ATTACHMENT B

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

BYRON STATION UNITS 1 & 2
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BRAIDWOOD STATION UNITS 1 & 2
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3/4.3.4 TURBINE OVERSPEED PROTECTION

LIMITING CONDITION FOR OPERATION

3.3.4 At least one Turbine Overspeed Protection System shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTION:

a. With one throttle valve or one governor valve per high pressure turbine steam line inoperable and/or with one reheat stop valve or one reheat intercept valve per low pressure turbine steam line inoperable, restore the inoperable valve(s) to OPERABLE status within 72 hours, or close at least one valve in the affected steam line(s) or isolate the turbine from the steam supply within the next 6 hours.

b. With the above required Turbine Overspeed Protection System otherwise inoperable, within 6 hours isolate the turbine from the steam supply.

SURVEILLANCE REQUIREMENTS

4.3.4.1 The provisions of Specification 4.0.4 are not applicable.

4.3.4.2 The above required Turbine Overspeed Protection System shall be demonstrated OPERABLE:

a. During turbine operation at least once per 31 days by direct observation of the movement of the valves below through one complete cycle from the running position:

~~1) Four high pressure turbine throttle valves,~~
~~2) Four high pressure turbine governor valves,~~
1 ~~3)~~ Six turbine reheat stop valves, and
2 ~~4)~~ Six turbine reheat intercept valves.

Insert A

c ~~b.~~ Within 7 days prior to entering MODE 3 from MODE 4, by cycling each of the 12 extraction steam nonreturn check valves from the closed position,

d ~~c.~~ During turbine operation at least once per 31 days by direct observation, of freedom of movement of each of the 12 extraction steam nonreturn check valve weight arms,

e ~~d.~~ At least once per 18 months by performance of CHANNEL CALIBRATION on the Turbine Overspeed Protection Systems, and

f ~~e.~~ At least once per 40 months by disassembling at least one of each of the valves given in Specifications 4.3.4.2a. ~~and b.~~ above, and performing a visual and surface inspection of valve seats, disks and stems and verifying no unacceptable flaws or corrosion.

and c.

INSERT A

b. During turbine operation at least once per 92 days by direct observation of the movement of the valves below through one complete cycle from the running position:

1) Four high pressure turbine throttle valves, and
2) Four high pressure turbine governor valves.

3/4.3.3.8 LOOSE-PART DETECTION SYSTEM

The OPERABILITY of the loose-part detection system ensures that sufficient capability is available to detect loose metallic parts in the Reactor Coolant System and avoid or mitigate damage to Reactor Coolant System components. The allowable out-of-service times and Surveillance Requirements are consistent with the recommendations of Regulatory Guide 1.133, "Loose-Part Detection Program for the Primary System of Light-Water-Cooled Reactors," May 1981.

3/4.3.3.9 DELETED

3/4.3.3.10 EXPLOSIVE GAS MONITORING INSTRUMENTATION

The instrumentation includes provisions for monitoring the concentrations of potentially explosive gas mixtures in the WASTE GAS HOLDUP SYSTEM.

3/4 3.3.11 HIGH ENERGY LINE BREAK ISOLATION SENSORS

The OPERABILITY of the high energy line break isolation sensors ensures that the capability is available to promptly detect and initiate protective action in the event of a line break. This capability is required to prevent the potential for damage to safety-related systems and structures in the auxiliary building.

3/4.3.4 TURBINE OVERSPEED PROTECTION

This specification is provided to ensure that the turbine overspeed protection instrumentation and the turbine speed control valves are OPERABLE and will protect the turbine from excessive overspeed. Protection from turbine excessive overspeed is required since excessive overspeed of the turbine could generate potentially damaging missiles which could impact and damage safety-related components, equipment, or structures.

Specification 4.3.4.2a (High Pressure Turbine and Reheat Valves)

and b

These valves isolate large quantities of steam with high potential for delivering energy to the rotor system. The turbine design recognizes this potential in providing rapid action, dual shut off capability in each path, remote testing capability, and a flow path that reduces the effects of changes in flow distribution, load reductions, and thermal transients during testing. The testing intervals are in accordance with the latest manufacturer's recommendations: "Operation and Maintenance Memo ~~041~~ 093," ~~Steam Turbine Division~~ Power Generation Business Unit, Westinghouse.

TURBINE OVERSPEED PROTECTION (continued)

Specification 4.3.4.2~~b~~c and ~~c~~d (Extraction Steam Non-Return Check Valves)

These valves are provided to protect the turbine from reflux of steam remaining in the feedwater heater shells and piping following the pressure reduction caused by the actuation of valves in Specification 4.3.4.2a~~t~~. The quantities of stored steam controlled by these valves are smaller and are divided up into separate heater shells. The feedwater heating system design, including these valves, did not intend routine full stroke testing. a and b

The extraction steam check valves are self closing swing disk non-return valves which shut under the combined effect of gravity and reverse flow of steam. The weight of the disk is partly balanced by a counterweight and lever on the pivot shaft. A spring cylinder acting on the lever assists the start of the automatic closing, but is not intended to close the valve fully against normal steam flow and pressure. In normal operation the spring assist is held clear by air pressure acting on a piston under the spring. The turbine trip system releases the air pressure to assist the closing.

Manual stroking of the extraction steam non-return valves is possible under shutdown conditions by latching the turbine and applying the air pressure to the spring cylinder. It is possible to hear and feel the disk contact the seat solidly. This manual stroking was not provided for in the design but will be done within 7 days prior to entering Mode 3 from Mode 4.

The engineering specifications provided for testing the extraction steam non-return check valves during operation by equalizing the air pressure across the piston in the spring cylinder, permitting the spring to partially close the disk against the steam flow. The rotation of the shaft accompanying the disk closure can be observed by movement of the weight lever. The amount of movement observed in other stations has depended on the extraction steam conditions and valve size, but has been ample to indicate freedom of movement, and this will be verified during startup testing.

Partial stroking demonstrates that the disk system is free at the beginning of the closing stroke where the steam closing forces are smallest. As the disk enters a reverse steam flow the closing forces build up rapidly with progressive closure.

The design of the feedwater heating system is such that full stroke testing of the extraction steam non-return valves during turbine operation involves several penalties without significant additional advantages over partial stroke testing. The motor-operated isolating valve must be closed on an individual heater. Heater stages 1, 2, 3, and 4 are arranged in three parallel strings with cascaded drains in each string and heater stages 5, 6 and 7 are similarly arranged in two parallel strings. An entire string is taken out of service, isolated, and bypassed for maintenance. Isolating the extraction steam to a single intermediate heater involves several complications.

3/4.3.4 TURBINE OVERSPEED PROTECTION

LIMITING CONDITION FOR OPERATION

3.3.4 At least one Turbine Overspeed Protection System shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTION:

a. With one throttle valve or one governor valve per high pressure turbine steam line inoperable and/or with one reheat stop valve or one reheat intercept valve per low pressure turbine steam line inoperable, restore the inoperable valve(s) to OPERABLE status within 72 hours, or close at least one valve in the affected steam line(s) or isolate the turbine from the steam supply within the next 6 hours.

b. With the above required Turbine Overspeed Protection System otherwise inoperable, within 6 hours isolate the turbine from the steam supply.

SURVEILLANCE REQUIREMENTS

4.3.4.1 The provisions of Specification 4.0.4 are not applicable.

4.3.4.2 The above required Turbine Overspeed Protection System shall be demonstrated OPERABLE:

a. During turbine operation at least once per 31 days by direct observation of the movement of the valves below through one complete cycle from the running position:

~~1) Four high pressure turbine throttle valves,~~
~~2) Four high pressure turbine governor valves,~~
1) 3) Six turbine reheat stop valves, and
2) 4) Six turbine reheat intercept valves.

Insert A

c b. Within 7 days prior to entering MODE 3 from MODE 4, by cycling each of the 12 extraction steam nonreturn check valves from the closed position,

d c. During turbine operation at least once per 31 days by direct observation, of freedom of movement of each of the 12 extraction steam nonreturn check valve weight arms,

e d. At least once per 18 months by performance of CHANNEL CALIBRATION on the Turbine Overspeed Protection Systems, and

f e. At least once per 40 months by disassembling at least one of each of the valves given in Specifications 4.3.4.2a., ~~and~~ b. and c. above, and performing a visual and surface inspection of valve seats, disks and stems and verifying no unacceptable flaws or corrosion.

and C.

INSERT A

b. During turbine operation at least once per 92 days by direct observation of the movement of the valves below through one complete cycle from the running position:

1) Four high pressure turbine throttle valves, and
2) Four high pressure turbine governor valves.

3/4.3.3.8 LOOSE-PART DETECTION SYSTEM

The OPERABILITY of the loose-part detection system ensures that sufficient capability is available to detect loose metallic parts in the Reactor Coolant System and avoid or mitigate damage to Reactor Coolant System components. The allowable out-of-service times and Surveillance Requirements are consistent with the recommendations of Regulatory Guide 1.133, "Loose-Part Detection Program for the Primary System of Light-Water-Cooled Reactors," May 1981.

3/4.3.3.9 DELETED

3/4.3.3.10 EXPLOSIVE GAS MONITORING INSTRUMENTATION

The instrumentation includes provisions for monitoring the concentrations of potentially explosive gas mixtures in the WASTE GAS HOLDUP SYSTEM.

3/4.3.3.11 HIGH ENERGY LINE BREAK ISOLATION SENSORS

The OPERABILITY of the high energy line break isolation sensors ensures that the capability is available to promptly detect and initiate protective action in the event of a line break. This capability is required to prevent the potential for damage to safety-related systems and structures in the auxiliary building.

3/4.3.4 TURBINE OVERSPEED PROTECTION

This specification is provided to ensure that the turbine overspeed protection instrumentation and the turbine speed control valves are OPERABLE and will protect the turbine from excessive overspeed. Protection from turbine excessive overspeed is required since excessive overspeed of the turbine could generate potentially damaging missiles which could impact and damage safety-related components, equipment, or structures.

Specification 4.3.4.2a (High Pressure Turbine and Reheat Valves)

and b

These valves isolate large quantities of steam with high potential for delivering energy to the rotor system. The turbine design recognizes this potential in providing rapid action, dual shut off capability in each path, remote testing capability, and a flow path that reduces the effects of changes in flow distribution, load reductions, and thermal transients during testing. The testing intervals are in accordance with the latest manufacturer's recommendations: "Operation and Maintenance Memo ~~041~~ 093," ~~Steam Turbine Division~~, Westinghouse.

Power Generation Business Unit

TURBINE OVERSPEED PROTECTION (Continued)

Specification 4.3.4.2b and c (Extraction Steam Non-Return Check Valves)

These valves are provided to protect the turbine from reflux of steam remaining in the feedwater heater shells and piping following the pressure reduction caused by the actuation of valves in Specification 4.3.4.2a. The quantities of stored steam controlled by these valves are smaller and are divided up into separate heater shells. The feedwater heating system design, including these valves, did not intend routine full stroke testing.

The extraction steam check valves are self closing swing disk non-return valves which shut under the combined effect of gravity and reverse flow of steam. The weight of the disk is partly balanced by a counterweight and lever on the pivot shaft. A spring cylinder acting on the lever assists the start of the automatic closing, but is not intended to close the valve fully against normal steam flow and pressure. In normal operation the spring assist is held clear by air pressure acting on a piston under the spring. The turbine trip system releases the air pressure to assist the closing.

Manual stroking of the extraction steam non-return valves is possible under shutdown conditions by latching the turbine and applying the air pressure to the spring cylinder. It is possible to hear and feel the disk contact the seat solidly. This manual stroking was not provided for in the design but will be done within 7 days prior to entering Mode 3 from Mode 4.

The engineering specifications provided for testing the extraction steam non-return check valves during operation by equalizing the air pressure across the piston in the spring cylinder, permitting the spring to partially close the disk against the steam flow. The rotation of the shaft accompanying the disk closure can be observed by movement of the weight lever. The amount of movement observed in other stations has depended on the extraction steam conditions and valve size, but has been ample to indicate freedom of movement, and this will be verified during startup testing.

Partial stroking demonstrates that the disk system is free at the beginning of the closing stroke where the steam closing forces are smallest. As the disk enters a reverse steam flow the closing forces build up rapidly with progressive closure.

The design of the feedwater heating system is such that full stroke testing of the extraction steam non-return valves during turbine operation involves several penalties without significant additional advantages over partial stroke testing. The motor-operated isolating valve must be closed on an individual heater. Heater stages 1, 2, 3, and 4 are arranged in three parallel strings with cascaded drains in each string and heater stages 5, 6 and 7 are similarly arranged in two parallel strings. An entire string is taken out of service, isolated, and bypassed for maintenance. Isolating the extraction steam to a single intermediate heater involves several complications.

ATTACHMENT C

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

Commonwealth Edison has evaluated this proposed amendment and determined that it involves no significant hazards considerations. According to 10CFR50.92(c), a proposed amendment to an operating license involves no significant hazards 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.

Commonwealth Edison (ComEd) proposes to implement one of the line item Technical Specification improvements recommended by Generic Letter 93-05, "Line-Item Technical Specification Improvements to Reduce Surveillance Requirements for Testing During Power Operation" for Byron and Braidwood stations.

The NRC has completed a comprehensive examination of surveillance requirements in the Technical Specifications that require testing at power. The evaluation is documented in NUREG-1366, "Improvements to Technical Specification Surveillance Requirements," dated December 1992. The NRC staff found that, while the majority of testing at power is important, safety can be improved, equipment degradation decreased, and an unnecessary burden on personnel resources eliminated by reducing the amount of testing at power that is required by the Technical Specifications. Based on the results of the evaluations documented in NUREG-1366, the NRC issued Generic Letter 93-05, "Line-Item Technical Specifications Improvements to Reduce Surveillance Requirements for Testing During Power Operation," dated September 27, 1993.

ComEd proposes to amend Technical Specification Surveillance Requirement (TSSR) 4.3.4.2 to change the frequency of turbine throttle and governor valve testing from monthly to quarterly and incorporate corresponding administrative changes. Bases 3/4.3.4 will be changed to update a referenced vendor document and incorporate corresponding administrative changes.

A. The proposed changes do not involve a significant increase in the probability or consequences of an accident previously evaluated.

The Bases change is a reference update, which is administrative in nature. Additional administrative changes necessitated by a change in the presentation of the surveillance requirements are proposed. The changes are consistent with Generic Letter 93-05 and NUREG-1366. This change reduces the frequency of testing that is likely to cause transients or excessive wear of equipment. An evaluation of these changes indicates that there will be a benefit to plant safety. The evaluation, documented in NUREG-1366, considered (1) unavailability of safety equipment due to testing, (2) initiation of significant transients due to testing, (3) actuation of engineered safety features that unnecessarily cycle safety equipment, (4) importance to safety of that system or component, (5) failure rate of that system or component, and (6) effectiveness of the test in discovering the failure.

As a result of the decrease in the testing frequencies, the risk of testing causing a transient and equipment degradation will be decreased, and the reliability of the equipment will not be significantly decreased.

The initial conditions and methodologies used in the accident analyses remain unchanged. The proposed changes do not change or alter the design assumptions for the systems or components used to mitigate the consequences of an accident. Therefore, accident analyses results are not impacted. Appropriate testing will continue to assure that equipment and systems will be capable of performing the intended function. The frequency of testing is not a precursor for any analyzed accidents.

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

B. The proposed changes do not create the possibility of a new or different kind of accident from any accident previously evaluated.

The proposed changes modify allowable intervals between turbine throttle and governor valve surveillance tests. The proposed changes do not affect the design or operation of any system, structure, or component in the plant. The safety functions of the related structures, systems, or components are not changed in any manner, nor is the reliability of any structure, system, or component reduced by the revised surveillance or testing requirements. Appropriate testing will continue to assure that the system is capable of performing its intended function.

The changes do not affect the manner by which the facility is operated and do not change any facility design feature, structure, system, or component. No new or different type of equipment will be installed.

The turbine valve testing surveillances will be changed to account for a frequency change from monthly to quarterly for the throttle valves and for the governor valves.

Since there is no change to the facility or operating procedures, and the safety functions and reliability of structures, systems, or components are not affected, the proposed changes do not create the possibility of a new or different kind of accident from any accident previously evaluated.

C. The proposed changes do not involve a significant reduction in a margin of safety.

All of the proposed Technical Specification changes are compatible with plant operating experience and are consistent with the guidance provided in Generic Letter 93-05 and NUREG-1366. The changes reduce the frequency of testing that increases the risk of transients and equipment degradation. There is no impact on safety limits or limiting safety system settings. The Bases change is a vendor reference update, which is administrative in nature.

Certain reload designs can be such that power differences between the top and bottom of the core are more sensitive to control and can develop divergent xenon oscillations when the power reduction occurs during the middle of core life. Near the end of core life, stabilizing even larger differences in axial power distribution becomes more of a problem because of the larger temperature coefficient, lower boron concentration and larger differential xenon transient. In the Safety Evaluation Report related to the Prairie Island Amendment Numbers 86 and 79 in regard to the discussion above, the NRC wrote, "Based on the above, the staff has concluded that the margin of safety is reduced when the plant is undergoing turbine valve testing."

Since this amendment reduces the number of turbine tests while still maintaining acceptable equipment reliability, the proposed changes result in an increase in the margin of safety.

Therefore, based on the above evaluation, Commonwealth Edison has concluded that these changes do not involve significant hazards considerations.

ATTACHMENT D

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

Commonwealth Edison Company (ComEd) has evaluated this proposed license amendment request against the criteria for 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 license amendment request meets the criteria for a categorical exclusion set forth in 10 CFR 51.22(c)(9). This determination is based upon the following:

1. The proposed licensing action involves the issuance of an amendment to a license for a reactor pursuant to 10 CFR 50 which changes a requirement with respect to installation or use of a facility component located within the restricted area, as defined in 10 CFR 20, or which changes an inspection or a surveillance requirement. This proposed license amendment request updates a reference vendor document and changes the frequency of turbine throttle valve and turbine governor valve testing from monthly to quarterly;

2. this proposed license amendment request involves no significant hazards considerations;

3. there is no significant change in the types or significant increase in the amounts of any effluent that may be released offsite; and

4. there is no significant increase in individual or cumulative occupational radiation exposure.

Therefore, pursuant to 10 CFR 51.22(b), neither an environmental impact statement nor an environmental assessment is necessary for this proposed license amendment request.

ATTACHMENT E

WCAP-14732

Proprietary Class 2 "Probabilistic Analysis of Reduction in Turbine Valve Test Frequency for Nuclear Plants with Westinghouse BB-296 Turbines with Steam Chests
September 1996.

WCAP-14733

Non-Proporietary Class 3 "Probabilistic Analysis of Reduction in Turbine Valve Test Frequency for Nuclear Plants with Westinghouse BB-296 Turbines with Steam Chests
September 1996.

Associated with the WCAP transmittal includes the following Westinghouse documents:

Application of Withholding Proprietary Information from Public Disclosure
Proprietary Information Notice
Copyright Notice
Affidavit