Exelon Generation®

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RS-17-081 10 CFR 50.90

June 30, 2017

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
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Braidwood Station, Units 1 and 2
Renewed Facility Operating License Nos. NPF-72 and NPF-77
NRC Docket Nos. 50-456 and 50-457

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

Subject: License Amendment Request to Revise Control Room Ventilation Temperature Control System Technical Specification

In accordance with 10 CFR 50.90, "Application for amendment of license, construction permit, or early site permit," Exelon Generation Company, LLC (EGC), requests amendments 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.

The proposed change would revise Technical Specification (TS) 3.7.11, "Control Room Ventilation (VC) Temperature Control System," and the associated TS Bases, to modify the TS Actions for two inoperable VC Temperature Control System trains. The change provides 24 hours to restore one VC Temperature Control System train to operable status provided mitigating actions ensure the control room area temperature is controlled.

Attachment 1 provides an evaluation of the proposed change. Attachments 2 and 3 provide the existing TS pages marked up to show the proposed changes. Attachments 4 and 5 provide the existing TS Bases pages marked up to show the proposed changes. The proposed Bases changes are provided for information only.

EGC requests approval of the proposed license amendment by June 30, 2018. Once approved, the amendment shall be implemented within 60 days.

The proposed changes have been reviewed and approved by the Braidwood Station and Byron Station Plant Operations Review Committee in accordance with the requirements of the EGC Quality Assurance Program.

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 application, with attachments, to the designated Illinois Official.

There are no regulatory commitments contained within this letter. Should you have any questions concerning this letter, please contact Ryan Sprengel at (630) 657-2814.

I declare under penalty of perjury that the foregoing is true and correct. Executed on the 30th day of June 2017.

Respectfully,

David M. Gullott
Manager – Licensing
Exelon Generation Company, LLC

Attachments:

1. Evaluation of Proposed Changes
2. Proposed Technical Specification Changes for Braidwood Station, Units 1 and 2
3. Proposed Technical Specification Changes for Byron Station, Units 1 and 2
4. Proposed Technical Specification Bases Changes for Braidwood Station, Units 1 and 2
5. Proposed Technical Specification Bases Changes for Byron Station, Units 1 and 2

cc: NRC Regional Administrator, Region III, USNRC
NRC Senior Resident Inspector – Braidwood Station
NRC Senior Resident Inspector – Byron Station
Illinois Emergency Management Agency – Division of Nuclear Safety

ATTACHMENT 1
Evaluation of Proposed Changes

Subject: License Amendment Request to Revise Control Room Ventilation Temperature Control System Technical Specification

ATTACHMENT 1
Evaluation of Proposed Changes

License Amendment Request to Revise Control Room Ventilation Temperature Control System Technical Specification

1.0 SUMMARY DESCRIPTION

In accordance with 10 CFR 50.90, "Application for amendment of license, construction permit, or early site permit," Exelon Generation Company, LLC (EGC), requests amendments 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.

The proposed change would revise Technical Specification (TS) 3.7.11, "Control Room Ventilation (VC) Temperature Control System," and the associated TS Bases, to modify the TS Actions for two inoperable VC Temperature Control System trains. The change provides 24 hours to restore one VC Temperature Control System train to operable status provided mitigating actions ensure the control room area temperature is controlled.

2.0 DETAILED DESCRIPTION

2.1 VC TEMPERATURE CONTROL SYSTEM DESIGN AND OPERATION

The common control room filtration and temperature control are provided by the VC System. The common VC System consists of two redundant and independent trains. Each train consists of a makeup air filter unit, makeup air fan, supply fan, return fan, supply filter unit, recirculation charcoal adsorber, comfort heating coils (not required for operability), chiller, chilled water pump and cooling coils. Ductwork, dampers, doors, barriers, and instrumentation also form part of the system.

The VC System operation maintains the control room temperature within limits and habitable as discussed in Updated Final Safety Analysis Report (UFSAR), Section 6.4 and Section 9.4. The VC System (with the exception of the comfort heating coils and humidifier) is designed in accordance with Seismic Category I requirements. The VC System is an emergency system of which parts operate during normal operation. Normally, the supply and return fans of one train are in service with the recirculation charcoal adsorber bypassed.

The filtration system portion of the VC System (VC Filtration System) provides a protected environment from which operators can control a unit following an uncontrolled release of radioactivity, hazardous chemicals, or smoke. The VC Filtration System recirculates and filters the air in the control room envelope (CRE). The CRE boundary limits the inleakage of unfiltered air. The proposed change does not alter TS 3.7.10, "Control Room Ventilation (VC) Filtration System."

The CRE is the area within the confines of the CRE boundary that contains the spaces that control room occupants inhabit to control the unit during normal and accident conditions. This area encompasses the control room and other non-critical areas to which frequent personnel access or continuous occupancy is not necessary in the event of an accident. The CRE is protected during normal operation, natural events, and accident conditions. The CRE boundary is the combination of walls, floor, roof, ducting, doors, penetrations and equipment that physically form the CRE. The CRE and its boundary are defined in UFSAR Section 6.4.

The temperature control system portion of the VC System (VC Temperature Control System) provides temperature control for the control room normally and following isolation of the control

room. The VC Temperature Control System consists of the VC components (arranged in two independent and redundant trains) that provide cooling and heating of recirculated control room air. Each train consists of heating coils (not required for system operability), a chiller, a chilled water pump, cooling coils, instrumentation, and controls to provide for control room temperature control. The heat load for the chillers is rejected to the Essential Service Water System. A single VC Temperature Control System train is capable of maintaining the control room at or below the current TS Surveillance Requirement of 90°F, the temperature limit for indication of VC Temperature Control System performance. The VC Temperature Control System is not explicitly credited in the accident analysis, but the analyses assume that the control room temperature supports control room habitability and that equipment located in the control room is maintained at a temperature that supports its operability. The VC Temperature Control System is required to be operable by TS 3.7.11 in Modes 1, 2, 3, 4, 5, and 6; and during movement of irradiated fuel assemblies.

2.2 CURRENT TECHNICAL SPECIFICATIONS REQUIREMENTS

The current Braidwood Station and Byron Station TSs provide an action which allows 30 days to restore an inoperable VC Temperature Control System train. The 30 day Completion Time is based on the ability of the remaining operable VC Temperature Control System train to maintain the control room temperature within limits, the low probability of an event requiring control room isolation, and alternate cooling means that may be available. If the inoperable train is not restored within the 30 day Completion Time and the plant is in Modes 1, 2, 3, or 4, a plant shutdown is required. If the inoperable train is not restored within 30 days while in Modes 5 or 6, or during movement of irradiated fuel, the operable VC Temperature Control System train must be placed in operation immediately and be capable of being powered by an operable emergency power source. An alternative, if the inoperable train is not restored within 30 days while in Modes 5 or 6, or during movement of irradiated fuel, is to immediately suspend movement of irradiated fuel and immediately suspend positive reactivity additions.

The current TS Required Action for two inoperable VC Temperature Control System trains while in Modes 1, 2, 3, or 4, is to immediately enter Limiting Condition for Operation (LCO) 3.0.3. If two inoperable VC Temperature Control System trains are inoperable in Modes 5 or 6, or during movement of irradiated fuel assemblies, the Required Action is to immediately suspend movement of irradiated fuel assemblies and to immediately suspend positive reactivity additions.

2.3 DESCRIPTION OF THE PROPOSED CHANGE

The proposed change does not alter the TS for the VC Filtration System; only the TS for the VC Temperature Control System are proposed for revision. Inoperability of the VC Temperature Control System does not affect the operability of the VC Filtration System. The proposed change revises the Required Actions applicable when two VC Temperature Control System trains are inoperable. The proposed Required Actions require immediate initiation of action to implement mitigating actions to ensure control room temperature will not exceed 80°F and restoration of one VC Temperature Control System train to operable status within 24 hours. The determination of the specified temperature limit is discussed in Section 3.0. Should the mitigating actions not be implemented, control room temperature not be maintained less than or equal to 80°F, or if one VC Temperature Control System train is not restored to operable status

within 24 hours while in Modes 1, 2, 3, or 4, the plant must be in Mode 3 in 6 hours and Mode 5 in 36 hours. In Mode 5 or 6, or during movement of irradiated fuel assemblies, immediate suspension of movement of irradiated fuel assemblies and immediate suspension of positive reactivity additions is required.

Describing each change:

- The existing Condition D and E are modified to a new Condition D. The Condition states "Two VC Temperature Control System trains inoperable." Required Action D.1 requires initiation of action to implement mitigating actions, immediately. Required Action D.2 requires verifying control room temperature is less than or equal to 80°F immediately and once per hour thereafter. Required Action D.3 requires restoring one VC Temperature Control System train to operable status within 24 hours. The three Required Actions are linked with the logical connector "AND."

- A new Condition E is added. The Condition states "Required Action and associated Completion Time of Condition D not met in MODE 1, 2, 3, or 4." Required Action E.1 requires being in Mode 3 within 6 hours. Required Action E.2 requires being in Mode 5 within 36 hours. The two Required Actions are linked with the logical connector "AND."

- A new Condition F is added. The Condition states "Required Action and associated Completion Time of Condition D not met in MODE 5 or 6, or during movement of irradiated fuel assemblies." Required Action F.1 requires immediate suspension of movement of irradiated fuel assemblies. Required Action F.2 requires immediate suspension of positive reactivity additions. The two Required Actions are linked with the logical connector "AND."

- The existing Action D is deleted.

- The existing Action E is deleted.

The proposed changes to the TS are shown in the mark-up pages for both Braidwood Station and Byron Station. In addition, an informational copy of the associated TS Bases pages with marked-up changes is provided.

2.4 REASON FOR THE PROPOSED CHANGE

The Braidwood Station and Byron Station VC Temperature Control System trains have remained reliable over the course of plant life. The current TSs require an immediate disruption of plant operations in the event both VC Temperature Control System trains become inoperable. Allowing for 24 hours to restore an inoperable VC Temperature Control System train to operable status, minimizes the potential safety consequences and operational risks associated with the disruption of plant operations.

<u>The Current TS Action is Not Commensurate with the Safety Function</u>
The VC Temperature Control System is not directly credited with preventing or mitigating an accident in the safety analysis. Unavailability of the VC Temperature Control System will not directly impact plant safety provided actions are in place to ensure operator habitability and

equipment operational requirements are not exceeded. Plant staff can monitor control room temperature to ensure it remains habitable and that control room temperature will not exceed equipment operational requirements. Mitigating actions can be used to ensure control room temperature is controlled. Therefore, requiring an immediate disruption of plant operation or plant activities is not commensurate with the level of degradation associated with two inoperable VC Temperature Control System trains.

The Requirements are not Consistent with Other Technical Specifications

There are current Braidwood Station and Byron Station TSs which provide a 30 day Completion Time for an inoperable train and do not require a disruption of plant operations for two or more inoperable trains. Systems are provided with a 30 day Completion Time to restore an inoperable train because the system is of low safety significance or is only relied on for low probability events.

- TS 3.3.3, "Post Accident Monitoring (PAM) Instrumentation," provides 30 days to restore one or more functions with one or more required channels inoperable and 7 days to restore one or more functions with two or more required channels inoperable for certain functions with more than one required channel.

- TS 3.4.15, "RCS Leakage Detection Instrumentation," provides 30 days to restore the required containment sump monitor and the required containment atmosphere radioactivity monitor, and 7 days to restore the required containment sump monitor if the only containment atmosphere radioactivity monitor is the gaseous radioactivity monitor.

- TS 3.7.4, "Steam Generator (SG) Power Operated Relief Valves (PORVs)," provides 30 days to restore one inoperable SG PORV line and 24 hours to restore all but one SG PORV line if two or more SG PORV lines are inoperable.

The Requirements are not Consistent with the Requirements for Other Plant Designs

The NRC's improved Standard Technical Specifications (STS) for all plant designs provide a 30 day Completion Time to restore one inoperable control room cooling train. However, instead of an LCO 3.0.3 entry, all other plant designs provide a Completion Time to restore one inoperable control room cooling train to operable status when both trains are inoperable:

- NUREG-1432 (Ref. 1), the improved STS for Combustion Engineering plants, TS 3.7.12, provides 24 hours to restore one of two inoperable control room cooling trains. This allowance was approved and incorporated in the STS by the NRC on May 30, 2013 as TSTF-426, Revision 5, "Revise or Add Actions to Preclude Entry into LCO 3.0.3 - RITSTF Initiatives 6b & 6c" (Ref. 2).

- NUREG-1433 (Ref. 3), the improved STS for Boiling Water Reactor (BWR)/4 plants, TS 3.7.5, provides 72 hours to restore one of two inoperable control room cooling subsystems provided control room area temperature is verified to be below a plant-specific limit every 4 hours. This specification was used as a model for the proposed change. This allowance was approved by the NRC on March 26, 2007 as TSTF-477, Revision 3, "Add Action for Two Inoperable Control Room AC Subsystems" (Ref. 4).

- NUREG-1434 (Ref. 5), the improved STS for BWR/6 plants, TS 3.7.4, provides 7 days to restore one of two inoperable control room cooling subsystems provided control room area temperature is verified to be below a plant-specific limit every 4 hours. This allowance was included in the STS as part of TSTF-477, but has existed in the TS for all BWR/6 plants since conversion to the STS.

In addition to the reasons described above, situations have occurred in which both VC Temperature Control System trains were inoperable. A review of operating history for the last 10 years discovered the following events:

- In 2014, Fort Calhoun Unit 1 began a shutdown required by the TS when one train of the control room temperature control system failed while the redundant train was inoperable for maintenance. One train of control room temperature control was restored in approximately 6 hours, by which time the reactor power had been reduced to 33%. The proposed change would have prevented the power reduction.

- In 2011, Catawba Units 1 and 2 entered LCO 3.0.3 and shut down when one train of the control room temperature control system failed while the redundant train was inoperable for maintenance. The Catawba units share a common control room. The NRC granted a Notice of Enforcement Discretion (NOED) (ADAMS Accession No. ML113560359) to allow the units to remain in Mode 3 while a train was restored. The NOED was based on a qualitative risk assessment and the compensatory measures put in place during the enforcement discretion period. One train of control room temperature control was restored in approximately 15 hours. The proposed change would have prevented the dual unit shutdown and the need for an NOED.

- In 2010, McGuire Units 1 and 2 received an NOED (ADAMS Accession No. ML100201023) to terminate a plant shutdown required by LCO 3.0.3 when one train of the control room temperature control system failed while the redundant train was inoperable for scheduled maintenance. McGuire Units 1 and 2 share a common control room. The NOED was based on a qualitative risk assessment which considered that the risk was bounded by the risk associated with shutting down both units and the compensatory measures put in place during the enforcement discretion period. One train of control room temperature control was restored in approximately 23 hours. The proposed change would have prevented the dual unit power reduction and the need for an NOED.

- In 2008, Sequoyah received an NOED (ADAMS Accession No. ML082760667) when a component in one control room air conditioning train failed while the diesel generator supporting the redundant train was inoperable for maintenance. Sequoyah Units 1 and 2 share a common control room and, absent the issuance of the NOED, a dual-unit shutdown would have been required. The NOED was based on a qualitative risk assessment which considered that the risk was bounded by the risk associated with shutting down the unit and the compensatory measures put in place during the enforcement discretion period. The two control room air conditioning trains were inoperable for approximately 7 hours. The proposed change would have eliminated the need for the NOED.

In each of these cases, a 24 hour Completion Time to restore one VC Temperature Control System train to operable status would have prevented a single- or dual-unit power reduction or shutdown, or eliminated the need for an NOED.

3.0 TECHNICAL EVALUATION

The proposed change provides three new Required Actions to be followed when two VC Temperature Control System trains are inoperable.

A new Required Action D.1 states, "Initiate action to implement mitigating actions" with a Completion Time of "Immediately." The TS Bases include a listing of mitigating actions which can be taken to control temperature. Examples include use of VC System purge mode, use of non-safety chilled water sources, or use of supplemental coolers. As part of the design change process, any mitigating actions used to satisfy this Required Action will be evaluated and proceduralized prior to use. Design analyses will show that the mitigating actions have sufficient capability to maintain control room temperature.

The intended mitigating action is use of a non-safety chilled water source to supply chilled water to the VC cooling coils. A plant modification will be needed and will follow applicable processes and procedures, including a 50.59 review to evaluate any need for NRC review related to the plant modification and establishing appropriate procedures and training. As part of the plant modification, an evaluation will be done to ensure the capability of the non-safety chilled water source. This modification will not impact operability of the control room envelope and will not directly impact TS LCO 3.7.10. Utilizing an existing non-safety chilled water source, with similar water quality specifications, will not introduce impurities with the potential for fouling of the VC cooling coils. When implementing this intended mitigating action, use of a non-safety chilled water source, the corresponding VC System train fans must be operable to provide air movement. If the corresponding VC System train fans are not operable, the mitigating action would not be capable of maintaining control room temperature and TS LCO 3.7.11 Condition E or F, as appropriate, would be entered as well as TS LCO 3.7.10.

A new Required Action D.2 states, "Verify control room temperature ≤ 80°F," with a Completion Time of immediately and once per hour thereafter. The purpose of the Required Action is to ensure the control room temperature is being controlled. If it cannot be verified that the control room temperature is less than or equal to 80°F, subsequent actions are required based upon the mode of operation. The specified temperature limit of 80°F is slightly above the normal operating temperature range of the control room (73-77°F), providing operational flexibility when implementing the mitigating actions. This temperature does not impact the operability of equipment or habitability of the control room. The limit of 80°F maintains margin below the lowest specification for control room equipment cabinets of 104°F.

Subsequent to immediate control room temperature verification, the 1 hour frequency is adequate given the indications available in the control room and evaluation to be completed prior to use of the mitigating actions to maintain temperature. Control room temperature data is measured and displayed from a centralized location, operators will have awareness of temperature trending relative to the 80°F limit. When a plant is in a Required Action that can result in a plant shutdown, operator and plant management attention is on resolving the condition and satisfying the Required Actions to prevent an impact to plant operations.

The 1 hour frequency does not allow temperature to exceed the limit between performances. As stated in the LCO 3.0.2 Bases, "An ACTIONS Condition remains in effect and the Required Actions apply until the Condition no longer exists or the unit is not within the LCO Applicability." There are many Required Actions in the STS that verify a condition is met with Completion Times stated as "Once per...". For example, TS 3.6.3, "Containment Isolation Valves," requires isolation of a penetration flow path when a containment valve in the flow path is inoperable. There are Required Actions to verify the penetration flow path is isolated once per 31 days. These Required Actions state a condition that must be maintained at all times while in the condition, not only once per 31 days.

A new Required Action D.3 states, "Restore one VC Temperature Control System train to OPERABLE status," with a Completion Time of 24 hours. The 24 hour Completion Time is considered adequate given the mitigating actions and the low probability of an accident that would require the VC Temperature Control System, provides a reasonable time to diagnose, plan, repair, and test most problems with the VC Temperature Control System, while minimizing the period of time that control room occupants might have to respond to an event while utilizing the mitigating actions. From the cited examples, 24 hours is sufficient time in most circumstances to restore at least one VC Temperature Control System train to operable status while minimizing the length of time in which the VC Temperature Control System is inoperable and potentially avoiding unnecessary impact to plant operations.

There are TS in the Westinghouse improved STS (NUREG-1431, Ref. 6) which provide a 24 hour Completion Time for two inoperable filtration systems due to an inoperable building boundary. These are: TS 3.7.10, "Control Room Emergency Filtration System," TS 3.7.12, "Emergency Core Cooling System Pump Room Exhaust Air Cleanup System," and TS 3.7.13, "Fuel Building Air Cleanup System."

The 24 Completion Time was found to be acceptable for these specifications based on the low probability of an event and the use of compensatory measures. The proposed change also represents a loss of function (albeit for inoperability of both trains versus inoperability of the boundary supporting both trains). The same justification of the low probability of an event and the use of compensatory measures is applicable to the proposed change.

Should a component required by the VC Temperature Control System and the VC Filtration System be unable to perform its required function, both LCO 3.7.10 and LCO 3.7.11 would be declared not met and all applicable Actions would be followed. If the inoperability affected both trains of the VC Temperature Control System and both trains of the VC Filtration System, then the proposed TS 3.7.11 Condition D would apply, as well as TS 3.7.10 Condition B, E, or F.

A new Condition E states, "Required Action and associated Completion Time of Condition D not met in MODE 1, 2, 3, or 4." Should the mitigating actions not be implemented, control room temperature not be maintained less than or equal to 80°F, or if one VC Temperature Control System train is not restored to operable status within 24 hours while in Modes 1, 2, 3, or 4, the plant must be in Mode 3 in 6 hours and Mode 5 in 36 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 plant systems.

A new Condition F states, "Required Action and associated Completion Time of Condition D not met in Mode 5 or 6, or during movement of irradiated fuel assemblies." Should the mitigating actions not be implemented, control room temperature not be maintained less than or equal to 80°F, or if one VC Temperature Control System train is not restored to operable status within 24 hours while in Modes 5 or 6, or during movement of irradiated fuel assemblies, movement of irradiated fuel assemblies must be suspended immediately and positive reactivity additions must be suspended immediately. The Required Action minimizes the potential for a radioactive release which might require control room isolation and subsequent cooling.

4.0 REGULATORY EVALUATION

4.1 APPLICABLE REGULATORY REQUIREMENTS/CRITERIA

The following NRC requirements and guidance documents are applicable to the proposed change.

The regulations at Title 10 of the Code of Federal Regulations (10 CFR) Part 50.36 "Technical specifications," establish the requirements related to the content of the TSs. Section 50.36(c)(2) states:

> Limiting conditions for operation. Limiting conditions for operation are the lowest functional capability or performance levels of equipment required for safe operation of the facility. When a limiting condition for operation of a nuclear reactor is not met, the licensee shall shut down the reactor or follow any remedial action permitted by the technical specifications until the condition can be met.

The regulatory requirements in 10 CFR 50.36 are not specific regarding the actions to be followed when TS requirements are not met other than a plant shut down. The proposed change provides remedial actions in the Technical Specifications to be followed when the Limiting Condition for Operation is not met. Therefore, the proposed change is consistent with the requirements of 10 CFR 50.36.

Appendix A of 10 CFR 50 provides General Design Criteria (GDC) for nuclear power plants. Plant-specific design criteria are described in the plant's UFSAR. Criterion 19 states:

> *Criterion 19—Control room.* A control room shall be provided from which actions can be taken to operate the nuclear power unit safely under normal conditions and to maintain it in a safe condition under accident conditions, including loss-of-coolant accidents. Adequate radiation protection shall be provided to permit access and occupancy of the control room under accident conditions without personnel receiving radiation exposures in excess of 5 rem whole body, or its equivalent to any part of the body, for the duration of the accident. Equipment at appropriate locations outside the control room shall be provided (1) with a design capability for prompt hot shutdown of the reactor, including necessary instrumentation and controls to maintain the unit in a safe condition during hot shutdown, and (2) with a potential capability for subsequent cold shutdown of the reactor through the use of suitable procedures.

The proposed change has no effect on the design of the control room or on operator radiation dose, as that protection is provided by other systems required by the Technical Specifications. The proposed change also has no effect on alternate control locations outside of the control room. Therefore, the only aspect of GDC 19 applicable to the proposed change is the criterion to design the control room from which actions can be taken to operate the nuclear power unit safely under normal conditions and to maintain it in a safe condition under accident conditions, including loss-of-coolant accidents. The proposed change has no effect on the design of the control room and the proposed actions will ensure that the control room temperature is maintained such that the plant may be operated safely from the control room.

Regulatory Guide 1.196, "Control Room Habitability at Light-Water Nuclear Power Reactors," Revision 0, provides guidance and criteria that the NRC staff considers acceptable for implementing the agency's regulations as they relate to control room habitability. The Regulatory Guide addresses radiological, hazardous chemical, or smoke challenges that could result in the inability of the operators to control the reactor from the control room. It does not address the performance of the reactor controls and instrumentation systems that are affected by environmental conditions, nor does it address human engineering (i.e., temperature, vibration, sound, or lighting). Therefore, the proposed change has no effect on the application of the Regulatory Guide.

The proposed change does not affect plant compliance with these regulations or guidance and will ensure that the lowest functional capabilities or performance levels of equipment required for safe operation are met.

4.2 NO SIGNIFICANT HAZARDS DETERMINATION

EGC requests a proposed change to the TSs for Braidwood Station, Unit Nos. 1 and 2, and Byron Station, Unit Nos. 1 and 2. The proposed change modifies TS 3.7.11, "Control Room Ventilation (VC) Temperature Control System," and the associated TS Bases, to modify the TS Required Action for two inoperable VC Temperature Control System trains. The revised Required Action provides for restoration of one VC Temperature Control System train to operable status within 24 hours provided immediate action is taken to implement mitigating actions and the control room temperature is maintained less than or equal to 80°F.

EGC has evaluated whether or not a significant hazards consideration is involved with the proposed amendment(s) by focusing on the three standards set forth in 10 CFR 50.92, "Issuance of amendment," as discussed below:

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

   Response: No

   The VC Temperature Control System is not an initiator of any accident previously evaluated. As a result, the probability of an accident previously evaluated is not increased. The consequences of an accident during the proposed 24 hour Completion Time are no different than the consequences of an accident in Modes 1, 2, 3, and 4 during the existing 1 hour Completion Time provided in LCO 3.0.3 to prepare for a

shutdown. The only accident previously evaluated in Modes 5 or 6 is a fuel handling accident. The accident evaluation does not assume a loss of offsite electrical power or additional failures, and the mitigating actions to maintain control room temperature less than or equal to 80°F will still be available should a fuel handling accident occur. As a result, providing 24 hours to restore one train of control room cooling does not significantly increase the consequences of a fuel handling accident over the current requirement.

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

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

   Response: No

   All plant equipment controlled from the control room and operator response actions in response to a design basis accident will be maintained as currently designed and applied. No new equipment or operator responses are required in response to a design basis accident as part of this proposed change. The proposed change will not alter the design or function of the control room or the VC Temperature Control System. Should the new Required Actions not be met, the existing and proposed Required Actions require preparation for an orderly plant shutdown, or suspension of positive reactivity additions and suspension of movement of irradiated fuel assemblies, as applicable based on the mode of applicability.

   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 amendment involve a significant reduction in a margin of safety?

   Response: No

   The proposed change provides a limited period of time to restore an inoperable VC Temperature Control System train instead of interrupting plant operations, possibly requiring an orderly plant shutdown of both units, or suspension of movement of irradiated fuel assemblies and suspension of positive reactivity additions. A plant disruption or transient may be avoided with mitigating actions taken and the control room area temperature maintained. The potential to avoid a plant transient in conjunction with maintaining the control room temperature offsets any risk associated with the limited Completion Time. The proposed change does not impact a design basis, TS Limiting Condition for Operation, limiting safety system setting, or safety limit specified in TSs.

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

Based on the above, EGC concludes that the proposed changes do not involve a significant hazards consideration as set for in 10 CFR 50.92(c), "Issuance of Amendment."

4.3 CONCLUSIONS

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 operation 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 to the health and safety of the public.

5.0 ENVIRONMENTAL CONSIDERATION

The proposed amendment meets the eligibility criterion for categorical exclusion set forth in 10 CFR 51.22(c)(9). The proposed amendment does not involve (i) a significant hazards consideration, (ii) a significant change in the types or significant increase in the amounts of any effluents that may be released offsite, or (iii) a significant increase in individual or cumulative occupational radiation exposure. Therefore, pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the proposed amendment.

6.0 REFERENCES

1. NUREG-1432, "Standard Technical Specifications for Combustion Engineering Plants," Revision 4, dated April 2012. (NRC ADAMS Accession No. ML12102A165)

2. TSTF-426, Revision 5, "Revise or Add Actions to Preclude Entry into LCO 3.0.3 - RITSTF Initiatives 6b & 6c," approved on May 30, 2013 (Federal Register 78 FR 32476).

3. NUREG-1433, "Standard Technical Specifications for General Electric BWR/4 Plants," Revision 4, dated April 2012. (NRC ADAMS Accession No. ML12104A192)

4. TSTF-477, Revision 3, "Add Action for Two Inoperable Control Room AC Subsystems," approved on March 26, 2007 (Federal Register 72 FR 14143).

5. NUREG-1434, "Standard Technical Specifications for General Electric BWR/6 Plants," Revision 4, dated April 2012. (NRC ADAMS Accession No. ML12104A195)

6. NUREG-1431, "Standard Technical Specifications for Westinghouse Plants," Revision 4, dated April 2012. (NRC ADAMS Accession No. ML12100A222)

ATTACHMENT 2

Proposed Technical Specification Changes for Braidwood Station, Units 1 and 2

ATTACHMENT 3

Proposed Technical Specification Changes for Byron Station, Units 1 and 2

ATTACHMENT 4

Proposed Technical Specification Bases Changes for Braidwood Station, Units 1 and 2

ATTACHMENT 5

Proposed Technical Specification Bases Changes for Byron Station, Units 1 and 2

ATTACHMENT 2

Proposed Technical Specification Changes for Braidwood Station, Units 1 and 2

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Required Action and associated Completion Time of Condition A not met in MODE 5 or 6, or during movement of irradiated fuel assemblies.	C.1.1 Place OPERABLE VC Temperature Control System train in operation. AND C.1.2 Verify OPERABLE VC Temperature Control System train is capable of being powered by an OPERABLE emergency power source. OR C.2.1 Suspend movement of irradiated fuel assemblies. AND C.2.2 Suspend positive reactivity additions.	Immediately Immediately Immediately Immediately
D. Two VC Temperature Control System trains inoperable.	D.1 Initiate action to implement mitigating actions. AND D.2 Verify control room temperature ≤ 80°F. AND D.3 Restore one VC Temperature Control System train to OPERABLE status.	Immediately Immediately AND Once per hour thereafter 24 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. Required Action and associated Completion Time of Condition D not met in MODE 1, 2, 3, or 4.	E.1 Be in MODE 3. AND E.2 Be in MODE 5.	6 hours 36 hours
F. Required Action and associated Completion Time of Condition D not met in MODE 5 or 6, or during movement of irradiated fuel assemblies.	F.1 Suspend movement of irradiated fuel assemblies. AND F.2 Suspend positive reactivity additions.	Immediately Immediately
~~D. Two VC Temperature Control System trains inoperable in MODE 5 or 6, or during movement of irradiated fuel assemblies.~~	~~D.1 Suspend movement of irradiated fuel assemblies.~~ AND ~~D.2 Suspend positive reactivity additions.~~	~~Immediately~~ ~~Immediately~~
~~E. Two VC Temperature Control System trains inoperable in MODE 1, 2, 3, or 4.~~	~~E.1 Enter LCO 3.0.3.~~	~~Immediately~~

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.11.1	Verify control room temperature ≤ 90°F.	In accordance with the Surveillance Frequency Control Program
SR 3.7.11.2	Verify each VC Temperature Control System train has the capability to remove the required heat load.	In accordance with the Surveillance Frequency Control Program

Note: Contents of page 3.7.11-4 to be shifted up to page 3.7.11-3. Page 3.7.11-4 to be deleted.

ATTACHMENT 3

Proposed Technical Specification Changes for Byron Station, Units 1 and 2

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Required Action and associated Completion Time of Condition A not met in MODE 5 or 6, or during movement of irradiated fuel assemblies.	C.1.1 Place OPERABLE VC Temperature Control System train in operation. AND C.1.2 Verify OPERABLE VC Temperature Control System train is capable of being powered by an OPERABLE emergency power source. OR C.2.1 Suspend movement of irradiated fuel assemblies. AND C.2.2 Suspend positive reactivity additions.	Immediately Immediately Immediately Immediately
D. Two VC Temperature Control System trains inoperable.	D.1 Initiate action to implement mitigating actions. AND D.2 Verify control room temperature ≤ 80°F. AND D.3 Restore one VC Temperature Control System train to OPERABLE status.	Immediately Immediately AND Once per hour thereafter 24 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. Required Action and associated Completion Time of Condition D not met in MODE 1, 2, 3, or 4.	E.1 Be in MODE 3. AND E.2 Be in MODE 5.	6 hours 36 hours
F. Required Action and associated Completion Time of Condition D not met in MODE 5 or 6, or during movement of irradiated fuel assemblies.	F.1 Suspend movement of irradiated fuel assemblies. AND F.2 Suspend positive reactivity additions.	Immediately Immediately
~~D. Two VC Temperature Control System trains inoperable in MODE 5 or 6, or during movement of irradiated fuel assemblies.~~	~~D.1 Suspend movement of irradiated fuel assemblies.~~ AND ~~D.2 Suspend positive reactivity additions.~~	~~Immediately~~ ~~Immediately~~
~~E. Two VC Temperature Control System trains inoperable in MODE 1, 2, 3, or 4.~~	~~E.1 Enter LCO 3.0.3.~~	~~Immediately~~

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.11.1	Verify control room temperature ≤ 90°F.	In accordance with the Surveillance Frequency Control Program
SR 3.7.11.2	Verify each VC Temperature Control System train has the capability to remove the required heat load.	In accordance with the Surveillance Frequency Control Program

Note: Contents of page 3.7.11-4 to be shifted up to page 3.7.11-3. Page 3.7.11-4 to be deleted.

ATTACHMENT 4

Proposed Technical Specification Bases Changes for Braidwood Station, Units 1 and 2

BASES

ACTIONS (continued)

C.1.1, C.1.2, C.2.1, and C.2.2

In MODE 5 or 6, or during movement of irradiated fuel, if the inoperable VC Temperature Control System train cannot be restored to OPERABLE status within the required Completion Time, the OPERABLE VC Temperature Control System train must be placed in operation immediately. This action ensures that the remaining train is OPERABLE, that no failures preventing automatic actuation will occur, and that active failures will be readily detected. Action C.1.2 requires the VC Temperature Control System train placed in operation be capable of being powered by an OPERABLE emergency power source. This action assures availability of electric power in the unlikely event of a loss of offsite power. This power source can be either from Unit 1 or Unit 2, via OPERABLE crosstie breakers.

An alternative to Required Action C.1.1 and C.1.2 is to immediately suspend activities that present a potential for releasing radioactivity that might require isolation of the control room. This places the unit in a condition that minimizes accident risk. This does not preclude the movement of fuel to a safe position.

D.1, D.2 and D.3

With both VC Temperature Control System trains inoperable, actions must be taken to restore a VC Temperature Control System train to OPERABLE status within 24 hours. During the period that both VC Temperature Control System trains are considered inoperable, action must be initiated immediately to implement mitigating actions (e.g., use of VC System purge mode, use of alternate chilled water sources, or use of supplemental coolers) to lessen potential heat up of the control room.

Control room temperature is required to be monitored to ensure that control room temperature is being controlled. To allow some flexibility in unit operations, the control room temperature limit in Condition D is 80°F, slightly above the normal operating range of the control room. Control room temperature is required to be verified immediately and once per hour thereafter.

BASES

ACTIONS (continued)

With the control room temperature controlled, 24 hours is allowed to restore one VC Temperature Control System train to OPERABLE status. This Completion Time is reasonable considering that the control room temperature is being maintained less than or equal to 80°F and the low probability of an event occurring requiring control room isolation.

E.1 and E.2

In MODE 1, 2, 3, or 4, if an inoperable VC Temperature Control System train cannot be restored to OPERABLE status within the required Completion Time, the unit must be placed in a MODE that minimizes the risk. Also, if mitigating actions are not able to ensure control room temperature will be maintained less than or equal to 80°F, the unit must be placed in a MODE that minimizes risk. To achieve this status, the unit must be placed in at least MODE 3 within 6 hours, and in MODE 5 within 36 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 plant systems.

F.1 and F.2

In MODE 5 or 6, or during movement of irradiated fuel assemblies if an inoperable VC Temperature Control System train cannot be restored to OPERABLE status within the required Completion Time, action must be taken immediately to suspend activities that could result in a release of radioactivity that might require isolation of the control room. This places the unit in a condition that minimizes accident risk. This does not preclude the movement of fuel to a safe position.

~~In MODE 5 or 6, or during movement of irradiated fuel assemblies, with two VC Temperature Control System trains inoperable, action must be taken immediately to suspend activities that could result in a release of radioactivity that might require isolation of the control room. This places the unit in a condition that minimizes risk. This does not preclude the movement of fuel to a safe position.~~

~~F.1~~

~~If both VC Temperature Control System trains are inoperable in MODE 1, 2, 3, or 4, the control room VC Temperature Control System may not be capable of performing its intended function. Therefore, LCO 3.0.3 must be entered immediately.~~

~~BASES~~

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ATTACHMENT 5

Proposed Technical Specification Bases Changes for Byron Station, Units 1 and 2

BASES

ACTIONS (continued)

C.1.1, C.1.2, C.2.1, and C.2.2

In MODE 5 or 6, or during movement of irradiated fuel, if the inoperable VC Temperature Control System train cannot be restored to OPERABLE status within the required Completion Time, the OPERABLE VC Temperature Control System train must be placed in operation immediately. This action ensures that the remaining train is OPERABLE, that no failures preventing automatic actuation will occur, and that active failures will be readily detected. Action C.1.2 requires the VC Temperature Control System train placed in operation be capable of being powered by an OPERABLE emergency power source. This action assures availability of electric power in the unlikely event of a loss of offsite power. This power source can be either from Unit 1 or Unit 2, via OPERABLE crosstie breakers.

An alternative to Required Action C.1.1 and C.1.2 is to immediately suspend activities that present a potential for releasing radioactivity that might require isolation of the control room. This places the unit in a condition that minimizes accident risk. This does not preclude the movement of fuel to a safe position.

D.1, D.2 and D.3

With both VC Temperature Control System trains inoperable, actions must be taken to restore a VC Temperature Control System train to OPERABLE status within 24 hours. During the period that both VC Temperature Control System trains are considered inoperable, action must be initiated immediately to implement mitigating actions (e.g., use of VC System purge mode, use of alternate chilled water sources, or use of supplemental coolers) to lessen potential heat up of the control room.

Control room temperature is required to be monitored to ensure that control room temperature is being controlled. To allow some flexibility in unit operations, the control room temperature limit in Condition D is 80°F, slightly above the normal operating range of the control room. Control room temperature is required to be verified immediately and once per hour thereafter.

BASES

ACTIONS (continued)

With the control room temperature controlled, 24 hours is allowed to restore one VC Temperature Control System train to OPERABLE status. This Completion Time is reasonable considering that the control room temperature is being maintained less than or equal to 80°F and the low probability of an event occurring requiring control room isolation.

E.1 and E.2

In MODE 1, 2, 3, or 4, if an inoperable VC Temperature Control System train cannot be restored to OPERABLE status within the required Completion Time, the unit must be placed in a MODE that minimizes the risk. Also, if mitigating actions are not able to ensure control room temperature will be maintained less than or equal to 80°F, the unit must be placed in a MODE that minimizes risk. To achieve this status, the unit must be placed in at least MODE 3 within 6 hours, and in MODE 5 within 36 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 plant systems.

F.1 and F.2

In MODE 5 or 6, or during movement of irradiated fuel assemblies if an inoperable VC Temperature Control System train cannot be restored to OPERABLE status within the required Completion Time, action must be taken immediately to suspend activities that could result in a release of radioactivity that might require isolation of the control room. This places the unit in a condition that minimizes accident risk. This does not preclude the movement of fuel to a safe position.

~~In MODE 5 or 6, or during movement of irradiated fuel assemblies, with two VC Temperature Control System trains inoperable, action must be taken immediately to suspend activities that could result in a release of radioactivity that might require isolation of the control room. This places the unit in a condition that minimizes risk. This does not preclude the movement of fuel to a safe position.~~

~~E.1~~

~~If both VC Temperature Control System trains are inoperable in MODE 1, 2, 3, or 4, the control room VC Temperature Control System may not be capable of performing its intended function. Therefore, LCO 3.0.3 must be entered immediately.~~

~~BASES~~

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