.

D. The facility requires exemptions from certain requirements of Appendices A, E and J to 10 CFR Part 50. These include (a) an exemption from the requirements of Paragraph III.D.2(b)(ii) of Appendix J, the testing of containment air locks at times when containment integrity is not required (Section 6.2.6 of the SER), (b) an exemption from GDC-2 of Appendix A, the requirement that structures, systems and components important to safety be designed to withstand the effects of natural phenomena such as earthquakes (Section 3.10 of SSER #5), (c) an exemption from GDC-13 and GDC-17 of Appendix A, the requirement that instrumentation be provided to monitor variables and systems over their anticipated ranges, and the requirement that provisions be included to minimize the probability of losing electric power (Section 9.5.4.1 of SSER #5), (d) an exemption from GDC-19 of Appendix A, the requirement that the control room have adequate radiation protection to permit access and occupancy under accident conditions (Section 6.5.1 of SSER #6), and (e) an exemption from the requirement of Section IV.F of Appendix E that a full participation emergency planning exercise be conducted within one year before issuance of the first operating license for full power and prior to operation above 5% of rated power (Section 13.3 of SSER #6). These exemptions are authorized by law and will not endanger life or property or the

CHANGES TO FACILITY OPERATING LICENSE NPF-66

(3) Initial Test Program

Any changes to the Initial Startup Test Program described in Chapter 14 of the FSAR made in accordance with the provisions of 10 CFR 50.59 shall be reported in accordance with 50.59(b) within one month of such change.

(4) Regulatory Guide 1.97, Revision 2 Compliance

The licensee shall submit by March 1, 1987, a preliminary report describing how the requirements of Regulatory Guide 1.97, Revision 2 have been or will be met. The licensee shall submit by September 1, 1987, the final report and a schedule for implementation (assuming the NRC approves the DCRDR by March 1, 1987).

(5) Steam Generator Sleeving Corrosion Testing

The licensee shall conduct additional corrosion testing to establish the design life for the ~~kinetically or~~ laser welded sleeved tubes in the presence of a crevice. The corrosion testing shall demonstrate the corrosion resistance for the ~~kinetically or~~ laser welded joints in tubes that bound the material parameters in the steam generators. The corrosion testing results shall be reviewed and accepted by the Nuclear Regulatory Commission prior to the Beginning-of-Cycle 8. If conformance with the requirements of the plant Technical Specifications for tube structural integrity is not confirmed, the tubes containing the sleeves in question shall be removed from service.

CHANGES TO FACILITY OPERATING LICENSE NPF-72

(4) Initial Startup Test Program

Any changes to the Initial Test Program described in Section 14 of the FSAR made in accordance with the provisions of 10 CFR 50.59 shall be reported in accordance with 50.59(b) within one month of such change.

(5) Regulatory Guide 1.97, Revision 2 Compliance

The licensee shall submit the final report and a schedule for implementation within six months of NRC approval of the DCRDR.

(6) Steam Generator Sleeving Corrosion Testing

The licensee shall conduct additional corrosion testing to establish the design life for the ~~kinetically or~~ laser welded sleeved tubes in the presence of a crevice. The corrosion testing shall demonstrate the corrosion resistance for the ~~kinetically or~~ laser welded joints in tubes that bound the material parameters in the steam generators. The corrosion testing results shall be reviewed and accepted by the Nuclear Regulatory Commission prior to the Beginning-of-Cycle 7. If conformance with the requirements of the plant Technical Specifications for tube structural integrity is not confirmed, the tubes containing the sleeves in question shall be removed from service.

D. The facility requires an exemption from the requirements of Appendix J to 10 CFR Part 50, Paragraph III.D.2(b)(ii), the testing of containment air locks at times when containment integrity is not required (SER Section 6.2.6). This exemption is authorized by law, will not present an undue risk to the public health and safety, and is consistent with the common defense and security. This exemption is hereby granted. The special circumstances regarding this exemption are identified in the referenced section of the safety evaluation report and the supplements thereto. This exemption is granted pursuant to 10 CFR 50.12. With this exemption, the facility will operate, to the extent authorized herein, in conformity with the application, as amended, the provisions of the Act, and the rules and regulations of the Commission.

An exemption was previously granted pursuant to 10 CFR 70.24. The exemption was granted with NRC materials license No. SNM-1938, issued October 8, 1985, and relieved the licensee from the requirement of having a criticality alarm system. Therefore, the licensee is exempted from the criticality alarm system provision of 10 CFR 70.24 so far as this section applies to the storage of fuel assemblies held under this license.

E. The licensee shall implement and maintain in effect all provisions of the approved fire protection program as described in the Final Safety Analysis Report, as supplemented and amended, and as approved in the SER dated November 1983 and its supplements, subject to the following provision:

The licensee may make changes to the approved fire protection program without prior approval of the Commission, only if those changes would not adversely affect the ability to achieve and maintain safe shutdown in the event of a fire.

CHANGES TO FACILITY OPERATING LICENSE NPF-77

(4) Initial Startup Test Program

Any changes to the Initial Test Program described in Section 14 of the FSAR made in accordance with the provisions of 10 CFR 50.59 shall be reported in accordance with 50.59(b) within one month of such change.

(5) Steam Generator Sleeving Corrosion Testing

The licensee shall conduct additional corrosion testing to establish the design life for the ~~kinetically or~~ laser welded sleeved tubes in the presence of a crevice. The corrosion testing shall demonstrate the corrosion resistance for the ~~kinetically or~~ laser welded joints in tubes that bound the material parameters in the steam generators. The corrosion testing results shall be reviewed and accepted by the Nuclear Regulatory Commission prior to the Beginning-of-Cycle 7. If conformance with the requirements of the plant Technical Specifications for tube structural integrity is not confirmed, the tubes containing the sleeves in question shall be removed from service.

D. The facility requires an exemption from the requirements of Appendix J to 10 CFR Part 50, Paragraph III.D.2(b)(ii), the testing of containment air locks at times when containment integrity is not required (SER Section 6.2.6). This exemption is authorized by law, will not present an undue risk to the public health and safety, and is consistent with the common defense and security. The staff's environmental assessment was published on May 19, 1988 (53 FR 17995). This exemption was granted in the low power license and is continued for the full power license. The special circumstances regarding this exemption are identified in the referenced section of the Safety Evaluation Report and the supplements thereto. This exemption is granted pursuant to 10 CFR 50.12. With this exemption, the facility will operate, to the extent authorized herein, in conformity with the application, as amended, the provisions of the Act, and the rules and regulations of the Commission.

An exemption was previously granted pursuant to 10 CFR 70.24. The exemption was granted with NRC materials license No. SNM-1938, issued October 8, 1985, and relieved the licensee from the requirement of having a criticality alarm system. Therefore, the licensee is exempted from the criticality alarm system provision of 10 CFR 70.24 so far as this section applies to the storage of fuel assemblies held under this license.

CHANGES TO BYRON TECHNICAL SPECIFICATIONS

SURVEILLANCE REQUIREMENTS (Continued)

1) All tubes that previously had detectable tube wall penetrations greater than 20% that have not been plugged or sleeved in the affected area, and all tubes that previously had detectable sleeve wall penetrations that have not been plugged,

2) Tubes in those areas where experience has indicated potential problems,

~~3) At least 3% of the total number of sleeved tubes in all four steam generators or all of the sleeved tubes in the generator chosen for the inspection program, whichever is less. These inspections will include both the tube and the sleeve, and~~

3 ~~4)~~ A tube inspection (pursuant to Specification 4.4.5.4a.8) shall be performed on each selected tube. If any selected tube does not permit the passage of the eddy current probe for a tube inspection, this shall be recorded and an adjacent tube shall be selected and subjected to a tube inspection, and

4 ~~5)~~ For Unit 1, tubes left in service as a result of application of the tube support plate plugging criteria shall be inspected by bobbin coil probe during all future outages.

c. The tubes selected as the second and third samples (if required by Table 4.4-2) during each inservice inspection may be subjected to a partial tube inspection provided:

1) The tubes selected for these samples include the tubes from those areas of the tube sheet array where tubes with imperfections were previously found, and

2) The inspections include those portions of the tubes where imperfections were previously found.

d. For Unit 1, Cycle 7 implementation of the tube support plate interim plugging criteria limit requires a 100% bobbin coil probe inspection for all hot leg tube support plate intersections and all cold leg intersections down to the lowest cold leg tube support plate with outer diameter stress corrosion cracking (ODSCC) indications. The determination of the tube support plate intersections having ODSCC indications shall be based on the performance of at least a 20% random sampling of tubes inspected over their full length.

e. Insert D ~~A random sample of at least 20 percent of the total number of sleeves shall be inspected for axial and circumferential indications at the end of each cycle. In the event that an imperfection of 40 percent or greater depth is detected, an additional 20 percent of the unsampled sleeves shall be inspected, and if an imperfection of 40 percent or greater depth is detected in the second sample, all remaining sleeves shall be inspected. These inservice inspections will include the entire sleeve and the tube at the heat treated area. The inservice inspection for the sleeves is required until the corrosion resistance for the laser welded or kinetically welded joints in tubes that bound the material parameters of the tubes installed in the steam generators has been demonstrated acceptable. If conformance with the acceptable criteria~~

INSERT D

A random sample of at least 20% of the total number of laser welded sleeves and at least 20% of the total number of TIG welded sleeves installed shall be inspected for axial and circumferential indications at the end of each cycle. In the event that an imperfection exceeding the repair limit is detected, an additional 20% of the unsampled sleeves shall be inspected, and if an imperfection exceeding the repair limit is detected in the second sample, all remaining sleeves shall be inspected. These inservice inspections will include the entire sleeve, the tube at the heat treated area, and the tube to sleeve joints. The inservice inspection for the sleeves is required on all types of sleeves installed in the Byron and Braidwood Steam Generators to demonstrate acceptable structural integrity

SURVEILLANCE REQUIREMENTS (Continued)

~~of Specification 4.4.5.4 for tube structural integrity is not confirmed, the tubes containing the sleeves in question shall be removed from service.~~

The results of each sample inspection shall be classified into one of the following three categories:

Category	Inspection Results
C-1	Less than 5% of the total tubes inspected are degraded tubes and none of the inspected tubes are defective.
C-2	One or more tubes, but not more than 1% of the total tubes inspected are defective, or between 5% and 10% of the total tubes inspected are degraded tubes.
C-3	More than 10% of the total tubes inspected are degraded tubes or more than 1% of the inspected tubes are defective.

Note: In all inspections, previously degraded tubes or sleeves must exhibit significant (greater than 10% of wall thickness) further wall penetrations to be included in the above percentage calculations.

4.4.5.3 Inspection Frequencies - The above required inservice inspections of steam generator tubes shall be performed at the following frequencies:

a. The first inservice inspection shall be performed after 6 Effective Full Power Months but within 24 calendar months of initial criticality. Subsequent inservice inspections shall be performed at intervals of not less than 12 nor more than 24 calendar months after the previous inspection. If two consecutive inspections, not including the preservice inspection, result in all inspection results falling into the C-1 category or if two consecutive inspections demonstrate that previously observed degradation has not continued and no additional degradation has occurred, the inspection interval may be extended to a maximum of once per 40 months;

b. If the results of the inservice inspection of a steam generator conducted in accordance with Table 4.4-2 at 40-month intervals fall in Category C-3, the inspection frequency shall be increased to at least once per 20 months. The increase in inspection frequency shall apply until the subsequent inspections satisfy the criteria of Specification 4.4.5.3a.; the interval may then be extended to a maximum of once per 40 months; and

c. Additional, unscheduled inservice inspections shall be performed on each steam generator in accordance with the first sample inspection specified in Table 4.4-2 during the shutdown subsequent to any of the following conditions:

   1) Reactor-to-secondary tube leaks (not including leaks originating from tube-to-tube sheet welds) in excess of the limits of Specification 3.4.6.2c., or

SURVEILLANCE REQUIREMENTS (Continued)

2) A seismic occurrence greater than the Operating Basis Earthquake, or

3) A Condition IV loss-of-coolant accident requiring actuation of the Engineered Safety Features, or

4) A Condition IV main steam line or feedwater line break.

4.4.5.4 Acceptance Criteria

a. As used in this specification:

1) Imperfection means an exception to the dimensions, finish or contour of a tube or sleeve from that required by fabrication drawings or specifications. Eddy-current testing indications below 20% of the nominal tube or sleeve wall thickness, if detectable, may be considered as imperfections;

2) Degradation means a service-induced cracking, wastage, wear or general corrosion occurring on either inside or outside of a tube or sleeve;

3) Degraded Tube means a tube or sleeve containing unrepaired imperfections greater than or equal to 20% of the nominal tube or sleeve wall thickness caused by degradation;

4) % Degradation means the percentage of the tube or sleeve wall thickness affected or removed by degradation;

5) Defect means an imperfection of such severity that it exceeds the plugging or repair limit. A tube or sleeve containing an unrepaired defect is defective;

6) Plugging or Repair Limit means the imperfection depth at or beyond which the tube shall be removed from service by plugging or repaired by sleeving in the affected area. ~~The plugging or repair limit imperfection depth is equal to 40% of the nominal wall thickness;~~ INSERT A

For Unit 1 Cycle 7, this definition does not apply to tube support plate intersections for which the voltage-based plugging criteria are being applied. Refer to 4.4.5.4.a.11 for the repair limit applicable to these intersections;

7) Unserviceable describes the condition of a tube if it leaks or contains a defect large enough to affect its structural integrity in the event of an Operating Basis Earthquake, a loss-of-coolant accident, or a steam line or feedwater line break as specified in 4.4.5.3c., above;

8) Tube Inspection means an inspection of the steam generator tube from the point of entry (hot leg side) completely around the U-bend to the top support of the cold leg. For a tube that has been repaired by sleeving, the tube inspection shall include the sleeved portion of the tube, and

INSERT A

The plugging or repair limit imperfection depth for the tubing and laser welded sleeves is equal to 40% of the nominal wall thickness. The plugging limit imperfection depth for TIG welded sleeves is equal to 32% of the nominal wall thickness;

SURVEILLANCE REQUIREMENTS (Continued)

9) Preservice Inspection means an inspection of the full length of each tube in each steam generator performed by eddy current techniques prior to service to establish a baseline condition of the tubing. This inspection shall be performed prior to initial POWER OPERATION using the equipment and techniques expected to be used during subsequent inservice inspections.

10) Tube Repair refers to a process that reestablishes tube serviceability. Acceptable tube repairs will be performed by the following processes:

a) Laser welded sleeving as described in a Westinghouse Technical Report currently approved by the NRC, subject to the limitations and restrictions as noted by the NRC staff, or

Insert B

b) ~~Kinetic welded sleeving as described in a Babcock & Wilcox Nuclear Technologies Technical Report currently approved by the NRC, subject to the limitations and restrictions as noted by the NRC staff.~~

Tube repair includes the removal of plugs that were previously installed as a corrective or preventative measure. A tube inspection per 4.4.5.4.a.8 is required prior to returning previously plugged tubes to service.

11) For Unit 1 Cycle 7, the Tube Support Plate Interim Plugging Criteria Limit is used for the disposition of a steam generator tube for continued service that is experiencing outer diameter stress corrosion cracking confined within the thickness of the tube support plates. At tube support plate intersections, the repair limit is based on maintaining steam generator tube serviceability as described below:

a) Degradation attributed to outside diameter stress corrosion cracking within the bounds of the tube support plate with bobbin voltage less than or equal to 1.0 volt will be allowed to remain in service.

b) Degradation attributed to outside diameter stress corrosion cracking within the bounds of the tube support plate with bobbin voltage greater than 1.0 volt will be repaired or plugged except as noted in 4.4.5.4.a.11)c) below.

c) Indications of potential degradation attributed to outside diameter stress corrosion cracking within the bounds of the tube support plate with a bobbin voltage greater than 1.0 volt but less than or equal to 2.7 volts may remain in service if a rotating pancake coil inspection does not detect degradation. Indications of outside diameter stress corrosion cracking degradation with bobbin voltage greater than 2.7 volts will be plugged or repaired.

INSERT B

TIG welded sleeving as described in a ABB Combustion Engineering Inc. Technical Report currently approved by the NRC, subject to the limitations and restrictions as noted by the NRC Staff.

3/4.4.5 STEAM GENERATORS

The Surveillance Requirements for inspection of the steam generator tubes ensure that the structural integrity of this portion of the RCS will be maintained. The program for inservice inspection of steam generator tubes is based on a modification of Regulatory Guide 1.83, Revision 1. Inservice inspection of steam generator tubing is essential in order to maintain surveillance of the conditions of the tubes in the event that there is evidence of mechanical damage or progressive degradation due to design, manufacturing errors, or inservice conditions that lead to corrosion. Inservice inspection of steam generator tubing also provides a means of characterizing the nature and cause of any tube degradation so that corrective measures can be taken.

The plant is expected to be operated in a manner such that the secondary coolant will be maintained within those chemistry limits found to result in negligible corrosion of the steam generator tubes. If the secondary coolant chemistry is not maintained within these limits, localized corrosion may likely result in stress corrosion cracking. The extent of cracking during plant operation would be limited by the limitation of steam generator tube leakage between the Reactor Coolant System and the Secondary Coolant System (reactor-to-secondary leakage = 150 gallons per day per steam generator). Cracks having a reactor-to-secondary leakage less than this limit during operation will have an adequate margin of safety to withstand the loads imposed during normal operation and by postulated accidents. Operating plants have demonstrated that reactor-to-secondary leakage of 150 gallons per day per steam generator can readily be detected by radiation monitors of steam generator blowdown, mainsteam lines, or the steam jet air ~~ejectors.~~ ejectors Leakage in excess of this limit will require plant shutdown and an unscheduled inspection, during which the leaking tubes will be located and plugged or repaired by sleeving. The technical bases for sleeving are described in the current ~~Westinghouse or Babcock & Wilcox Nuclear Technologies~~ ABB Combustion Engineering, Inc. Technical Reports.

~~Wastage-type defects are unlikely~~ with proper chemistry treatment of the secondary coolant. However, even if a defect should develop in service, it will be found during scheduled inservice steam generator tube examinations. Plugging or sleeving will be required for all tubes with imperfections exceeding the plugging or repair limit of 40% of the tube nominal wall thickness. Insert C ~~If a sleeved tube is found to contain a through wall penetration in the sleeve of equal to or greater than 40% of the nominal wall thickness, the tube must be plugged.~~ The ~~40%~~ plugging limit for the sleeve is derived from Reg. Guide 1.121 analysis and utilizes a 20% allowance for eddy current uncertainty and additional degradation growth. Inservice inspection of sleeves is required to ensure RCS integrity. Sleeve inspection techniques are described in the current Westinghouse or ~~Babcok & Wilcox Nuclear Technologies~~ ABB Combustion Engineering, Inc. Technical Reports. Steam Generator tube and sleeve inspections have demonstrated the capability to reliably detect degradation ~~that has penetrated 20%~~ of the pressure retaining portions of the tube or sleeve wall thickness. Commonwealth Edison will validate the adequacy of any system that is used for periodic inservice inspection of the sleeves and, as deemed appropriate, will upgrade testing methods as better methods are developed and validated for commercial use.

INSERT C

A laser welded sleeved tube must be plugged if a through wall penetration is detected in the sleeve that is equal to or greater than 40% of the nominal sleeve thickness. TIG welded sleeved tubes must be plugged if a through wall penetration is detected in the sleeve that is equal to or greater than 32% of the nominal sleeve thickness.

CHANGES TO BRAIDWOOD TECHNICAL SPECIFICATIONS

SURVEILLANCE REQUIREMENTS (Continued)

1) All tubes that previously had detectable tube wall penetrations greater than 20% that have not been plugged or sleeved in the affected area, and all tubes that previously had detectable sleeve wall penetrations that have not been plugged,

2) Tubes in those areas where experience has indicated potential problems, and

~~3) At least 3% of the total number of sleeved tubes in all four steam generators or all of the sleeved tubes in the generator chosen for the inspection program, whichever is less. These inspections will include both the tube and the sleeve, and~~

3 ~~4)~~ A tube inspection (pursuant to Specification 4.4.5.4a.8) shall be performed on each selected tube. If any selected tube does not permit the passage of the eddy current probe for a tube inspection, this shall be recorded and an adjacent tube shall be selected and subjected to a tube inspection.

c. The tubes selected as the second and third samples (if required by Table 4.4-2) during each inservice inspection may be subjected to a partial tube inspection provided:

1) The tubes selected for these samples include the tubes from those areas of the tube sheet array where tubes with imperfections were previously found, and

2) The inspections include those portions of the tubes where imperfections were previously found.

d. For Unit 1 Cycle 5, implementation of the tube support plate interim plugging criteria limit requires a 100% bobbin coil probe inspection for all hot leg tube support plate intersections and all cold leg intersections down to the lowest cold leg tube support plate with outer diameter stress corrosion cracking (ODSCC) indications. An inspection using a rotating pancake coil (RPC) probe is required in order to show OPERABILITY of tubes with flaw-like bobbin coil signal amplitudes greater than 1.0 volt but less than or equal to 2.7 volts. For tubes that will be administratively plugged or repaired, no RPC inspection is required. The RPC results are to be evaluated to establish that the principal indications can be characterized as ODSCC.

e. ~~A random sample of at least 20 percent of the total number of sleeves shall be inspected for axial and circumferential indications at the end of each cycle. In the event that an imperfection of 40 percent or greater depth is detected, an additional 20 percent of the unsampled sleeves shall be inspected, and if an imperfection of 40 percent or greater depth is detected in the second sample, all remaining sleeves shall be inspected. These inservice inspections will include the entire sleeve and the tube at the heat treated area. The inservice inspection for the sleeves is required until the corrosion resistance for the laser welded or kinetically welded joints in tubes that bound the material parameters of the tubes installed in the steam generators has been demonstrated~~

INSERT D

INSERT D

A random sample of at least 20% of the total number of laser welded sleeves and at least 20% of the total number of TIG welded sleeves installed shall be inspected for axial and circumferential indications at the end of each cycle. In the event that an imperfection exceeding the repair limit is detected, an additional 20% of the unsampled sleeves shall be inspected, and if an imperfection exceeding the repair limit is detected in the second sample, all remaining sleeves shall be inspected. These inservice inspections will include the entire sleeve, the tube at the heat treated area, and the tube to sleeve joints. The inservice inspection for the sleeves is required on all types of sleeves installed in the Byron and Braidwood Steam Generators to demonstrate acceptable structural integrity

SURVEILLANCE REQUIREMENTS (Continued)

~~acceptable. If conformance with the acceptable criteria of Specification 4.4.5.4 for tube structural integrity is not confirmed, the tubes containing the sleeves in question shall be removed from service.~~

The results of each sample inspection shall be classified into one of the following three categories:

Category	Inspection Results
C-1	Less than 5% of the total tubes inspected are degraded tubes and none of the inspected tubes are defective.
C-2	One or more tubes, but not more than 1% of the total tubes inspected are defective, or between 5% and 10% of the total tubes inspected are degraded tubes.
C-3	More than 10% of the total tubes inspected are degraded tubes or more than 1% of the inspected tubes are defective.

Note: In all inspections, previously degraded tubes or sleeves must exhibit significant (greater than 10% of wall thickness) further wall penetrations to be included in the above percentage calculations.

4.4.5.4 Acceptance Criteria

a. As used in this specification:

1) Imperfection means an exception to the dimensions, finish or contour of a tube or sleeve from that required by fabrication drawings or specifications. Eddy-current testing indications below 20% of the nominal tube or sleeve wall thickness, if detectable, may be considered as imperfections;

2) Degradation means a service-induced cracking, wastage, wear or general corrosion occurring on either inside or outside of a tube or sleeve;

3) Degraded Tube means a tube or sleeve containing unrepaired imperfections greater than or equal to 20% of the nominal tube or sleeve wall thickness caused by degradation;

4) % Degradation means the percentage of the tube or sleeve wall thickness affected or removed by degradation;

5) Defect means an imperfection of such severity that it exceeds the plugging or repair limit. A tube or sleeve containing an unrepaired defect is defective;

6) Plugging or Repair Limit means the imperfection depth ~~at or~~ beyond which the tube shall be removed from service by plugging or repaired by sleeving in the affected area. Insert A ~~The plugging or repair limit imperfection depth is equal to 40% of the nominal wall thickness.~~ For Unit 1 Cycle 5, this definition does not apply to the region of the tube subject to the tube support plate interim plugging criteria limit, i.e., the tube support plate intersections. Specification 4.4.5.4.a.11 describes the repair limit for use within the tube support plate intersection of the tube;

7) Unserviceable describes the condition of a tube if it leaks or contains a defect large enough to affect its structural integrity in the event of an Operating Basis Earthquake, a loss-of-coolant accident, or a steam line or feedwater line break as specified in 4.4.5.3c., above;

8) Tube Inspection means an inspection of the steam generator tube from the point of entry (hot leg side) completely around the U-bend to the top support of the cold leg. For a tube that has been repaired by sleeving, the tube inspection shall include the sleeved portion of the tube, and

INSERT A

The plugging or repair limit imperfection depth for the tubing and laser welded sleeves is equal to 40% of the nominal wall thickness. The plugging limit imperfection depth for TIG welded sleeves is equal to 32% of the nominal wall thickness;

9) Preservice Inspection means an inspection of the full length of each tube in each steam generator performed by eddy current techniques prior to service to establish a baseline condition of the tubing. This inspection shall be performed prior to initial POWER OPERATION using the equipment and techniques expected to be used during subsequent inservice inspections.

10) Tube Repair refers to a process that reestablishes tube serviceability. Acceptable tube repairs will be performed by the following processes:

a) Laser welded sleeving as described in a Westinghouse Technical Report currently approved by the NRC, subject to the limitations and restrictions as noted by the NRC staff, or

Insert B

b) ~~Kinetic welded sleeving as described in a Babcock & Wilcox Nuclear Technologies Technical Report currently aproved by the NRC, subject to the limitations and restrictions as noted by the NRC staff.~~

Tube repair includes the removal of plugs that were previously installed as a corrective or preventative measure. A tube inspection per 4.4.5.4.a.8 is required prior to returning previously plugged tubes to service.

11) Tube Support Plate Interim Plugging Criteria Limit for Unit 1 Cycle 5 is used for the disposition of a steam generator tube for continued service that is experiencing ODSCC confined within the thickness of the tube support plates. For application of the tube support plate interim plugging criteria limit, the tube's disposition for continued service will be based upon standard bobbin coil probe signal amplitude of flaw-like indications. The plant specific guidelines used for all inspections shall be consistent with the eddy current guidelines in Appendix A of WCAP-13854 as appropriate to accommodate the additional information needed to evaluate tube support plate signals with respect to the voltage parameters as specified in Specification 4.4.5.2. Pending incorporation of the voltage verification requirements in ASME standard verifications, an ASME standard calibrated against the laboratory standard will be utilized in Unit 1 steam generator inspections for consistent voltage normalization.

1. A tube can remain in service with a flaw-like bobbin coil signal amplitude of less than or equal to 1.0 volt, regardless of the depth of the tube wall penetration, provided Item 3 below is satisfied.

2. A tube can remain in service with a flaw-like bobbin coil signal amplitude greater than 1.0 volt but less than or equal to 2.7 volts provided an RPC inspection does not detect degradation and provided Item 3 below is satisfied.

INSERT B

TIG welded sleeving as described in a ABB Combustion Engineering Inc. Technical Report currently approved by the NRC, subject to the limitations and restrictions as noted by the NRC Staff.

3/4.4.5 STEAM GENERATORS

The Surveillance Requirements for inspection of the steam generator tubes ensure that the structural integrity of this portion of the RCS will be maintained. The program for inservice inspection of steam generator tubes is based on a modification of Regulatory Guide 1.83, Revision 1. Inservice inspection of steam generator tubing is essential in order to maintain surveillance of the conditions of the tubes in the event that there is evidence of mechanical damage or progressive degradation due to design, manufacturing errors, or inservice conditions that lead to corrosion. Inservice inspection of steam generator tubing also provides a means of characterizing the nature and cause of any tube degradation so that corrective measures can be taken.

The plant is expected to be operated in a manner such that the secondary coolant will be maintained within those chemistry limits found to result in negligible corrosion of the steam generator tubes. If the secondary coolant chemistry is not maintained within these limits, localized corrosion may likely result in stress corrosion cracking. The extent of cracking during plant operation would be limited by the limitation of steam generator tube leakage between the Reactor Coolant System and the Secondary Coolant System (reactor-to-secondary leakage = 150 gallons per day per steam generator). Cracks having a reactor-to-secondary leakage less than this limit during operation will have an adequate margin of safety to withstand the loads imposed during normal operation and by postulated accidents. Operating plants have demonstrated that reactor-to-secondary leakage of 150 gallons per day per steam generator can readily be detected by radiation monitors of steam generator blowdown, mainsteam lines, or the steam jet air ejectors. Leakage in excess of this limit will require plant shutdown and an unscheduled inspection, during which the leaking tubes will be located and plugged or repaired by sleeving. The technical bases for sleeving are described in the current Westinghouse or ~~Babcock & Wilcox Nuclear Technologies~~ ABB Combustion Engineering, Inc. Technical Reports.

Wastage-type defects are unlikely with proper chemistry treatment of the secondary coolant. However, even if a defect should develop in service, it will be found during scheduled inservice steam generator tube examinations. Plugging or sleeving will be required for all tubes with imperfections exceeding the plugging or repair limit of 40% of the tube nominal wall thickness. INSERT C ~~If a sleeved tube is found to contain a through wall penetration in the sleeve of equal to or greater than 40% of the nominal wall thickness, the tube must be plugged.~~ The ~~40%~~ plugging limit for the sleeve is derived from Reg. Guide 1.121 analysis and utilizes a 20% allowance for eddy current uncertainty and additional degradation growth. Inservice inspection of sleeves is required to ensure RCS integrity. Sleeve inspection techniques are described in the current Westinghouse or ~~Babcock & Wilcox Nuclear Technologies~~ ABB Combustion Engineering, Inc. Technical Reports. Steam Generator tube and sleeve inspections have demonstrated the capability to reliably detect degradation ~~that has penetrated 20%~~ of the pressure retaining portions of the tube or sleeve wall thickness. Commonwealth Edison will validate the adequacy of any system that is used for periodic inservice inspection of the sleeves and, as deemed appropriate, will upgrade testing methods as better methods are developed and validated for commercial use.

INSERT C

A laser welded sleeved tube must be plugged if a through wall penetration is detected in the sleeve that is equal to or greater than 40% of the nominal sleeve thickness. TIG welded sleeved tubes must be plugged if a through wall penetration is detected in the sleeve that is equal to or greater than 32% of the nominal sleeve thickness.

ATTACHMENT C

EVALUATION OF SIGNIFICANT HAZARDS CONSIDERATIONS FOR PROPOSED CHANGES TO FACILITY OPERATING LICENSES NPF-37, NPF-66, NPF-72, AND NPF-77 AND APPENDIX A, TECHNICAL SPECIFICATIONS, OF FACILITY OPERATING LICENSES NPF-37, NPF-66, NPF-72, AND NPF-77

Commonwealth Edison Company (ComEd) has evaluated this proposed amendment and determined that it involves no significant hazards considerations. According to Title 10, Code of Federal Regulations, Part 50, Section 92, Paragraph c [10 CFR 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.

A. INTRODUCTION

ComEd proposes to modify Byron and Braidwood Technical Specification (TS) Section 3/4.4.5 to:

1. Allow steam generator tubes to be repaired using the tungsten inert gas (TIG) welded sleeve process as described in ABB Combustion Engineering, Inc. (ABB/CE) Licensing Report CEN-621-P, Revision 00, "Commonwealth Edison Byron and Braidwood Unit 1 & 2 Steam Generator Tube Repair Using Leak Tight Sleeves, FINAL REPORT," April 1995,

2. Delete the ability to repair steam generator tubes using the Babcock & Wilcox Nuclear Technologies (BWNT) kinetically welded sleeve process previously approved by the United States Nuclear Regulatory Commission (NRC), and

3. Increasing the requirement to inspect the number of sleeved tubes from 3% of the total number of sleeved tubes in all four steam generators or all sleeved tubes in one steam generator to 20% of each sleeve design installed by deleting Technical Specification 4.4.5.2.b.3, making Technical Specification 4.4.5.2.e applicable to ABB/CE TIG welded sleeves, and making Technical Specification 4.4.5.2.e a permanent requirement.

The proposed amendment would also modify Facility Operating License NPF-37 Condition 2.C.16, Facility Operating License NPF-66 Condition 2.C.5, Facility Operating License NPF-72 Condition 2.C.6, and Facility Operating License NPF-77 Condition 2.C.5 to delete the requirement to conduct additional corrosion testing to establish the design life for the BWNT kinetically welded sleeve in the presence of a crevice.

B. <u>10 CFR 50.92 ANALYSIS</u>

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

The proposed amendment allows the ABB/CE TIG welded tubesheet sleeves and tube support plate sleeves to be used as an alternate tube repair method for Byron and Braidwood Units 1 and 2 Steam Generators (SGs). The sleeve configuration was designed and analyzed in accordance with the criteria of Regulatory Guide (RG) 1.121 and Section III of the ASME Code. Fatigue and stress analyses of the sleeved tube assemblies produce acceptable results for both types of sleeves as documented in ABB/CE Licensing Report CEN-621-P, Revision 00, "Commonwealth Edison Byron and Braidwood Unit 1 & 2 Steam Generator Tube Repair Using Leak Tight Sleeves, FINAL REPORT," April 1995. Mechanical testing has shown that the structural strength of the sleeves under normal, faulted, and upset conditions is within the acceptable limits specified in RG 1.121. Leakage rate testing for the tube sleeves has demonstrated that primary to secondary leakage is not expected during any plant condition. The consequences of leakage through the sleeved region of the tube is fully bounded by the existing steam generator tube rupture (SGTR) analysis included in the Byron and Braidwood Updated Final Safety Analysis Report (UFSAR).

The current Technical Specification 3.4.6.2.c primary to secondary leakage limit of 150 gallons per day (gpd) through any one SG ensures that SG tube integrity is maintained in the event of main steam line break (MSLB) or loss of coolant accident (LOCA). The RG 1.121 criteria for establishing operational leakage rate limits require a plant shutdown based upon a leak-before-break consideration to detect a free span crack before a potential tube rupture. The 150 gpd limit will continue to allow for early leakage detection and require a plant shutdown in the event of the occurrence of an unexpected crack resulting in leakage that exceeds the TS limit.

The sleeves are designed to allow inservice inspection of the pressure retaining portions of the sleeve and parent tube. Inservice inspection is performed on all sleeves following installation to ensure that each sleeve has been properly installed and is structurally sound. Periodic inspections are performed in subsequent refuel outages to monitor sleeve degradation on a sample basis. The eddy current technique used for inspection will be capable of detecting both axial and circumferential flaws. A 20% sample of the sleeves are inspected each refuel outage. In the event that an imperfection exceeding the repair limit is detected an additional 20% sample will be inspected. The inspection scope is expanded to 100% of the sleeves should a repairable defect be found in the second sample. Tubes that contain defects in a sleeve, which exceed the repair limit, will be removed from service. This ensures that sleeve and tube structural integrity is maintained.

The proposed TS change to support the installation of TIG welded sleeves does not adversely impact any previously evaluated design basis accident. The effect of sleeve installation on the performance of the SG was analyzed for heat transfer, flow restriction, and steam generation capacity. The sleeves reduce the risk of primary to secondary leakage in the SG. The installation of ABB/CE sleeve results in a hydraulic flow restriction that is dependent on the number and types of sleeves installed. The reduction in primary system flow rate is a small percentage of the flow rate reduction seen from plugging one tube and is a preferable alternative when considering core margins based on minimum reactor coolant system flow rates. The sleeving installation will result in a resistance to primary coolant flow through the tube for other evaluated accidents The results of the analyses and testing, as well as industry operating experience, demonstrate that the sleeve assembly is an acceptable means of maintaining tube integrity. In summary, installation of sleeves does not substantially affect the primary system flow rate or the heat transfer capability of the steam generators.

The sleeve sample size has been increased from 3% of the sleeved tubes in all four steam generators to include an eddy current inspection of a minimum of 20% of each sleeve design installed. Increasing the sample size of the sleeves to be inspected will increase the monitoring of tubes using sleeves for any further degradation while they remain in service. If the sample identifies a sleeve with an imperfection of greater than the repair limit, an additional 20% of the sleeves shall be inspected. The sleeves that have identified imperfections of greater than the repair limit shall be removed from service. Increasing the monitoring of the sleeves will assist in the early detection of a tube or sleeve imperfection and limit the probability of occurrence of an accident previously evaluated in the UFSAR.

Installation of the sleeves can be used to repair degraded tubes by returning the condition of the tubes to their original design basis condition for tube integrity and leak tightness during all plant conditions. The tube bundle overall structural and leakage integrity will be increased with the installation of the sleeves reducing the risk of primary to secondary leakage in the SG while maintaining acceptable reactor coolant system flow rates. Therefore sleeving will not increase the probability of occurrence of an accident previously evaluated.

Removal of the BWNT kinetically welded sleeve process as an approved SG tube repair methodology and not completing the additional corrosion testing necessary to establish the design life for the BWNT kinetically welded sleeve in the presence of a crevice will have no affect on plant operations. There are currently no BWNT kinetically welded sleeves installed in the Byron or Braidwood SGs. Had there been, plant operations would have still been bounded by the existing SGTR analysis in the Byron and Braidwood UFSAR.

Therefore, these proposed changes do not involve a significant increase in the probability or consequences of an accident previously evaluated.

2. **The proposed change does not create the possibility of a new or different kind of accident from any accident previously evaluated.**

The implementation of the proposed sleeving process will not introduce significant or adverse changes to the plant design basis. Stress and fatigue analyses of the repair has shown the ASME Code and RG 1.121 allowable values are met. Implementation of TIG welded sleeving maintains overall tube bundle structural and leakage integrity at a level consistent with that of the originally supplied tubing. Leak and mechanical testing of the sleeves support the conclusions that the sleeve retains both structural and leakage integrity during all conditions. Repair of a tube with a sleeve does not provide a mechanism that result in an accident outside of the area affected by the sleeve.

Any hypothetical accident as a result of potential tube or sleeve degradation in the repaired portion of the tube is bounded by the existing SGTR analysis. The SGTR analysis accounts for the installation of sleeves and the impact on current plugging level analyses. The sleeve design does not affect any other component or location of the tube outside of the immediate area repaired.

The current Technical Specification 3.4.6.2.c primary to secondary leakage limit of 150 gpd through any one SG ensures that SG tube integrity is maintained in the event of an MSLB or LOCA. The limit will provide for leakage detection and a plant shutdown in the event of the occurrence of an unexpected single crack resulting in excessive tube leakage. The leakage limit also provides for early detection and a plant shutdown prior to a postulated crack reaching critical crack lengths for MSLB conditions.

Inservice inspections are performed following sleeve installation to ensure proper weld fusion has occurred to maintain structural integrity. The post installation inspection also serves as baseline data to be used for comparison during future inspections. Periodic eddy current inspections monitor the pressure retaining portions of the sleeve and parent tube for degradation. Eddy current techniques will be employed that are sensitive to axial and circumferential degradation.

Increasing the sample size of tubes repaired using either sleeving process during each scheduled inservice inspection will increase the monitoring of these tubes for any further degradation. The improved monitoring and evaluation of the tube and the sleeves assures tube structural integrity is maintained or the tube is removed for service.

Corrosion testing of typical sleeve-tube configurations was performed to evaluate local stresses, sleeve life, and resistance to primary and secondary side corrosion. The tests were performed on stress relieved and as-welded (non-stress relieved) sleeve-tube joints. Using the corrosion test data in conjunction with finite element analyses of the local stress, the stress relieved joint life was determined to be in excess of 40 years. The ABB/CE TIG welded sleeve operating experience in the industry has shown no sleeve failures due to service induced degradation in sleeves that were installed with acceptable inspection results. This experience includes the stress relieved and as-welded sleeve configurations. ComEd will stress relieve all sleeves at Byron and Braidwood as specified in the Technical Report.

Removal of the BWNT kinetically welded sleeve process as an approved SG tube repair methodology and not completing the additional corrosion testing necessary to establish the design life for the BWNT kinetically welded sleeve in the presence of a crevice will not create the possibility of a new or different type of accident from any accident previously evaluated. Repair of an SG tube with a BWNT kinetically welded sleeve would not have provided a mechanism that resulted in an accident outside of the area affected by the sleeve. Any hypothetical accident as a result of potential tube or sleeve degradation in the repaired portion of the tube would have been bounded by the existing SGTR analysis. The SGTR analysis accounts for the installation of sleeves and the impact on current plugging level analyses. The sleeve design does not affect any other component or location of the tube outside of the immediate area repaired. Furthermore, there are currently no BWNT kinetically welded sleeves installed in the Byron or Braidwood SGs.

Therefore, the proposed changes do not create the possibility of a new or different type of accident from any accident previously evaluated.

3. **The proposed change does not involve a significant reduction in a margin of safety.**

The TIG welded sleeving repair of degraded steam generator tubes has been shown by analysis to restore the integrity of the tube bundle to its original design basis condition. The safety factors used in the design of the sleeves for the repair of degraded tubes are consistent with the safety factors in the ASME Boiler and Pressure Vessel Code used in steam generator design. The design of the ABB/CE SG sleeves has been verified by testing to preclude leakage during normal and postulated accident conditions.

The portions of the installed sleeve assembly which represents the reactor coolant pressure boundary can be monitored for the initiation and progression of sleeve/tube wall degradation, thus satisfying the requirement of RG 1.83. The portion of the SG tube bridged by the sleeve joints is effectively removed from the pressure boundary, and the sleeve then forms the new pressure boundary. The sleeve enhances the safety of the plant by reestablishing the protective boundaries of the steam generator. Keeping the tube in service with the use of a sleeve instead of plugging the tube and removing it from service increases the heat transfer efficiency of the steam generator. During each scheduled inservice inspection, each sleeve inspected and found to have unacceptable degradation shall be removed from service.

Removal of the BWNT kinetically welded sleeve process as an approved SG tube repair methodology and not completing the additional corrosion testing necessary to establish the design life for the BWNT kinetically welded sleeve in the presence of a crevice will not create the possibility of a new or different type of accident from any accident previously evaluated. Repair of an SG tube with a BWNT kinetically welded sleeve would not have provided a mechanism that resulted in an accident outside of the area affected by the sleeve. Any hypothetical accident as a result of potential tube or sleeve degradation in the repaired portion of the tube would have been bounded by the existing SGTR analysis. The SGTR analysis accounts for the installation of sleeves and the impact on current plugging level analyses. The sleeve design does not affect any other component or location of the tube outside of the immediate area repaired. Furthermore, there are currently no BWNT kinetically welded sleeves installed in the Byron or Braidwood SGs.

Therefore, the proposed changes do not create the possibility of a new or different type of accident from any accident previously evaluated.

3. **The proposed change does not involve a significant reduction in a margin of safety.**

The TIG welded sleeving repair of degraded steam generator tubes has been shown by analysis to restore the integrity of the tube bundle to its original design basis condition. The safety factors used in the design of the sleeves for the repair of degraded tubes are consistent with the safety factors in the ASME Boiler and Pressure Vessel Code used in steam generator design. The design of the ABB/CE SG sleeves has been verified by testing to preclude leakage during normal and postulated accident conditions.

The portions of the installed sleeve assembly which represents the reactor coolant pressure boundary can be monitored for the initiation and progression of sleeve/tube wall degradation, thus satisfying the requirement of RG 1.83. The portion of the SG tube bridged by the sleeve joints is effectively removed from the pressure boundary, and the sleeve then forms the new pressure boundary. The sleeve enhances the safety of the plant by reestablishing the protective boundaries of the steam generator. Keeping the tube in service with the use of a sleeve instead of plugging the tube and removing it from service increases the heat transfer efficiency of the steam generator. During each scheduled inservice inspection, each sleeve inspected and found to have unacceptable degradation shall be removed from service.

The effect on the design transients and the accident analyses have been reviewed based on the installation of sleeves equal to the tube plugging level coincident with the minimum reactor coolant flow rate. Evaluation of the installation of sleeves was based on the determination that LOCA evaluations for the licensed minimum reactor coolant flow bound the combined effect of tube plugging and sleeving up to an equivalent of the actual plugging limit. Sleeving results in a fractional amount of the plugging limitation of one tube and is a preferable alternative when considering core margins based on minimum reactor coolant system flow rates. The sleeving installation will result in a resistance to primary coolant flow through the tube. The primary coolant flow through the ruptured tube is reduced by the influence of the installed sleeve, thereby reducing the consequences to the public due to a SGTR event.

A SG sleeve removes an indication of a possible leak source from the reactor coolant system (RCS) pressure boundary, eliminating the potential of a primary-to-secondary leak. The structural integrity of the tube is maintained by the sleeve and sleeve-to-tube joint.

Installation of either tube sheet or tube support plate sleeves will increase the protective boundaries of the steam generators and will not reduce the margin of safety.

Removal of the BWNT kinetically welded sleeve process as an approved SG tube repair methodology and not completing the additional corrosion testing necessary to establish the design life for the BWNT kinetically welded sleeve in the presence of a crevice will not result in a reduction in the margin of safety. There are currently no BWNT kinetically welded sleeves installed in the Byron or Braidwood SGs. SG tube integrity will be maintained by applying an alternate NRC approved repair methodology or removing the SG tube from service by plugging.

Therefore, the proposed changes do not involve a significant reduction in the margin of safety.

Based on the preceding analysis it is concluded that operation of Byron and Braidwood Units 1 and 2 in accordance with the proposed amendment does not increase the probability of an accident previously evaluated, does not create the possibility of a new or different kind of accident from any accident previously evaluated, nor reduce any margins to plant safety. Therefore, this proposed amendment does not involve a significant hazards consideration as defined in 10 CFR 50.92.

ATTACHMENT D

EVALUATION OF ENVIRONMENTAL ASSESSMENT FOR PROPOSED CHANGES TO FACILITY OPERATING LICENSES NPF-37, NPF-66, NPF-72, AND NPF-77 AND APPENDIX A, TECHNICAL SPECIFICATIONS, OF FACILITY OPERATING LICENSES NPF-37, NPF-66, NPF-72, AND NPF-77

Commonwealth Edison Company (ComEd) has evaluated this proposed amendment against the criteria for and identification of licensing and regulatory actions requiring environmental assessment in accordance with Title 10, Code of Federal Regulations, Part 51, Section 21 (10 CFR 51.21). ComEd has determined that this proposed amendment meets the criteria for a categorical exclusion as provided under 10 CFR 51.22 (c)(9).

The proposed changes do not involve a significant hazards consideration as discussed in Attachment C to this letter. Also, this proposed amendment will not involve significant changes in the types or amounts of any radioactive effluents nor does it affect any of the permitted release paths. In addition, this change does not involve a significant increase in individual or cumulative occupational exposure.

The sleeving process does result in radioactive waste which is considered disposable and cannot be reused. The amount of waste created using the sleeving process is comparable to that created by tube plugging.

Therefore, this change meets the categorical exclusion permitted by 10 CFR 51.22 (c)(9).

ATTACHMENT E

ABB Combustion Engineering, Inc.

Licensing Report CEN-621-P, Revision 00

"Commonwealth Edison

Byron and Braidwood Unit 1 & 2

Steam Generator Tube Repair Using Leak Tight Sleeves,

FINAL REPORT"

April 1995

and Related Affidavit

AFFIDAVIT PURSUANT

TO 10 CFR 2.790

Combustion Engineering, Inc.)
State of Connecticut)
County of Hartford) SS.:

I, S. E. Ritterbusch, depose and say that I am the Manager, Standard Plant Licensing, of Combustion Engineering, Inc., duly authorized to make this affidavit, and have reviewed or caused to have reviewed the information which is identified as proprietary and referenced in the paragraph immediately below. I am submitting this affidavit in conjunction with the application of Commonwealth Edison Company in conformance with the provisions of 10 CFR 2.790 of the Commission's regulations for withholding this information.

The information for which proprietary treatment is sought is contained in the following document:

CEN-621-P, Revision 00, "Commonwealth Edison Byron and Braidwood Unit 1 & 2 Steam Generator Tube Repair Using Leak Tight Sleeves, FINAL REPORT," April 1995.

This document has been appropriately designated as proprietary.

I have personal knowledge of the criteria and procedures utilized by Combustion Engineering in designating information as a trade secret, privileged or as confidential commercial or financial information.

Pursuant to the provisions of paragraph (b) (4) of Section 2.790 of the Commission's regulations, the following is furnished for consideration by the Commission in determining whether the information sought to be withheld from public disclosure, included in the above referenced document, should be withheld.

1. The information sought to be withheld from public disclosure, which is owned and has been held in confidence by Combustion Engineering, is the steam generator welded sleeving installation and inspection methods.

2. The information consists of test data or other similar data concerning a process, method or component, the application of which results in substantial competitive advantage to Combustion Engineering.

3. The information is of a type customarily held in confidence by Combustion Engineering and not customarily disclosed to the public. Combustion Engineering has a rational basis for determining the types of information customarily held in confidence by it and, in that connection, utilizes a system to determine when and whether to hold certain types of information in confidence. The details of the aforementioned system were provided to the Nuclear Regulatory Commission via letter DP-537 from F. M. Stern to Frank Schroeder dated December 2, 1974. This system was applied in determining that the subject document

herein is proprietary.

4. The information is being transmitted to the Commission in confidence under the provisions of 10 CFR 2.790 with the understanding that it is to be received in confidence by the Commission.

5. The information, to the best of my knowledge and belief, is not available in public sources, and any disclosure to third parties has been made pursuant to regulatory provisions or proprietary agreements which provide for maintenance of the information in confidence.

6. Public disclosure of the information is likely to cause substantial harm to the competitive position of Combustion Engineering because:
   a. A similar product is manufactured and sold by major pressurized water reactor competitors of Combustion Engineering.
   b. Development of this information by Combustion Engineering required tens of thousands of manhours and millions of dollars. To the best of my knowledge and belief, a competitor would have to undergo similar expense in generating equivalent information.
   c. In order to acquire such information, a competitor would also require considerable time and inconvenience developing

improved tooling and installation processes for steam generator welded sleeves.

d. The information required significant effort and expense to obtain the licensing approvals necessary for application of the information. Avoidance of this expense would decrease a competitor's cost in applying the information and marketing the product to which the information is applicable.

e. The information consists of improved tooling and installation processes for steam generator welded sleeves, the application of which provides a competitive economic advantage. The availability of such information to competitors would enable them to modify their product to better compete with Combustion Engineering, take marketing or other actions to improve their product's position or impair the position of Combustion Engineering's product, and avoid developing similar data and analyses in support of their processes, methods or apparatus.

f. In pricing Combustion Engineering's products and services, significant research, development, engineering, analytical, manufacturing, licensing, quality assurance and other costs and expenses must be included. The ability of Combustion Engineering's competitors to utilize such information without similar expenditure of resources may enable them to sell at prices reflecting significantly lower costs.

g. Use of the information by competitors in the international marketplace would increase their ability to market nuclear steam supply systems by reducing the costs associated with their technology development. In addition, disclosure would have an adverse economic impact on Combustion Engineering's potential for obtaining or maintaining foreign licensees.

Further the deponent sayeth not.

S. E. Ritterbusch

S. E. Ritterbusch
Manager
Standard Plant Licensing

Sworn to before me
this 20th day of April, 1995

Laurie J. White
Notary Public

My commission expires: 8/31/99