

Proprietary Information – Withhold From Public Disclosure Under 10 CFR 2.390

RS-11-019

10 CFR 50.90

March 14, 2011

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555-001

Braidwood Station, Units 1 and 2
Facility Operating License Nos. NPF-72 and NPF-77
NRC Docket Nos. STN-456 and STN-50-457

Byron Station, Units 1 and 2
Facility Operating License Nos. NPF-37 and NPF-66
NRC Docket Nos. STN 50-454 and STN 50-455

Subject: License Amendment Request To Revise Technical Specifications (TS) 3.3.1, "Reactor Trip System (RTS) Instrumentation," and TS 3.3.2, "Engineered Safety Feature Actuation System (ESFAS) Instrumentation," To Reflect Installation of Bypass Test Capability

In accordance with 10 CFR 50.90, "Application for amendment of license, construction permit or early site permit," Exelon Generation Company, LLC, (EGC) requests an amendment to Facility Operating License Nos. NPF-72 and NPF-77 for Braidwood Station, Units 1 and 2, and Facility Operating License Nos. NPF-37 and NPF-66 for Byron Station, Units 1 and 2. This amendment request proposes to revise certain Required Action Notes in the Braidwood and Byron Technical Specifications (TS) 3.3.1, "Reactor Trip System (RTS) Instrumentation," and TS 3.3.2, "Engineered Safety Feature Actuation System (ESFAS) Instrumentation." The proposed change will reflect standard wording incorporated in NUREG-1431, Revision 3, "Standard Technical Specifications, Westinghouse Plants," (STS) for plants with installed bypass test capability. The proposed change is needed to support utilization of bypass test capability that is planned to be installed, which will reduce the potential for unnecessary reactor trips or safeguards actuation due to a failure or transient in a redundant channel. This change is supported by Westinghouse Electric Company LLC (Westinghouse) report WCAP-17349-P, Revision 1, "Bypass Test Instrumentation for Byron and Braidwood, Units 1 and 2," February 2011.

The attached request is subdivided as follows:

- Attachment 1 provides an evaluation of the proposed change.
- Attachments 2 and 3 include the marked-up TS pages with the proposed change indicated for the Braidwood Station and the Byron Station, respectively.

**Attachment 7 contains Proprietary Information. Withhold From Public Disclosure Under 10 CFR 2.390.
When separated from Attachment 7, this document is decontrolled.**

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- Attachments 4 and 5 include the marked-up TS Bases pages with the proposed change indicated for the Braidwood Station and the Byron Station, respectively. The TS Bases pages are provided for information only and do not require NRC approval.
- Attachment 6 provides an affidavit for withholding signed by Westinghouse, the owner of the proprietary information provided in Attachment 7.
- Attachment 7 provides Westinghouse report WCAP-17349-P, Revision 1, "Bypass Test Instrumentation for Byron and Braidwood Units 1 and 2," February 2011 (Proprietary).
- Attachment 8 provides Westinghouse report WCAP-17349-NP, Revision 1, Bypass Test Instrumentation for Byron and Braidwood Units 1 and 2," February 2011 (Non-Proprietary).

As Attachment 7 contains information proprietary to Westinghouse Electric Company LLC, it is supported by an affidavit signed by Westinghouse, the owner of the information. The affidavit sets forth the basis on which the information may be withheld from public disclosure by the NRC and addresses with specificity the considerations listed in paragraph (b)(4) of 10 CFR 2.390, "Public inspections, exemptions, requests for withholding." Accordingly, it is respectfully requested that the information that is proprietary to Westinghouse be withheld from public disclosure in accordance with 10 CFR 2.390.

Correspondence with respect to the copyright or proprietary aspects of Attachments 7 or 8 or the supporting Westinghouse affidavit should reference CAW-11-3116 and should be addressed to J. A. Gresham, Manager, Regulatory Compliance, Westinghouse Electric Company LLC, Suite 428, 1000 Westinghouse Drive, Cranberry Township, Pennsylvania, 16066.

The proposed amendment has been reviewed by the Braidwood Station and Byron Station Plant Operations Review Committees and approved by their respective Nuclear Safety Review Boards in accordance with the requirements of the EGC Quality Assurance Program.

EGC requests approval of the proposed license amendment by March 14, 2012, to support implementation of the bypass test instrumentation modification during the Braidwood Unit 1 spring 2012 refueling outage (A1R16), the Braidwood Unit 2 fall 2012 refueling outage (A2R16), the Byron Unit 1 fall 2012 refueling outage (B1R18), and the Byron Unit 2 spring 2013 refueling outage (B2R17). Once approved, the amendment will be implemented within 60 days.

In accordance with 10 CFR 50.91, "Notice for public comment; State consultation," paragraph (b), EGC is notifying the State of Illinois of this application for license amendment by transmitting a copy of this letter and its non-proprietary attachments to the designated State of Illinois official.

There are no regulatory commitments contained in this letter. Should you have any questions concerning this letter, please contact Ms. Lisa A. Schofield at (630) 657-2815.

I declare under penalty of perjury that the foregoing is true and correct. Executed on the 14th day of March 2011.

Respectfully,



Jeffrey L. Hansen
Manager – Licensing
Exelon Generation Company, LLC

Attachments:

1. Evaluation of Proposed Change
2. Markup of Technical Specifications Pages for Braidwood Station, Units 1 and 2
3. Markup of Technical Specifications Pages for Byron Station, Units 1 and 2
4. Markup of Technical Specifications Bases Pages for Braidwood Station, Units 1 and 2
5. Markup of Technical Specifications Bases Pages for Byron Station, Units 1 and 2
6. Westinghouse Application for Withholding and Affidavit, CAW-11-3116
7. Westinghouse WCAP-17349-P, Revision 1 (Proprietary)
8. Westinghouse WCAP-17349-NP, Revision 1 (Non-Proprietary)

cc: NRC Regional Administrator, Region III
NRC Senior Resident Inspector, Braidwood Station
NRC Senior Resident Inspector, Byron Station
NRC Project Manager, NRR – Braidwood and Byron Stations

ATTACHMENT 1
Evaluation of Proposed Change

- 1.0 SUMMARY DESCRIPTION
- 2.0 DETAILED DESCRIPTION
- 3.0 BACKGROUND
- 4.0 TECHNICAL EVALUATION
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Evaluation of Proposed Change

1.0 SUMMARY DESCRIPTION

This evaluation supports a request to amend Facility Operating License Nos. NPF-72 and NPF-77 for Braidwood Station, Units 1 and 2, and Facility Operating License Nos. NPF-37 and NPF-66 for Byron Station, Units 1 and 2.

Exelon Generation Company, LLC, (EGC) proposes to revise certain Required Action Notes in the Braidwood and Byron Technical Specifications (TS) 3.3.1, "Reactor Trip System (RTS) Instrumentation," and TS 3.3.2, "Engineered Safety Feature Actuation System (ESFAS) Instrumentation." The proposed change will reflect the standard wording incorporated in NUREG-1431, Revision 3, "Standard Technical Specifications, Westinghouse Plants," (STS) for plants with installed bypass test capability. The proposed change is needed to support utilization of bypass test capability that is planned to be installed, which will reduce the potential for unnecessary reactor trips or safeguards actuation due to a failure or transient in a redundant channel.

This change is supported by Westinghouse Electric Company LLC report WCAP-17349-P, Revision 1, "Bypass Test Instrumentation for Byron and Braidwood Units 1 and 2," February 2011 (Reference 1). WCAP-17349-P (Proprietary) and WCAP-17349-NP (Non-Proprietary) are provided in Attachments 7 and 8, respectively.

Approval of this amendment application is requested by March 14, 2012, to support implementation of the bypass test instrumentation modification during the Braidwood Unit 1 spring 2012 refueling outage (A1R16), the Braidwood Unit 2 fall 2012 refueling outage (A2R16), the Byron Unit 1 fall 2012 refueling outage (B1R18), and the Byron Unit 2 spring 2013 refueling outage (B2R17). Once approved, the amendment will be implemented within 60 days.

2.0 DETAILED DESCRIPTION

The proposed change will allow certain functions in the RTS and ESFAS instrumentation to be tested in bypass following implementation of the bypass test instrumentation modification. In addition, the proposed change is needed to support utilization of bypass test capability that is planned to be installed, which will reduce the potential for unnecessary reactor trips or safeguards actuation due to a failure or transient in a redundant channel.

The following functions in the RTS and ESFAS instrumentation will be modified to have installed bypass capability and permit testing in bypass:

TS Section 3.3.1

Function 2	Power Range Neutron Flux
Function 3	Power Range Neutron Flux – High Positive Rate
Function 6	Overtemperature ΔT
Function 7	Overpower ΔT
Function 8	Pressurizer Pressure
Function 9	Pressurizer Water Level – High
Function 10	Reactor Coolant Flow – Low
Function 14	Steam Generator Water Level – Low Low

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TS Section 3.3.2

Function 1.c	Safety Injection – Containment Pressure – High 1
Function 1.d	Safety Injection – Pressurizer Pressure – Low
Function 1.e	Safety Injection – Steam Line Pressure – Low
Function 4.c	Steam Line Isolation – Containment Pressure – High 2
Function 4.d	Steam Line Isolation – Steam Line Pressure
Function 5.b	Turbine Trip and Feedwater Isolation – Steam Generator Water Level – High High (P-14)
Function 6.b	Auxiliary Feedwater – Steam Generator Water Level – Low Low
Function 7.b	Switch over to Containment Sump – Refueling Water Storage Tank Level – Low Low

In addition to allowing the listed RTS and ESFAS instrumentation functions to be tested in bypass following implementation of the bypass test instrumentation modification, the proposed change would revise certain Required Actions Notes in TS 3.3.1, Conditions D, E, and K, and in TS 3.3.2, Conditions D and K, to reflect STS wording for plants with installed bypass capability.

The TS 3.3.1, Condition D, Required Action Note would be changed to have two Notes. A new note, Note 1, would be added that states, "For Functions with installed bypass test capability, one channel may be bypassed for up to 12 hours for surveillance testing and setpoint adjustment." The current note, to be made Note 2, would be changed to state, "For Functions with no installed bypass test capability, the inoperable channel may be bypassed for up to 12 hours for surveillance testing and setpoint adjustment of other channels."

The Note to the Required Actions for TS 3.3.1, Conditions E and K would be changed to have two Notes. A new note, Note 1, would be added that states, "For Functions with installed bypass test capability, one channel may be bypassed for up to 12 hours for surveillance testing." The current note, to be made Note 2, would be changed to state, "For Functions with no installed bypass test capability, the inoperable channel may be bypassed for up to 12 hours for surveillance testing of other channels."

The TS 3.3.2, Condition D, Required Action Note would also be changed to have two Notes. A new note, Note 1, would be added that states, "For Functions with installed bypass test capability, one channel may be bypassed for up to 12 hours for surveillance testing." The current note, to be made Note 2, would be changed to state, "For Functions with no installed bypass test capability, the inoperable channel may be bypassed for up to 12 hours for surveillance testing of other channels." The Note to the Required Action for TS 3.3.2 Condition K would similarly be changed to have two notes.

No change is needed for the TS 3.3.2, Condition E, Required Action Note since it already reflects the currently installed bypass test capability associated with the containment spray instrumentation functions.

Attachments 2 and 3 contain mark-ups of the affected TS pages for Braidwood and Byron Station, respectively, for the proposed change.

Attachments 4 and 5 contain the proposed mark-ups of the affected TS Bases pages for Braidwood and Byron Station, respectively, for information only. Changes to TS Bases 3.3.1

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and 3.3.2 are required to reflect changes to the Required Action Note for bypassing channels with bypass test capability. These changes will be made in accordance with the Braidwood and Byron TS Bases Control Program.

3.0 BACKGROUND

In 2008, License Amendments 148 and 153 (Reference 2) revised the TS for Braidwood and Byron Stations, respectively, in order to extend the RTS and ESFAS completion times, bypass test times, and surveillance test intervals for certain TS 3.3.1 and TS 3.3.2 functions. Amendments 148 and 153 adopted changes approved by the NRC in Westinghouse report WCAP-14333-P-A, Revision 1, "Probabilistic Risk Analysis of the RPS and ESFAS Test Times and Completion Times," issued October 1998 (Reference 3), as approved by the NRC in a letter dated July 15, 1998. In addition, Amendments 148 and 153 adopted changes approved by the NRC in Westinghouse report WCAP-15376-P-A, Revision 1, "Risk-Informed Assessment of the RTS and ESFAS Surveillance Test Intervals and Reactor Trip Breaker Test and Completion Times," issued March 2003 (Reference 4), as approved by the NRC in a letter dated December 20, 2002. The EGC license amendment request dated January 8, 2007, did not include a request to change the Required Action Notes for bypassing channels with bypass test capability because bypass test instrumentation was not at that time planned for installation.

As documented in Braidwood Unit 2 Licensee Event Report 2009-001-00, "Reactor Trip on Over Temperature Delta Temperature due to a Signal Spike on One Channel With Another Channel Placed in the Tripped Condition for Surveillance Testing," dated June 23, 2009, Braidwood Unit 2 experienced a reactor trip on April 24, 2009, from 100% power due to a trip signal generated in the RTS system. The root cause for the event was determined to be that the design of the 7300 system for RTS and ESFAS, which places a loop in a trip condition for testing, increases vulnerability during testing conditions. This cause is applicable to all four units at Braidwood and Byron, and the corrective action is to place a barrier to the inappropriate trip by installing a suitable modification, which bypasses a tested channel rather than placing it in the trip state during surveillances. As a result, each unit is being modified to provide installed bypass test capability, which necessitates the need for the proposed TS change.

4.0 TECHNICAL EVALUATION

TS Task Force (TSTF) generic change traveler TSTF-418, "Reactor Protection System and ESFAS Test Times and Completion Times (WCAP-14333)," Revision 2, established that bypass testing was an acceptable method of testing. TSTF-418 was incorporated into NUREG-1431, Revision 3, recognizing plants that have installed bypass test capability. By changing the Required Action Notes to reflect STS wording, the proposed change aligns the Braidwood and Byron TS with the STS, and reduces the potential for unnecessary reactor trips or safeguards actuation due to a failure or transient in a redundant channel.

No modifications to trip setpoints, surveillance frequencies, or channel responses are associated with this change. Hardware changes necessary to be made to the Nuclear Instrumentation System (NIS) and 7300 process protection system to facilitate testing in bypass will be implemented in accordance with 10 CFR 50.59. In addition, associated instrumentation surveillance procedures will be revised to reflect the use of the bypass test capability. The hardware modifications to facilitate testing in bypass without lifting leads or the use of temporary jumpers meet the conditions specified by the NRC in the Safety Evaluations issued during the

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review of WCAP-10271-P-A, "Evaluation of Surveillance Frequencies and Out of Service Times for the Reactor Protection Instrumentation System," (Reference 5) and its supplements. The NRC approved the implementation of the changes in WCAP-10271 at Braidwood Station, Units 1 and 2, in License Amendment 44 (Reference 6) and at Byron Station, Units 1 and 2, in License Amendment 55 (Reference 7), with the exception of the allowance to test the RTS analog channels in a bypass condition instead of a tripped condition. At that time, Braidwood and Byron were not equipped with installed bypass test capability.

Hardware modifications are planned for both the NIS and 7300 systems to allow bypassing an instrument channel without lifting leads or installing temporary jumpers. A bypass panel will be installed in the NIS cabinet and will provide a second source of power in place of the output of a bistable function. Replacement test cards for the 7300 System will provide the capability to bypass a channel. In addition, an alarm window will be changed in the main control room to annunciate a channel in bypass, the containment spray bypass status lights will be changed to specify which protection channel (i.e., I, II, III, or IV) has a function that has been bypassed, and the Sequence of Events Recorder will provide information on the specific instrument loop/channel which has a function that has been bypassed. Status of the bypassed condition will be provided both in the control room and locally. Both systems will retain the ability to test with a channel in the trip condition.

Current TS allow an inoperable channel to be placed in bypass for up to 12 hours to allow testing of other channels; however, analog channel comparators are currently placed in the tripped state for channel testing. The ability to place a channel in trip will still exist with the new hardware; therefore, this function is not affected. With the proposed TS change, the plant would be able to perform routine testing with a channel in bypass instead of placing the surveilled channel in a tripped condition.

When surveillance testing is performed for functions with installed bypass test capability under the Required Action note, the appropriate TS Condition is entered, and the Required Action Note is applied, allowing an inoperable channel to be placed in bypass for up to 12 hours. The Completion Time starts after the time in the Required Action Note expires, providing the equipment remains removed from service or bypassed. If the surveillance time exceeds 12 hours, the Required Action would have to be performed (e.g., place channel in trip within 72 hours or be in Mode 3 within 78 hours.) In addition, for channels with installed bypass test capability, if a channel is discovered inoperable, the bypass test capability could be utilized during troubleshooting prior to expiration of the appropriate TS Condition Required Action Completion Time to place the channel in trip.

In general, the RTS and ESFAS utilize two-out-of-three and two-out-of-four coincidence logic from redundant channels to initiate protective actions. Within these systems, analog channel comparators, with the exceptions of the NIS one-out-of-two functions and the ESFAS containment spray function, are currently placed in the tripped state for channel testing or in response to a channel being out of service. With a channel in the tripped condition, a second comparator trip in a redundant channel caused by human error, a spurious transient, or channel failure would initiate a reactor trip or safeguards actuation.

With a channel in the tripped condition, the logic now becomes a one-out-of-two or one-out-of-three of the remaining operable channels. With implementation of this TS change, the spurious reactor trip or safeguards actuation will be avoided since the partial trip conditions that would

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have been present are eliminated by placing the channel in bypass, and the coincident logic is maintained by requiring signals from two channels to actuate the protective function. The logic with a channel in bypass becomes two of two or two of three. This would reduce the likelihood of an inadvertent plant transient due to a spurious signal, human error, or failure affecting another channel. The impact of using bypass test capability upon nuclear safety has been previously evaluated by the NRC and determined to be acceptable in References 3, 4, and 5. References 2, 6, and 7 documented the NRC's approval of those evaluations for the Braidwood and Byron Stations.

Reference 1 provided in Attachment 7 contains the technical basis and methodology associated with the bypass test capability.

5.0 REGULATORY EVALUATION

5.1 Applicable Regulatory Requirements/Criteria

Section 4.0 of Reference 1 provides the regulatory requirements and criteria for bypass test instrumentation, including the General Design Criteria, Regulatory Guides, and Institute of Electrical and Electronics Engineers Standards.

5.2 Precedents

The NRC has approved similar submittals as indicated below:

- 1) Letter from P. S. Tam (U. S. NRC) to M. W. Rencheck (Indiana Michigan Power Company), "Donald C. Cook Nuclear Plant, Units 1 and 2 (DCCNP-1 and -2) Issuance of Amendment – Regarding Reactor Trip System Instrumentation and Engineered Safety Feature Actuation System Instrumentation (TAC Nos. MD3159 and MD3160)," dated December 17, 2007
- 2) Letter from M. C. Thadani (U. S. NRC) to M. R. Blevins (TXU Power), "Comanche Peak Steam Electric Station (CPSES), Units 1 and 2 – Issuance of Amendments Re: Reactor Trip System and Engineered Safety Features Actuation System Instrumentation (TAC Nos. MC6482 and MC6483)," dated September 29, 2005
- 3) Letter from M. C. Thadani (U. S. NRC) to W. T. Cottle (South Texas Project Electric Generating Station), "South Texas Project, Units 1 and 2 – Issuance of Amendments Revising Allowable Outage Times and Bypass Test Times for Instrumentation (TAC Nos. MB2138 and MB2139)," dated March 19, 2002

5.3 No Significant Hazards Consideration

In accordance with 10 CFR 50.90, "Application for amendment of license, construction permit or early site permit," Exelon Generation Company, LLC, (EGC) requests an amendment to Facility Operating License Nos. NPF-72 and NPF-77 for Braidwood Station, Units 1 and 2, and Facility Operating License Nos. NPF-37 and NPF-66 for Byron Station, Units 1 and 2. This amendment request proposes to revise certain Required Action Notes in Braidwood and Byron Technical Specifications (TS) 3.3.1,

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"Reactor Trip System (RTS) Instrumentation," and TS 3.3.2, "Engineered Safety Feature Actuation System (ESFAS) Instrumentation." The proposed change will reflect standard wording incorporated in NUREG-1431, Revision 3, "Standard Technical Specifications, Westinghouse Plants," (STS) for plants with installed bypass test capability. The proposed change is needed to support the installation of bypass test capability, which will promote improved maintenance practices that will provide a resultant reduction in the number of spurious reactor trips and spurious actuation of safety equipment. This change is supported by Westinghouse Electric Company LLC (Westinghouse) report WCAP-17349-P, Revision 1, "Bypass Test Instrumentation for Byron and Braidwood Units 1 and 2," February 2011.

According to 10 CFR 50.92, "Issuance of amendment," paragraph (c), a proposed amendment to an operating license involves no significant hazards consideration 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.

EGC has evaluated the proposed change for Braidwood Station and Byron Station, using the criteria in 10 CFR 50.92, and has determined that the proposed change does not involve a significant hazards consideration. The following information is provided to support a finding of no significant hazards consideration.

Criteria

1. Does the proposed change involve a significant increase in the probability or consequences of an accident previously evaluated?

Response: No.

The Reactor Protection System (RPS) and Engineered Safety Feature Actuation System (ESFAS) provide plant protection and are part of the accident mitigation response. The RTS and ESFAS functions do not themselves act as a precursor or an initiator for any transient or design basis accident. Therefore, the proposed change does not significantly increase the probability of any accident previously evaluated.

The proposed change does not alter the design assumptions, conditions, or configuration of the facility. The structural and functional integrity of the RTS and ESFAS, or any other plant system, is unaffected. The proposed change does not alter or prevent the ability of structures, systems, and components from performing their intended function to mitigate the consequences of an initiating event within the assumed acceptance limits. Surveillance testing in the bypass condition will not cause any design or analysis acceptance criteria to be exceeded.

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Under the proposed change, the channel being tested may be bypassed. The number of available channels with one channel in bypass for testing will remain the same as the number of channels available when testing in trip. The number of channels to trip will be unchanged when testing in bypass while the number of channels to trip is reduced to one when testing in trip. Although there may be a slight increase in the possibility that the failure of a channel could prevent the actuation of a function (because testing in bypass could result in two-out-of-two logic while testing in trip would have resulted in one-out-of-two logic), testing in bypass will reduce the vulnerability to inadvertent actuation of a function while maintaining the required number of channels to trip. The impact of using bypass test capability upon nuclear safety has been previously evaluated by the NRC and determined to be acceptable in WCAPs 14333-P-A, Revision 1, 15376-P-A, Revision 1, and 10271-P-A, Revision 1. Thus, testing in bypass when all channels are operable does not involve a significant increase in the probability or consequences of an accident previously evaluated.

Under the proposed change, the channel being tested may be bypassed when another channel is concurrently inoperable and in a tripped condition. As a result, with one channel in bypass and another in trip leaves one-out-of-two operable channels to initiate the protective function (if the initial logic is two-out-of-four) or one-out-of-one operable channels to initiate the protective function (if the initial logic was two-out-of-three). Thus, testing in bypass with one channel inoperable does not involve a significant increase in the probability or consequences of an accident previously evaluated.

Implementation of the bypass testing capability does not affect the integrity of the fission product barriers utilized for mitigation of radiological dose consequences as a result of an accident. Plant response as modeled in the safety analyses is unaffected. Hence, the releases used as input to the dose calculations are unchanged from those previously assumed.

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

2. Does the proposed change create the possibility of a new or different kind of accident from any accident previously evaluated?

Response: No.

Surveillance testing in bypass does not affect accident initiation sequences or response scenarios as modeled in the safety analyses. No new operating configuration is being imposed by the surveillance testing in bypass that would create a new failure scenario. The RTS and ESFAS will continue to have the same setpoints after the proposed change is implemented. In addition, no new failure modes are being created for any plant equipment. The bypass test instrumentation has been designed to applicable regulatory and industry standards. Fault conditions, failure detection, reliability and equipment qualification have been considered. The changes do not result in the creation of any change to

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existing accident scenarios nor does it create any new or different accident scenarios. The types of accidents defined in the UFSAR continue to represent the credible spectrum of events to be analyzed which determine safe plant operation.

Therefore, the proposed change does not create the possibility of a new or different kind of accident from any previously evaluated.

3. Does the proposed change involve a significant reduction in a margin of safety?

Response: No.

No safety analyses were changed or modified as a result of the proposed TS change to reflect installed bypass test capability. The proposed change does not alter the manner in which safety limits, limiting safety system setpoints, or limiting conditions for operation are determined. Margins associated with the current safety analyses acceptance criteria are unaffected. The current safety analyses remain bounding since their conclusions are not affected by performing surveillance testing in bypass. The safety systems credited in the safety analyses will continue to be available to perform their mitigation functions.

Implementation of testing in bypass results in an overall improvement in safety because the capability to test in bypass for the analog channels will promote improved maintenance practices that will provide a resultant reduction in the number of spurious reactor trips and spurious actuation of safety equipment.

Therefore, the proposed change does not result in a significant reduction in a margin of safety.

Based on the above evaluation, EGC concludes that the proposed amendment presents no significant hazards consideration under the standards set forth in 10 CFR 50.92, paragraph (c), and accordingly, a finding of no significant hazards consideration is justified.

5.4 Conclusion

In conclusion, based on the considerations discussed above, (1) there is reasonable assurance that the health and safety of the public will not be endangered by the operation of Byron and Braidwood Units 1 and 2 in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendment will not be inimical to the common defense and security or the health and safety of the public.

6.0 ENVIRONMENTAL CONSIDERATION

EGC has evaluated the proposed amendment for environmental considerations. The review has resulted in the determination that the proposed amendment would change requirements with respect to installation or use of a facility component located within the restricted area, as defined in 10 CFR 20, or would change an inspection or surveillance requirement. However, the proposed amendment does not involve (i) a significant hazards consideration, (ii) a significant

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change in the types or significant increase in the amounts of any effluent that may be released offsite, or (iii) a significant increase in individual or cumulative occupational radiation exposure. Accordingly, the proposed amendment meets the eligibility criterion for categorical exclusion set forth in 10 CFR 51.22(c)(9). Therefore, pursuant to 10 CFR 51.22, paragraph (b), no environmental impact statement or environmental assessment needs to be prepared in connection with the proposed amendment.

7.0 REFERENCES

- 1) Westinghouse Electric Company LLC, WCAP-17349-P, Revision 1, "Bypass Test Instrumentation for Byron and Braidwood Units 1 and 2," February 2011 (Proprietary)
- 2) Letter from M. M. Thorpe-Kavanaugh (U. S. NRC) to C. Pardee (Exelon Generation Company, LLC), "Byron Station, Unit Nos. 1 and 2, and Braidwood Station, Units 1 and 2 – Issuance of Amendments Re: Technical Specification Request to Extend Reactor Trip System and Engineered Safety Features Actuation System Completion Times, Bypass Test Times, and Surveillance Test Intervals (TAC Nos. MD4009, MD4010, MD4011, and MD4012)," dated January 29, 2008
- 3) Westinghouse Electric Company LLC, WCAP-14333-P-A, Revision 1, "Probabilistic Risk Analysis of the RPS and ESFAS Test Times and Completion Times," October 1998 (Proprietary)
- 4) Westinghouse Electric Company LLC, WCAP-15376-P-A, Revision 1, "Risk-Informed Assessment of the RTS and ESFAS Surveillance Test Intervals and Reactor Trip Breaker Test and Completion Times," March 2003 (Proprietary)
- 5) Westinghouse Electric Company LLC, WCAP-10271-P-A, Revision 1, "Evaluation of Surveillance Frequencies and Out of Service Times for the Reactor Protection Instrumentation System," June 1990 (Proprietary)
- 6) Letter from R. R. Assa (NRC) to D. L. Farrar (Commonwealth Edison Company) transmitting Amendment 44 to Facility Operating License NPF-72 and NPF-77 for Braidwood Station, Units 1 and 2, "Implementation of Quarterly Surveillance Test Intervals for the ESFAS Instrumentation, in accordance with WCAP-10271," dated December 16, 1993
- 7) Letter from J. B. Hickman (NRC) to D. L. Farrar (Commonwealth Edison Company) transmitting Amendment 55 to Facility Operating License NPF-37 and NPF-66 for Byron Station, Units 1 and 2, "Implementation of Quarterly Surveillance Test Intervals for the ESFAS Instrumentation, in accordance with WCAP-10271," dated October 4, 1993

ATTACHMENT 2
Markup of Technical Specifications Pages for Braidwood Station, Units 1 and 2

Braidwood Station, Units 1 and 2
Facility Operating License Nos. NPF-72 and NPF-77

REVISED TECHNICAL SPECIFICATIONS PAGES

3.3.1-2
3.3.1-3
3.3.1-4
3.3.2-2
3.3.2-5
INSERTS

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>C. One channel or train inoperable.</p>	<p>-----NOTE----- While this LCO is not met for Function 18, 19, or 20 in MODE 5, making the Rod Control System capable of rod withdrawal is not permitted. -----</p> <p>C.1 Restore channel or train to OPERABLE status.</p> <p><u>OR</u></p> <p>C.2.1 Initiate action to fully insert all rods.</p> <p><u>AND</u></p> <p>C.2.2 Place the Rod Control System in a condition incapable of rod withdrawal.</p>	<p>48 hours</p> <p>48 hours</p> <p>49 hours</p>
<p>D. One Power Range Neutron Flux-High channel inoperable.</p>	<p>-----NOTE----- The inoperable channel may be bypassed for up to 12 hours for surveillance testing and setpoint adjustment of other channels. -----</p> <p>D.1 Place channel in trip.</p> <p><u>OR</u></p> <p>D.2 Be in MODE 3.</p>	<p>72 hours</p> <p>78 hours</p>

Replace with
INSERT A

S

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
I. Two Source Range Neutron Flux channels inoperable.	I.1 Open Reactor Trip Breakers (RTBs).	Immediately
J. One Source Range Neutron Flux channel inoperable.	J.1 Restore channel to OPERABLE status. OR J.2.1 Initiate action to fully insert all rods. AND J.2.2 Place the Rod Control System in a condition incapable of rod withdrawal.	48 hours 48 hours 49 hours
K. One channel inoperable.	<p style="text-align: center;">-----NOTE----- The inoperable channel may be bypassed for up to 12 hours for surveillance testing of other channels. -----</p> <p style="text-align: center;">K.1 Place channel in trip.</p> <p style="text-align: center;">OR</p> <p style="text-align: center;">K.2 Reduce THERMAL POWER to < P-7.</p>	<p style="text-align: center;">-----S-----</p> 72 hours 78 hours

Replace with
INSERT B

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. One train inoperable.	<p>C.1 -----NOTE----- One train may be bypassed for up to 4 hours for surveillance testing provided the other train is OPERABLE. -----</p> <p>Restore train to OPERABLE status.</p> <p><u>OR</u></p> <p>C.2.1 Be in MODE 3.</p> <p><u>AND</u></p> <p>C.2.2 Be in MODE 5.</p>	<p>24 hours </p> <p>30 hours </p> <p>60 hours </p>
D. One channel inoperable.	<p>D.1 -----NOTE----- The inoperable channel may be bypassed for up to 12 hours for surveillance testing of other channels. -----</p> <p>Place channel in trip.</p> <p><u>OR</u></p> <p>D.2.1 Be in MODE 3.</p> <p><u>AND</u></p> <p>D.2.2 Be in MODE 4.</p>	<p>72 hours </p> <p>78 hours </p> <p>84 hours </p>

Replace with
INSERT B

S

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>I. One channel inoperable.</p>	<p>I.1 -----NOTE----- The inoperable channel may be bypassed for up to 12 hours for surveillance testing of other channels. -----</p>	
	<p>Place channel in trip.</p> <p>72 hours</p> <p>OR</p> <p>I.2 Be in MODE 3.</p> <p>78 hours</p>	
<p>J. One or more trains inoperable.</p>	<p>J.1 Declare associated auxiliary feedwater pump inoperable.</p>	<p>Immediately</p>
<p>K. One channel inoperable.</p> <div data-bbox="386 1228 602 1310" style="border: 1px solid black; padding: 2px; display: inline-block;"> <p>Replace with INSERT B</p> </div>	<p>K.1 -----NOTE----- The inoperable channel may be bypassed for up to 12 hours for surveillance testing of other channels. -----</p>	
	<p>Place channel in trip.</p> <p>72 hours</p> <p>OR</p> <p>K.2.1 Be in MODE 3.</p> <p>78 hours</p> <p>AND</p> <p>K.2.2 Be in MODE 5.</p> <p>108 hours</p>	

(continued)

Braidwood Station, Units 1 and 2
Facility Operating License Nos. NPF-72 and NPF-77
NRC Docket Nos. STN 50-456 and STN 50-457

INSERT A

1. For Functions with installed bypass test capability, one channel may be bypassed for up to 12 hours for surveillance testing and setpoint adjustment.
2. For Functions with no installed bypass test capability, the inoperable channel may be bypassed for up to 12 hours for surveillance testing and setpoint adjustment of other channels.

INSERT B

1. For Functions with installed bypass test capability, one channel may be bypassed for up to 12 hours for surveillance testing.
2. For Functions with no installed bypass test capability, the inoperable channel may be bypassed for up to 12 hours for surveillance testing of other channels.

ATTACHMENT 3
Markup of Technical Specifications Pages for Byron Station, Units 1 and 2

Byron Station, Units 1 and 2

Facility Operating License Nos. NPF-37 and NPF-66

REVISED TECHNICAL SPECIFICATIONS PAGES

3.3.1-2
3.3.1-3
3.3.1-4
3.3.2-2
3.3.2-5
INSERTS

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>C. One channel or train inoperable.</p>	<p>-----NOTE----- While this LCO is not met for Function 18, 19, or 20 in MODE 5, making the Rod Control System capable of rod withdrawal is not permitted. -----</p> <p>C.1 Restore channel or train to OPERABLE status.</p> <p><u>OR</u></p> <p>C.2.1 Initiate action to fully insert all rods.</p> <p><u>AND</u></p> <p>C.2.2 Place the Rod Control System in a condition incapable of rod withdrawal.</p>	<p>48 hours</p> <p>48 hours</p> <p>49 hours</p>
<p>D. One Power Range Neutron Flux-High channel inoperable.</p> <div data-bbox="376 1331 578 1409" style="border: 1px solid black; padding: 2px; display: inline-block; margin-top: 10px;"> <p>Replace with INSERT A</p> </div>	<p>-----NOTE----- The inoperable channel may be bypassed for up to 12 hours for surveillance testing and setpoint adjustment of other channels. -----</p> <p>D.1 Place channel in trip.</p> <p><u>OR</u></p> <p>D.2 Be in MODE 3.</p>	<p>72 hours</p> <p>78 hours</p>

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>E. One channel inoperable.</p> <div data-bbox="370 541 571 625" style="border: 1px solid black; padding: 2px; display: inline-block;"> Replace with INSERT B </div>	<div data-bbox="982 331 1015 373" style="border: 1px solid black; padding: 2px; display: inline-block; text-align: center;">S</div> <p style="text-align: center;">-----NOTE-----</p> <p style="text-align: center;">The inoperable channel may be bypassed for up to 12 hours for surveillance testing of other channels.</p> <p style="text-align: center;">-----</p> <p>E.1 Place channel in trip.</p> <p style="text-align: center;"><u>OR</u></p> <p>E.2 Be in MODE 3.</p>	<p>72 hours</p> <p>78 hours</p>
<p>F. One Intermediate Range Neutron Flux channel inoperable.</p>	<p>F.1 Reduce THERMAL POWER to < P-6.</p> <p style="text-align: center;"><u>OR</u></p> <p>F.2 Increase THERMAL POWER to > P-10.</p>	<p>2 hours</p> <p>2 hours</p>
<p>G. Two Intermediate Range Neutron Flux channels inoperable.</p>	<p>G.1 Suspend operations involving positive reactivity additions.</p> <p style="text-align: center;"><u>AND</u></p> <p>G.2 Reduce THERMAL POWER to < P-6.</p>	<p>Immediately</p> <p>2 hours</p>
<p>H. One Source Range Neutron Flux channel inoperable.</p>	<p>H.1 Suspend operations involving positive reactivity additions.</p>	<p>Immediately</p>

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
I. Two Source Range Neutron Flux channels inoperable.	I.1 Open Reactor Trip Breakers (RTBs).	Immediately
J. One Source Range Neutron Flux channel inoperable.	J.1 Restore channel to OPERABLE status. OR J.2.1 Initiate action to fully insert all rods. AND J.2.2 Place the Rod Control System in a condition incapable of rod withdrawal.	48 hours 48 hours 49 hours
K. One channel inoperable.	<div style="text-align: center;"> S </div> <p style="text-align: center;">-----NOTE----- The inoperable channel may be bypassed for up to 12 hours for surveillance testing of other channels. -----</p> <div style="position: absolute; left: -100px; top: 50px; border: 1px solid black; padding: 5px;"> Replace with INSERT B </div> <p>K.1 Place channel in trip.</p> <p>OR</p> <p>K.2 Reduce THERMAL POWER to < P-7.</p>	72 hours 78 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>C. One train inoperable.</p>	<p>C.1 -----NOTE----- One train may be bypassed for up to 4 hours for surveillance testing provided the other train is OPERABLE. ----- Restore train to OPERABLE status.</p>	<p>24 hours</p>
	<p><u>OR</u></p>	
	<p>C.2.1 Be in MODE 3.</p>	<p>30 hours</p>
	<p><u>AND</u> C.2.2 Be in MODE 5.</p>	<p>60 hours</p>
<p>D. One channel inoperable.</p>	<p>D.1 -----NOTE----- The inoperable channel may be bypassed for up to 12 hours for surveillance testing of other channels. -----</p>	
	<p>Place channel in trip.</p>	<p>72 hours</p>
	<p><u>OR</u></p>	
	<p>D.2.1 Be in MODE 3. <u>AND</u> D.2.2 Be in MODE 4.</p>	<p>78 hours 84 hours</p>

(continued)

Replace with
INSERT B

S

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
I. One channel inoperable.	I.1 -----NOTE----- The inoperable channel may be bypassed for up to 12 hours for surveillance testing of other channels. ----- Place channel in trip. <u>OR</u> I.2 Be in MODE 3.	 72 hours 78 hours
J. One or more trains inoperable.	J.1 Declare associated auxiliary feedwater pump inoperable.	Immediately
K. One channel inoperable.	K.1 -----NOTE----- The inoperable channel may be bypassed for up to 12 hours for surveillance testing of other channels. ----- Place channel in trip. <u>OR</u> K.2.1 Be in MODE 3. <u>AND</u> K.2.2 Be in MODE 5.	 72 hours 78 hours 108 hours

Replace with
INSERT B

S

(continued)

Byron Station, Units 1 and 2
Facility Operating License Nos. NPF-37 and NPF-66
NRC Docket Nos. STN 50-454 and STN 50-455

INSERT A

1. For Functions with installed bypass test capability, one channel may be bypassed for up to 12 hours for surveillance testing and setpoint adjustment.
2. For Functions with no installed bypass test capability, the inoperable channel may be bypassed for up to 12 hours for surveillance testing and setpoint adjustment of other channels.

INSERT B

1. For Functions with installed bypass test capability, one channel may be bypassed for up to 12 hours for surveillance testing.
2. For Functions with no installed bypass test capability, the inoperable channel may be bypassed for up to 12 hours for surveillance testing of other channels.

ATTACHMENT 4
Markup of Technical Specifications Bases Pages for Braidwood Station, Units 1 and 2

Braidwood Station, Units 1 and 2

Facility Operating License Nos. NPF-72 and NPF-77

REVISED TECHNICAL SPECIFICATIONS BASES PAGES
(NOTE: TS Bases pages are provided for information only.)

B 3.3.1-42

B 3.3.1-43

B 3.3.1-47

B 3.3.2-44

B 3.3.2-49

INSERTS

BASES

ACTIONS (continued)

The Completion Time is reasonable considering that in this Condition, the remaining OPERABLE train is adequate to perform the safety function, and given the low probability of an event occurring during this interval.

A Note to the ACTIONS restricts the transition from MODE 5 with the Rod Control System not capable of rod withdrawal and all rods fully inserted, to MODE 5 with the Rod Control System capable of rod withdrawal or all rods not fully inserted for Functions 18, 19, and 20 while complying with the ACTIONS (i.e., while the LCO is not met). LCO 3.0.4 typically allows entry into MODES or other specified conditions in the Applicability while in MODE 5, however, the restriction of this Note is necessary to assure an OPERABLE RTS function prior to commencing operation with the Rod Control System capable of rod withdrawal or all rods not fully inserted.

D.1 and D.2

Condition D applies to the Power Range Neutron Flux-High Function.

The NIS power range detectors provide input to the Rod Control System and the SG Water Level Control System and, therefore, have a two-out-of-four trip logic. A known inoperable channel must be placed in the tripped condition. This results in a partial trip condition requiring only one-out-of-three logic for actuation. The 72 hours allowed to place the inoperable channel in the tripped condition is justified in Reference 14.

As an alternative to the above Action, the plant must be placed in a MODE where this Function is no longer required OPERABLE. Seventy eight hours are allowed to place the plant in MODE 3. The 78 hour Completion Time includes 72 hours for channel corrective maintenance and an additional 6 hours for the MODE reduction as required by Required Action D.2. This is a reasonable time, based on operating experience, to reach MODE 3 from full power in an orderly manner and without challenging plant systems. If Required Actions cannot be completed within their allowed Completion Times, LCO 3.0.3 must be entered.

Replace with
INSERT C

~~The Required Actions have been modified by a Note that allows placing the inoperable channel in the bypass condition for up to 12 hours while performing routine~~

BASES

ACTIONS (continued)

~~surveillance testing of other channels. The Note also allows placing the inoperable channel in the bypass condition to allow setpoint adjustments of other channels when required to reduce the setpoint in accordance with other Technical Specifications. The 12 hour time limit is justified in Reference 14.~~

E.1 and E.2

Condition E applies to the following reactor trip Functions:

- Power Range Neutron Flux-Low;
- Overtemperature ΔT ;
- Overpower ΔT ;
- Power Range Neutron Flux-High Positive Rate;
- Pressurizer Pressure-High; and
- SG Water Level-Low Low.

A known inoperable channel must be placed in the tripped condition within 72 hours. Placing the channel in the tripped condition results in a partial trip condition requiring only one-out-of-three logic for actuation of the two-out-of-four trips. The 72 hours allowed to place the inoperable channel in the tripped condition is justified in Reference 14.

If the inoperable channel cannot be placed in the trip condition within the specified Completion Time, the unit must be placed in a MODE where these Functions are not required OPERABLE. An additional 6 hours is allowed to place the unit in MODE 3. Six hours is a reasonable time, based on operating experience, to place the unit in MODE 3 from full power in an orderly manner and without challenging plant systems.

Replace with
INSERT D



~~The Required Actions have been modified by a Note that allows placing the inoperable channel in the bypassed condition for up to 12 hours while performing routine surveillance testing of the other channels. The 12 hour time limit is justified in Reference 14.~~

BASES

ACTIONS (continued)

K.1 and K.2

Condition K applies to the following reactor trip Functions:

- Pressurizer Pressure-Low;
- Pressurizer Water Level-High;
- Reactor Coolant Flow-Low;
- Undervoltage RCPs; and
- Underfrequency RCPs.

With one channel inoperable, the inoperable channel must be placed in the tripped condition within 72 hours. Placing the channel in the tripped condition results in a partial trip condition requiring only one additional channel to initiate a reactor trip above the P-7 setpoint. These Functions do not have to be OPERABLE below the P-7 setpoint. The 72 hours allowed to place the channel in the tripped condition is justified in Reference 14. An additional 6 hours is allowed to reduce THERMAL POWER to below P-7 if the inoperable channel cannot be restored to OPERABLE status or placed in trip within the specified Completion Time.

Allowance of this time interval takes into consideration the redundant capability provided by the remaining redundant OPERABLE channel, and the low probability of occurrence of an event during this period that may require the protection afforded by the Functions associated with Condition K.

Replace with
INSERT D



~~The Required Actions have been modified by a Note that allows placing the inoperable channel in the bypassed condition for up to 12 hours while performing routine surveillance testing of the other channels. The 12 hour time limit is justified in Reference 14.~~

L.1 and L.2

Condition L applies to Turbine Trip on Emergency Trip Header Pressure or on Turbine Throttle Valve Closure. With one channel inoperable, the inoperable channel must be placed in the trip condition within 72 hours. If placed in the

BASES

ACTIONS (continued)

Replace with
INSERT D

~~The Required Actions are modified by a Note that allows the inoperable channel to be bypassed for up to 12 hours for surveillance testing of other channels. The 12 hours allowed for testing, is justified in Reference 15.~~

E.1, E.2.1, and E.2.2

Condition E applies to:

- Containment Spray Containment Pressure-High 3; and
- Containment Phase B Isolation Containment Pressure-High 3.

None of these signals has input to a control function. Thus, two-out-of-three logic is necessary to meet acceptable protective requirements. However, a two-out-of-three design would require tripping a failed channel. This is undesirable because a single failure would then cause spurious containment spray initiation. Spurious spray actuation is undesirable because of the cleanup problems presented. Therefore, these channels are designed with two-out-of-four logic so that a failed channel may be bypassed rather than tripped. Note that one channel may be bypassed and still satisfy the single failure criterion. Furthermore, with one channel bypassed, a single instrumentation channel failure will not spuriously initiate containment spray.

BASES

ACTIONS (continued)

J.1

Condition J applies to the Auxiliary Feedwater Pump Suction Transfer on Suction Pressure-Low Function. With one train inoperable, the associated auxiliary feedwater pump must be immediately declared inoperable. This requires entry into applicable Conditions and Required Actions of LCO 3.7.5, "AF System."

K.1, K.2.1, and K.2.2

Condition K applies to the RWST Level-Low Low Coincident with Safety Injection Function.

RWST Level-Low Low Coincident with SI provides actuation of switchover to the containment sump. Note that this Function requires the bistables to energize to perform their required action.

This Condition applies to a Function that operates on two-out-of-four logic. Therefore, failure of one channel places the Function in a two-out-of-three configuration. One channel must be tripped to place the Function in a one-out-of-three configuration that satisfies redundancy requirements.

If the channel cannot be returned to OPERABLE status or placed in the tripped condition within 72 hours, the unit must be brought to MODE 3 within the following 6 hours and MODE 5 within the next 30 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems. In MODE 5, the unit does not have any analyzed transients or conditions that require the explicit use of the protection function noted above.

Replace with
INSERT D

~~The Required Actions are modified by a Note that allows placing the inoperable channel in the bypass condition for up to 12 hours for surveillance testing of other channels. This is acceptable based on the results of Reference 15.~~

Braidwood Station, Units 1 and 2
Facility Operating License Nos. NPF-72 and NPF-77
NRC Docket Nos. STN 50-456 and STN 50-457

INSERT C

The Required Actions are modified by two Notes. The first Note applies to Functions that have installed bypass capability. The Note allows placing one channel in bypass for 12 hours while performing routine surveillance testing, and setpoint adjustments when a setpoint reduction is required by other Technical Specifications. The second Note applies to Functions that do not have installed bypass capability. This Note allows placing the inoperable channel in bypass for 12 hours while performing routine surveillance testing or setpoint adjustments of other channels.

INSERT D

The Required Actions are modified by two Notes. The first Note applies to Functions that have installed bypass capability. The Note allows placing one channel in bypass for 12 hours while performing routine surveillance testing. The second Note applies to Functions that do not have installed bypass capability. This Note allows placing the inoperable channel in bypass for 12 hours while performing routine surveillance testing of other channels.

ATTACHMENT 5
Markup of Technical Specifications Bases Pages for Byron Station, Units 1 and 2

Byron Station, Units 1 and 2

Facility Operating License Nos. NPF-37 and NPF-66

REVISED TECHNICAL SPECIFICATIONS BASES PAGES
(NOTE: TS Bases pages are provided for information only.)

B 3.3.1-40

B 3.3.1-41

B 3.3.1-45

B 3.3.2-44

B 3.3.2-49

INSERTS

BASES

ACTIONS (continued)

A Note to the ACTIONS restricts the transition from MODE 5 with the Rod Control System not capable of rod withdrawal and all rods fully inserted, to MODE 5 with the Rod Control System capable of rod withdrawal or all rods not fully inserted for Functions 18, 19, and 20 while complying with the ACTIONS (i.e., while the LCO is not met). LCO 3.0.4 typically allows entry into MODES or other specified conditions in the Applicability while in MODE 5, however, the restriction of this Note is necessary to assure an OPERABLE RTS function prior to commencing operation with the Rod Control System capable of rod withdrawal or all rods not fully inserted.

D.1 and D.2

Condition D applies to the Power Range Neutron Flux-High Function.

The NIS power range detectors provide input to the Rod Control System and the SG Water Level Control System and, therefore, have a two-out-of-four trip logic. A known inoperable channel must be placed in the tripped condition. This results in a partial trip condition requiring only one-out-of-three logic for actuation. The 72 hours allowed to place the inoperable channel in the tripped condition is justified in Reference 13.

As an alternative to the above Action, the plant must be placed in a MODE where this Function is no longer required OPERABLE. Seventy eight hours are allowed to place the plant in MODE 3. The 78 hour Completion Time includes 72 hours for channel corrective maintenance and an additional 6 hours for the MODE reduction as required by Required Action D.2. This is a reasonable time, based on operating experience, to reach MODE 3 from full power in an orderly manner and without challenging plant systems. If Required Actions cannot be completed within their allowed Completion Times, LCO 3.0.3 must be entered.

Replace with
INSERT C

~~The Required Actions have been modified by a Note that allows placing the inoperable channel in the bypass condition for up to 12 hours while performing routine surveillance testing of other channels. The Note also allows placing the inoperable channel in the bypass condition to allow setpoint adjustments of other channels when required to reduce the setpoint in accordance with other Technical Specifications. The 12 hour time limit is justified in Reference 13.~~

BASES

ACTIONS (continued)

E.1 and E.2

Condition E applies to the following reactor trip Functions:

- Power Range Neutron Flux-Low;
- Overtemperature ΔT ;
- Overpower ΔT ;
- Power Range Neutron Flux-High Positive Rate;
- Pressurizer Pressure-High; and
- SG Water Level-Low Low.

A known inoperable channel must be placed in the tripped condition within 72 hours. Placing the channel in the tripped condition results in a partial trip condition requiring only one-out-of-three logic for actuation of the two-out-of-four trips. The 72 hours allowed to place the inoperable channel in the tripped condition is justified in Reference 13.

If the inoperable channel cannot be placed in the trip condition within the specified Completion Time, the unit must be placed in a MODE where these Functions are not required OPERABLE. An additional 6 hours is allowed to place the unit in MODE 3. Six hours is a reasonable time, based on operating experience, to place the unit in MODE 3 from full power in an orderly manner and without challenging plant systems.

Replace with
INSERT D

~~The Required Actions have been modified by a Note that allows placing the inoperable channel in the bypassed condition for up to 12 hours while performing routine surveillance testing of the other channels. The 12 hour time limit is justified in Reference 13.~~

BASES

ACTIONS (continued)

K.1 and K.2

Condition K applies to the following reactor trip Functions:

- Pressurizer Pressure-Low;
- Pressurizer Water Level-High;
- Reactor Coolant Flow-Low;
- Undervoltage RCPs; and
- Underfrequency RCPs.

With one channel inoperable, the inoperable channel must be placed in the tripped condition within 72 hours. Placing the channel in the tripped condition results in a partial trip condition requiring only one additional channel to initiate a reactor trip above the P-7 setpoint. These Functions do not have to be OPERABLE below the P-7 setpoint. The 72 hours allowed to place the channel in the tripped condition is justified in Reference 13. An additional 6 hours is allowed to reduce THERMAL POWER to below P-7 if the inoperable channel cannot be restored to OPERABLE status or placed in trip within the specified Completion Time.

Allowance of this time interval takes into consideration the redundant capability provided by the remaining redundant OPERABLE channel, and the low probability of occurrence of an event during this period that may require the protection afforded by the Functions associated with Condition K.

Replace with
INSERT D

~~The Required Actions have been modified by a Note that allows placing the inoperable channel in the bypassed condition for up to 12 hours while performing routine surveillance testing of the other channels. The 12 hour time limit is justified in Reference 13.~~

L.1 and L.2

Condition L applies to Turbine Trip on Emergency Trip Header Pressure or on Turbine Throttle Valve Closure. With one channel inoperable, the inoperable channel must be placed in the trip condition within 72 hours. If placed in the tripped condition, this results in a partial trip condition

BASES

ACTIONS (continued)

Replace with
INSERT D

~~The Required Actions are modified by a Note that allows the inoperable channel to be bypassed for up to 12 hours for surveillance testing of other channels. The 12 hours allowed for testing is justified in Reference 15.~~

E.1, E.2.1, and E.2.2

Condition E applies to:

- Containment Spray Containment Pressure-High 3; and
- Containment Phase B Isolation Containment Pressure-High 3.

None of these signals has input to a control function. Thus, two-out-of-three logic is necessary to meet acceptable protective requirements. However, a two-out-of-three design would require tripping a failed channel. This is undesirable because a single failure would then cause spurious containment spray initiation. Spurious spray actuation is undesirable because of the cleanup problems presented. Therefore, these channels are designed with two-out-of-four logic so that a failed channel may be bypassed rather than tripped. Note that one channel may be bypassed and still satisfy the single failure criterion. Furthermore, with one channel bypassed, a single instrumentation channel failure will not spuriously initiate containment spray.

BASES

ACTIONS (continued)

J.1

Condition J applies to the Auxiliary Feedwater Pump Suction Transfer on Suction Pressure-Low Function. With one train inoperable, the associated auxiliary feedwater pump must be immediately declared inoperable. This requires entry into applicable Conditions and Required Actions of LCO 3.7.5, "AF System."

K.1, K.2.1, and K.2.2

Condition K applies to the RWST Level-Low Low Coincident with Safety Injection Function.

RWST Level-Low Low Coincident with SI provides actuation of switchover to the containment sump. Note that this Function requires the bistables to energize to perform their required action.

This Condition applies to a Function that operates on two-out-of-four logic. Therefore, failure of one channel places the Function in a two-out-of-three configuration. One channel must be tripped to place the Function in a one-out-of-three configuration that satisfies redundancy requirements.

If the channel cannot be returned to OPERABLE status or placed in the tripped condition within 72 hours, the unit must be brought to MODE 3 within the following 6 hours and MODE 5 within the next 30 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems. In MODE 5, the unit does not have any analyzed transients or conditions that require the explicit use of the protection function noted above.

Replace with
INSERT D

~~The Required Actions are modified by a Note that allows placing the inoperable channel in the bypass condition for up to 12 hours for surveillance testing of other channels. This is acceptable based on the results of Reference 15.~~

Byron Station, Units 1 and 2
Facility Operating License Nos. NPF-37 and NPF-66
NRC Docket Nos. STN 50-454 and STN 50-455

INSERT C

The Required Actions are modified by two Notes. The first Note applies to Functions that have installed bypass capability. The Note allows placing one channel in bypass for 12 hours while performing routine surveillance testing, and setpoint adjustments when a setpoint reduction is required by other Technical Specifications. The second Note applies to Functions that do not have installed bypass capability. This Note allows placing the inoperable channel in bypass for 12 hours while performing routine surveillance testing or setpoint adjustments of other channels.

INSERT D

The Required Actions are modified by two Notes. The first Note applies to Functions that have installed bypass capability. The Note allows placing one channel in bypass for 12 hours while performing routine surveillance testing. The second Note applies to Functions that do not have installed bypass capability. This Note allows placing the inoperable channel in bypass for 12 hours while performing routine surveillance testing of other channels.

ATTACHMENT 6

Westinghouse Application for Withholding and Affidavit

CAW-11-3116



Westinghouse Electric Company
Nuclear Services
1000 Westinghouse Drive
Cranberry Township, Pennsylvania 16066
USA

U.S. Nuclear Regulatory Commission
Document Control Desk
11555 Rockville Pike
Rockville, MD 20852

Direct tel: (412) 374-4643
Direct fax: (724) 720-0754
e-mail: greshaja@westinghouse.com
Proj letter: CAE-11-25/CCE-11-23

CAW-11-3116

February 23, 2011

APPLICATION FOR WITHHOLDING PROPRIETARY
INFORMATION FROM PUBLIC DISCLOSURE

Subject: WCAP-17349-P, Revision 1, "Bypass Test Instrumentation for Byron and Braidwood Units 1 and 2" (Proprietary)

The proprietary information for which withholding is being requested in the above-referenced report is further identified in Affidavit CAW-11-3116 signed by the owner of the proprietary information, Westinghouse Electric Company LLC. The affidavit, which accompanies this letter, sets forth the basis on which the information may be withheld from public disclosure by the Commission and addresses with specificity the considerations listed in paragraph (b)(4) of 10 CFR Section 2.390 of the Commission's regulations.

Accordingly, this letter authorizes the utilization of the accompanying affidavit by Exelon Generation Company, LLC.

Correspondence with respect to the proprietary aspects of the application for withholding or the Westinghouse affidavit should reference this letter, CAW-11-3116, and should be addressed to J. A. Gresham, Manager, Regulatory Compliance, Westinghouse Electric Company LLC, Suite 428, 1000 Westinghouse Drive, Cranberry Township, Pennsylvania 16066.

Very truly yours,

A handwritten signature in black ink, appearing to read 'J. A. Gresham', followed by a diagonal slash and the word 'for'.

J. A. Gresham, Manager
Regulatory Compliance

Enclosures

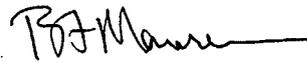
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COMMONWEALTH OF PENNSYLVANIA:

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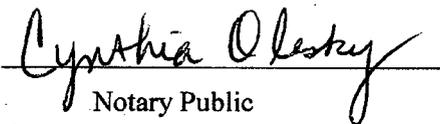
COUNTY OF BUTLER:

Before me, the undersigned authority, personally appeared B. F. Maurer, who, being by me duly sworn according to law, deposes and says that he is authorized to execute this Affidavit on behalf of Westinghouse Electric Company LLC (Westinghouse), and that the averments of fact set forth in this Affidavit are true and correct to the best of his knowledge, information, and belief:

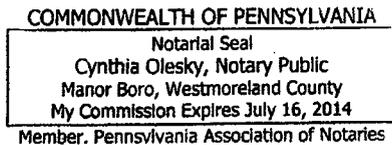


B. F. Maurer, Manager
ABWR Licensing

Sworn to and subscribed before me
this 23rd day of February 2011



Notary Public



- (1) I am Manager, ABWR Licensing, in Nuclear Services, Westinghouse Electric Company LLC (Westinghouse), and as such, I have been specifically delegated the function of reviewing the proprietary information sought to be withheld from public disclosure in connection with nuclear power plant licensing and rule making proceedings, and am authorized to apply for its withholding on behalf of Westinghouse.
- (2) I am making this Affidavit in conformance with the provisions of 10 CFR Section 2.390 of the Commission's regulations and in conjunction with the Westinghouse Application for Withholding Proprietary Information from Public Disclosure accompanying this Affidavit.
- (3) I have personal knowledge of the criteria and procedures utilized by Westinghouse in designating information as a trade secret, privileged or as confidential commercial or financial information.
- (4) Pursuant to the provisions of paragraph (b)(4) of Section 2.390 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 should be withheld.
 - (i) The information sought to be withheld from public disclosure is owned and has been held in confidence by Westinghouse.
 - (ii) The information is of a type customarily held in confidence by Westinghouse and not customarily disclosed to the public. Westinghouse 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 application of that system and the substance of that system constitutes Westinghouse policy and provides the rational basis required.

Under that system, information is held in confidence if it falls in one or more of several types, the release of which might result in the loss of an existing or potential competitive advantage, as follows:

 - (a) The information reveals the distinguishing aspects of a process (or component, structure, tool, method, etc.) where prevention of its use by any of

Westinghouse's competitors without license from Westinghouse constitutes a competitive economic advantage over other companies.

- (b) It consists of supporting data, including test data, relative to a process (or component, structure, tool, method, etc.), the application of which data secures a competitive economic advantage, e.g., by optimization or improved marketability.
- (c) Its use by a competitor would reduce his expenditure of resources or improve his competitive position in the design, manufacture, shipment, installation, assurance of quality, or licensing a similar product.
- (d) It reveals cost or price information, production capacities, budget levels, or commercial strategies of Westinghouse, its customers or suppliers.
- (e) It reveals aspects of past, present, or future Westinghouse or customer funded development plans and programs of potential commercial value to Westinghouse.
- (f) It contains patentable ideas, for which patent protection may be desirable.

There are sound policy reasons behind the Westinghouse system which include the following:

- (a) The use of such information by Westinghouse gives Westinghouse a competitive advantage over its competitors. It is, therefore, withheld from disclosure to protect the Westinghouse competitive position.
- (b) It is information that is marketable in many ways. The extent to which such information is available to competitors diminishes the Westinghouse ability to sell products and services involving the use of the information.
- (c) Use by our competitor would put Westinghouse at a competitive disadvantage by reducing his expenditure of resources at our expense.

- (d) Each component of proprietary information pertinent to a particular competitive advantage is potentially as valuable as the total competitive advantage. If competitors acquire components of proprietary information, any one component may be the key to the entire puzzle, thereby depriving Westinghouse of a competitive advantage.
 - (e) Unrestricted disclosure would jeopardize the position of prominence of Westinghouse in the world market, and thereby give a market advantage to the competition of those countries.
 - (f) The Westinghouse capacity to invest corporate assets in research and development depends upon the success in obtaining and maintaining a competitive advantage.
- (iii) The information is being transmitted to the Commission in confidence and, under the provisions of 10 CFR Section 2.390; it is to be received in confidence by the Commission.
- (iv) The information sought to be protected is not available in public sources or available information has not been previously employed in the same original manner or method to the best of our knowledge and belief.
- (v) The proprietary information sought to be withheld in this submittal is that which is appropriately marked in WCAP-17349-P, Revision 1, "Bypass Test Instrumentation for Byron and Braidwood Units 1 and 2" (Proprietary), dated February 2011, for submittal to the Commission, being transmitted by Exelon Generation Company, LLC letter and Application for Withholding Proprietary Information from Public Disclosure, to the Document Control Desk. The proprietary information as submitted by Westinghouse is that associated with license application to implement technical specification changes to allow testing in bypass of selected Nuclear Instrumentation System channels and selected 7300 Protection System channels and may be used only for that purpose.

This information is part of that which will enable Westinghouse to:

- (a) Support Exelon Generation Company, LLC in licensing and modification to install bypass test capability to the Nuclear Instrumentation System and 7300 Process Protection System.
- (b) Remain competitive in the marketplace.

Further this information has substantial commercial value as follows:

- (a) Westinghouse can sell support and defense of licensing of this product on other Westinghouse PWRs.
- (b) The information requested to be withheld reveals the distinguishing aspects of a methodology and hardware which was developed by Westinghouse.

Public disclosure of this proprietary information is likely to cause substantial harm to the competitive position of Westinghouse because it would enhance the ability of competitors to provide similar products and licensing defense services for commercial power reactors without commensurate expenses. Also, public disclosure of the information would enable others to use the information to meet NRC requirements for licensing documentation without purchasing the right to use the information.

The development of the technology described in part by the information is the result of applying the results of many years of experience in an intensive Westinghouse effort and the expenditure of a considerable sum of money.

In order for competitors of Westinghouse to duplicate this information, similar technical programs would have to be performed and a significant manpower effort, having the requisite talent and experience, would have to be expended.

Further the deponent sayeth not.

PROPRIETARY INFORMATION NOTICE

Transmitted herewith are proprietary and/or non-proprietary versions of documents furnished to the NRC in connection with requests for generic and/or plant-specific review and approval.

In order to conform to the requirements of 10 CFR 2.390 of the Commission's regulations concerning the protection of proprietary information so submitted to the NRC, the information which is proprietary in the proprietary versions is contained within brackets, and where the proprietary information has been deleted in the non-proprietary versions, only the brackets remain (the information that was contained within the brackets in the proprietary versions having been deleted). The justification for claiming the information so designated as proprietary is indicated in both versions by means of lower case letters (a) through (f) located as a superscript immediately following the brackets enclosing each item of information being identified as proprietary or in the margin opposite such information. These lower case letters refer to the types of information Westinghouse customarily holds in confidence identified in Sections (4)(ii)(a) through (4)(ii)(f) of the affidavit accompanying this transmittal pursuant to 10 CFR 2.390(b)(1).

COPYRIGHT NOTICE

The reports transmitted herewith each bear a Westinghouse copyright notice. The NRC is permitted to make the number of copies of the information contained in these reports which are necessary for its internal use in connection with generic and plant-specific reviews and approvals as well as the issuance, denial, amendment, transfer, renewal, modification, suspension, revocation, or violation of a license, permit, order, or regulation subject to the requirements of 10 CFR 2.390 regarding restrictions on public disclosure to the extent such information has been identified as proprietary by Westinghouse, copyright protection notwithstanding. With respect to the non-proprietary versions of these reports, the NRC is permitted to make the number of copies beyond those necessary for its internal use which are necessary in order to have one copy available for public viewing in the appropriate docket files in the public document room in Washington, DC and in local public document rooms as may be required by NRC regulations if the number of copies submitted is insufficient for this purpose. Copies made by the NRC must include the copyright notice in all instances and the proprietary notice if the original was identified as proprietary.

Exelon Generation Company, LLC

Letter for Transmittal to the NRC

The following paragraphs should be included in your letter to the NRC:

Enclosed are:

1. ___ copies of WCAP-17349-P, Revision 1, "Bypass Test Instrumentation for Byron and Braidwood Units 1 and 2" (Proprietary)
2. ___ copies of WCAP-17349-NP, Revision 1, "Bypass Test Instrumentation for Byron and Braidwood Units 1 and 2" (Non-Proprietary)

Also enclosed is the Westinghouse Application for Withholding Proprietary Information from Public Disclosure CAW-11-3116, accompanying Affidavit, Proprietary Information Notice, and Copyright Notice.

As Item 1 contains information proprietary to Westinghouse Electric Company LLC, it is supported by an affidavit signed by Westinghouse, the owner of the information. The affidavit sets forth the basis on which the information may be withheld from public disclosure by the Commission and addresses with specificity the considerations listed in paragraph (b)(4) of Section 2.390 of the Commission's regulations.

Accordingly, it is respectfully requested that the information which is proprietary to Westinghouse be withheld from public disclosure in accordance with 10 CFR Section 2.390 of the Commission's regulations.

Correspondence with respect to the copyright or proprietary aspects of the items listed above or the supporting Westinghouse affidavit should reference CAW-11-3116 and should be addressed to J. A. Gresham, Manager, Regulatory Compliance, Westinghouse Electric Company LLC, Suite 428, 1000 Westinghouse Drive, Cranberry Township, Pennsylvania 16066.