VIRGINIA ELECTRIC AND POWER COMPANY
RICHMOND, VIRGINIA 23261

July 5, 2006

10CFR50.90

U.S. Nuclear Regulatory Commission
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50-281
License Nos. DPR-32
DPR-37

VIRGINIA ELECTRIC AND POWER COMPANY
SURRY POWER STATION UNITS 1 AND 2
PROPOSED TECHNICAL SPECIFICATIONS CHANGE
REVISION OF MAIN CONTROL ROOM AND EMERGENCY SWITCHGEAR ROOM AIR CONDITIONING SYSTEM REQUIREMENTS

Pursuant to 10CFR50.90, Virginia Electric and Power Company (Dominion) requests an amendment to Facility Operating License Numbers DPR-32 and DPR-37 in the form of changes to the Technical Specifications (TS) for Surry Power Station Units 1 and 2. The proposed change revises the Main Control Room (MCR) and Emergency Switchgear Room (ESGR) Air Conditioning System (ACS) TS to reflect the completion of permanent modifications to the equipment and associated power supply configuration. The revisions include the addition of requirements and/or action statements addressing the inoperability of two or more air handling units (AHUs) on a unit, as well as AHUs powered from an H emergency bus. The proposed change, paralleling requirements in the Improved Technical Specifications (ITS), also adds MCR and ESGR ACS requirements during Refueling Operations and irradiated fuel movement in the Fuel Building. In addition, the proposed change clarifies the Service Water (SW) requirements for the ACS chillers that serve the MCR and ESGRs. Related TS Basis changes reflecting the proposed change are included for the NRC's information. A discussion of the proposed TS change is provided in Attachment 1. The marked-up and proposed TS pages are provided in Attachments 2 and 3, respectively.

The proposed change has been reviewed and approved by the Station Nuclear Safety and Operating Committee. We have evaluated the proposed TS change and have determined that it does not involve a significant hazards consideration as defined in 10CFR50.92. The basis for this determination is provided in Attachment 1. Also as discussed in Attachment 1, we have determined that operation with the proposed change will not result in any significant increase in the amount of effluents that may be released offsite and no significant increase in individual or cumulative occupational radiation exposure. Therefore, the proposed amendment is eligible for categorical exclusion as set forth in 10CFR51.22(c)(9). Pursuant to 10CFR51.22(b), no environmental impact statement or environmental assessment is needed in connection with the approval of the proposed change.

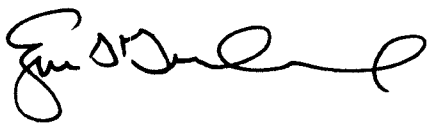
The proposed TS change includes an allowed outage time (AOT) for multiple AHU inoperability, including two AHUs on the same chilled water loop. The ACS, as currently configured (i.e., with the permanent modifications), will perform its design function with two AHUs on the same chilled water loop inoperable. While the ACS is not separated into trains, having two AHUs on the same cooling water loop inoperable is analogous to having one of two trains out of service. Thus, this condition is consistent with the Main Control Room ACS ITS for single train inoperability.

The proposed 7-day AOT for the inoperability of two AHUs on the same chilled water loop will provide operational flexibility for inspection, maintenance, or repair of the chilled water portion of the MCR and ESGR ACS. Some of the chilled water piping to the MCR and ESGR AHUs is located in a pipe trench that traverses the Mechanical Equipment Room #3 and the ESGRs. The piping in the trench is uninsulated, is susceptible to, and is exhibiting surface corrosion. The proposed TS change will permit: 1) additional inspection of the chilled water piping to further assess its condition, and 2) maintenance or repair of the piping, if required. Thus, NRC approval of the proposed TS change is requested by December 15, 2006 (with a 45-day implementation period). Due to the design and operational complexity of the MCR and ESGR ACS, which is common to both units, Dominion is available to meet with the NRC staff at your convenience to facilitate review of the proposed TS change.

As a parallel effort to this proposed TS change, replacement of the MCR and ESGR ACS chilled water piping is currently being planned. Development of this design change is underway and has indicated the need for an additional TS change with a temporary, risk-informed AOT longer than 7 days for inoperability of two AHUs on the same chilled water loop to accommodate the phased piping replacement project. The piping replacement will include the installation of isolation valves to facilitate future maintenance activities within the proposed 7-day AOT, thus precluding the need for a longer, temporary AOT, following completion of the piping replacement activities. A supporting risk analysis for the temporary AOT TS change is being prepared. Submittal of the temporary TS change is currently expected to be in the mid to late summer time frame. We will contact the Surry NRC Project Manager in the near future to schedule a meeting to discuss the scope of the temporary AOT TS change, as well as the supporting risk analysis, prior to submittal.

If you have any questions or require additional information regarding the proposed TS change request, please contact Mr. Gary Miller at (804) 273-2771.

Very truly yours,



E. S. Grecheck
Vice President – Nuclear Support Services

Attachments:
1. Discussion of Change
2. Marked-up Technical Specifications Pages
3. Proposed Technical Specifications Pages

Commitments made in this letter: None

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COMMONWEALTH OF VIRGINIA)
)
COUNTY OF HENRICO)

The foregoing document was acknowledged before me, in and for the County and Commonwealth aforesaid, today by Eugene S. Grecheck, who is Vice President – Nuclear Support Services, of Virginia Electric and Power Company. He has affirmed before me that he is duly authorized to execute and file the foregoing document in behalf of that Company, and that the statements in the document are true to the best of his knowledge and belief.

Acknowledged before me the 5th day of July, 2006.

My Commission Expires: August 31, 2008

Margaret B. Bennett
Notary Public

(SEAL)

Attachment 1

Discussion of Change

Revision of Main Control Room and Emergency Switchgear Room Air Conditioning System Requirements

Surry Power Station Units 1 and 2
Virginia Electric and Power Company
(Dominion)

DISCUSSION OF CHANGE

1.0 INTRODUCTION

Pursuant to 10 CFR 50.90, Virginia Electric and Power Company (Dominion) requests revisions to the Technical Specifications (TS) for Surry Power Station Units 1 and 2. The proposed change revises the Main Control Room (MCR) and Emergency Switchgear Room (ESGR) Air Conditioning System (ACS) portion of TS 3.23 to reflect the completion of permanent modifications to the equipment and associated power supply configuration and deletes the interim specification footnote. Requirements and action statements are added in TS 3.23 for air handling units (AHUs), addressing 1) inoperability of two or more AHUs on a unit and 2) AHUs powered from an H emergency bus. Paralleling requirements in the Improved Technical Specifications (ITS), the proposed change adds MCR and ESGR ACS requirements during Refueling Operations and irradiated fuel movement in the Fuel Building in TS 3.10. The proposed change also clarifies the TS 3.14 Service Water (SW) requirements for the ACS chillers that serve the MCR and ESGRs. Related TS 3.23 Basis changes are also being implemented to reflect the ACS design basis and the revised TS 3.23 requirements. In addition, the TS 3.10 Basis is being revised to reflect the revised TS 3.10 requirements. The TS Basis revisions are included for the NRC's information.

The proposed change has been reviewed, and it has been determined that the change has no adverse safety impact and that no significant hazards consideration exists as defined in 10 CFR 50.92. In addition, it has been determined that the change qualifies for categorical exclusion from an environmental assessment as set forth in 10 CFR 51.22(c)(9); therefore, no environmental impact statement or environmental assessment is needed in connection with the approval of the proposed change.

2.0 BACKGROUND

Surry Power Station TS 3.23.C contains the operational requirements for the MCR and ESGR ACS. The original design of the MCR and ESGR ACS consisted of four ESGR AHUs (two per unit) and four MCR AHUs (two per unit). In each of the ESGRs and MCRs, one AHU was to be operating and the other operable (in standby, but not operating). Each unit's MCR and ESGR are considered different air conditioning zones. Chilled water to the AHUs was designed to be provided by three 100% chillers located in Mechanical Equipment Room 3 (MER-3). The design intended that one chiller would be operating, one would be operable, and one could be out of service for maintenance. The chillers and AHUs were arranged into two trains. Train A consisted of four AHUs and the A chiller, all powered from the Unit 1 1H emergency bus. Train B included the other four AHUs and the C chiller, all powered from the Unit 2 2H emergency bus. The maintenance chiller was powered from the Unit 1 1J emergency bus. The Surry emergency electrical distribution system has a three emergency diesel generator (EDG) arrangement, wherein EDG 1 powers the Unit 1 1H bus, EDG 2 powers the Unit 2 2H bus, and EDG 3 can be aligned to either the Unit 1 1J bus or Unit 2 2J bus.

In the mid-1980s, increased heat load from added electrical equipment required the operation of all four AHUs in the ESGRs during normal operation. One chiller could not provide sufficient chilled water to six AHUs simultaneously; therefore, it was necessary to operate two chillers. In this situation, due to the power supply configuration, the system was no longer able to tolerate certain single failures. In the event of an accident coincident with a Loss of Offsite Power (LOOP) and a single failure of EDG 2, EDG 3 would automatically align to the unit without power (i.e., to the 2J bus). Since the B and C chillers were powered from the 1J and 2H buses, respectively, both would be without power.

In response to these concerns, short-term (interim) modifications to the ACS were made to meet the new operating demands and maintain single-failure protection. Redundant motors were added to all ESGR AHUs, an alternate power supply from the 2J bus was installed for the maintenance chiller, and single-failure vulnerability of various dampers and valves was eliminated. Finally, a permanent modification was planned to replace the original and undersized AHUs with higher capacity equipment, which would return the air handling capacity of the two trains to 100% capacity each.

Later, a potential loss of chiller system function was identified. The MCR and ESGR ACS is a 10CFR50 Appendix R Safe Shutdown System. The original design configuration (three chillers in MER-3) was recognized to be susceptible to an Appendix R fire that could disable all three chillers. The Appendix R analysis at the time credited the non-safety related (NSR) central chillers and a cross-connect to the MER-3 chillers for alternate shutdown system. With the increased heat loads in the MCR and ESGR, the cross-connect line was found to be undersized. Also, a review of the MCR and ESGR ACS in conjunction with proposed Station Blackout (SBO) scenarios identified the need for future modifications to cope with the SBO event. Therefore, a Design Change was developed to add two safety-related (SR) chillers in a separate room, Mechanical Equipment Room 5 (MER-5), that would not be affected by the Appendix R fire, and to add redundant and independent power supplies to two of the original SR chillers in MER-3. Also, new higher-capacity AHUs were installed and repowered such that two AHUs (1 MCR AHU and 1 ESGR AHU) are powered from each of the four emergency buses. Control of the ACS was originally and is currently by manual action.

Recent physical changes and calculation reviews have resulted in a lower heat load for the MCR and ESGR. Replacement of the Plant Computer System and associated electrical equipment reduced the actual heat load by several tons. A review of the assumed electrical equipment heat loads in the MCR and ESGR indicated that the original calculation assumptions were conservative, and included simultaneous Design Basis Accidents (DBAs) on both units. The combination of the actual and calculated reductions in heat loads, as well as the higher-capacity AHUs, once again permit normal operation with one chiller and four AHUs. During normal operation, and accident scenarios with a LOOP and single failure of an EDG, one chiller providing chilled water to one chilled water loop with four operating AHUs is sufficient to maintain the MCR and ESGR air temperature within normal limits. In the event of a DBA with all mitigation equipment operating (i.e., higher heat loads due to offsite power available and no single failures), two chillers and two chilled water loops, with one operating AHU in each unit's

MCR and ESGR, are necessary to maintain temperatures within normal limits; with one chiller, one chilled water loop, and four operating AHUs, temperatures will be maintained within the equipment design limits.

3.0 LICENSING BASIS

A TS change request was submitted on March 20, 1989 to address the interim modifications and was approved by TS Amendments 129/129. A subsequent TS change request was submitted on April 21, 1993 modifying the interim TS to provide needed flexibility to complete the ACS chiller upgrades and was approved by TS Amendments 182/182. The permanent modifications discussed in Section 2.0 above (replacement and repowering of AHUs, addition of two SR chillers) have been completed. Thus, the interim TS 3.23 implemented by TS Amendments 129/129 and 182/182 is being revised to reflect the permanent modifications.

4.0 PROPOSED CHANGE

4.1 Description of Proposed Change

The proposed change revises the MCR and ESGR ACS portion of TS 3.23 to reflect the completion of permanent modifications to the equipment and associated power supply configuration and deletes the interim specification footnote. No changes to the chiller requirements and action statements are needed. Requirements and action statements are added in TS 3.23 for AHUs, addressing 1) inoperability of two or more AHUs on a unit and 2) AHUs powered from an H emergency bus.

The proposed change adds MCR and ESGR ACS requirements during Refueling Operations and irradiated fuel movement in the Fuel Building in TS 3.10 to parallel requirements in the Improved Technical Specifications (ITS). If the requirements are not met, the required actions appropriately suspend activities that could result in a release of radioactivity that might require isolation of the control room envelope and place irradiated fuel in a safe position.

For consistency with the revised TS 3.23.C, TS 3.14 is also being revised. The current TS 3.14.C describes the SW flowpath requirements for the chillers of the MCR and ESGR ACS. SW requirements for the chiller condensers were included in the original TS 3.14.C. Since there were no original TS requirements for the ACS, the requirements in TS 3.14.C were presumably used to ensure availability of cooling capability. Because MCR and ESGR ACS requirements are contained in TS 3.23.C, the existing TS 3.14.C ACS requirements are no longer necessary. The current TS 3.14.A addresses various requirements for SW. Therefore, to improve the structure and clarity of TS 3.14, the requirement to have two OPERABLE SW flowpaths to the ACS is being relocated to TS 3.14.A. This change has no effect on the design or operation of the SW System or the ACS.

4.2 Specific Revisions

The following specific revisions are proposed to reflect the current ACS configuration, delete the interim specification footnote, add requirements and action statements for AHUs, add requirements during REFUELING OPERATIONS and irradiated fuel movement in the Fuel Building, and clarify the SW requirements for the ACS chillers.

- The following footnote associated with TS 3.23.C.1 is being deleted:

  * This interim specification is necessary until the air conditioning system modifications are completed. Following completion of the permanent modifications, a revised air conditioning system specification will be submitted.

- TS 3.23.C.2 currently states:

  2. Air Handling Units (AHU)

     a. Unit 1 air handling units, 1-VS-AC-1, 1-VS-AC-2, 1-VS-AC-6, and 1-VS-AC-7, must be OPERABLE whenever Unit 1 is above COLD SHUTDOWN.

        1. If one Unit 1 AHU becomes inoperable, return the inoperable AHU to OPERABLE status within seven (7) days or bring Unit 1 to HOT SHUTDOWN within the next six (6) hours and be in COLD SHUTDOWN within the following 30 hours.

     b. Unit 2 air handling units, 2-VS-AC-8, 2-VS-AC-9, 2-VS-AC-6, and 2-VS-AC-7, must be OPERABLE whenever Unit 2 is above COLD SHUTDOWN.

        1. If one Unit 2 AHU becomes inoperable, return the inoperable AHU to OPERABLE status within seven (7) days or bring Unit 2 to HOT SHUTDOWN within the next six (6) hours and be in COLD SHUTDOWN within the following 30 hours.

  TS 3.23.C.2 is revised as follows to include action statements for inoperability of two or more AHUs, as well as requirements and action statements for AHUs powered from an H emergency bus:

  2. Air Handling Units (AHUs)

     a. Unit 1 air handling units, 1-VS-AC-1, 1-VS-AC-2, 1-VS-AC-6, and 1-VS-AC-7, must be OPERABLE whenever Unit 1 is above COLD SHUTDOWN.

        1. If either any single Unit 1 AHU or two Unit 1 AHUs on the same chilled water loop (1-VS-AC-1 and 1-VS-AC-7 or 1-VS-AC-2 and 1-VS-AC-6) become inoperable, restore operability of the one inoperable AHU or two

inoperable AHUs within seven (7) days or bring Unit 1 to HOT SHUTDOWN within the next six (6) hours and be in COLD SHUTDOWN within the following 30 hours.

2. If two Unit 1 AHUs on different chilled water loops and in different air conditioning zones (1-VS-AC-1 and 1-VS-AC-6 or 1-VS-AC-2 and 1-VS-AC-7) become inoperable, restore operability of the two inoperable AHUs within seven (7) days or bring Unit 1 to HOT SHUTDOWN within the next six (6) hours and be in COLD SHUTDOWN within the following 30 hours.

3. If two Unit 1 AHUs in the same air conditioning zone (1-VS-AC-1 and 1-VS-AC-2 or 1-VS-AC-6 and 1-VS-AC-7) become inoperable, restore operability of at least one Unit 1 AHU in each air conditioning zone (1-VS-AC-1 or 1-VS-AC-2 and 1-VS-AC-6 or 1-VS-AC-7) within one (1) hour or bring Unit 1 to HOT SHUTDOWN within the next six (6) hours and be in COLD SHUTDOWN within the following 30 hours.

4. If more than two Unit 1 AHUs become inoperable, restore operability of at least one Unit 1 AHU in each air conditioning zone (1-VS-AC-1 or 1-VS-AC-2 and 1-VS-AC-6 or 1-VS-AC-7) within one (1) hour or bring Unit 1 to HOT SHUTDOWN within the next six (6) hours and be in COLD SHUTDOWN within the following 30 hours.

b. Unit 2 air handling units, 2-VS-AC-8, 2-VS-AC-9, 2-VS-AC-6, and 2-VS-AC-7, must be OPERABLE whenever Unit 2 is above COLD SHUTDOWN.

1. If either any single Unit 2 AHU or two Unit 2 AHUs on the same chilled water loop (2-VS-AC-7 and 2-VS-AC-9 or 2-VS-AC-6 and 2-VS-AC-8) become inoperable, restore operability of the one inoperable AHU or two inoperable AHUs within seven (7) days or bring Unit 2 to HOT SHUTDOWN within the next six (6) hours and be in COLD SHUTDOWN within the following 30 hours.

2. If two Unit 2 AHUs on different chilled water loops and in different air conditioning zones (2-VS-AC-7 and 2-VS-AC-8 or 2-VS-AC-6 and 2-VS-AC-9) become inoperable, restore operability of the two inoperable AHUs within seven (7) days or bring Unit 2 to HOT SHUTDOWN within the next six (6) hours and be in COLD SHUTDOWN within the following 30 hours.

3. If two Unit 2 AHUs in the same air conditioning zone (2-VS-AC-8 and 2-VS-AC-9 or 2-VS-AC-6 and 2-VS-AC-7) become inoperable, restore operability of at least one Unit 2 AHU in each air conditioning zone (2-VS-AC-8 or 2-VS-AC-9 and 2-VS-AC-6 or 2-VS-AC-7) within one (1) hour or bring Unit 2 to HOT SHUTDOWN within the next six (6) hours and be in COLD SHUTDOWN within the following 30 hours.

4. If more than two Unit 2 AHUs become inoperable, restore operability of at least one Unit 2 AHU in each air conditioning zone (2-VS-AC-8 or 2-VS-AC-9 and 2-VS-AC-6 or 2-VS-AC-7) within one (1) hour or bring Unit 2 to HOT SHUTDOWN within the next six (6) hours and be in COLD SHUTDOWN within the following 30 hours.

c. Both Unit 1 AHUs or both Unit 2 AHUs powered from the respective H buses (1-VS-AC-1 and 1-VS-AC-7 or 2-VS-AC-6 and 2-VS-AC-8) must be OPERABLE whenever both units are above COLD SHUTDOWN.

1. If one or two AHUs on each unit powered from an H bus is inoperable, restore operability of the inoperable AHU(s) on one unit within one (1) hour or bring both units to HOT SHUTDOWN within the next six (6) hours and be in COLD SHUTDOWN within the next 30 hours.

- The Basis for the ACS portion of the TS 3.23 is being replaced with the following:

The MCR and ESGR Air Conditioning System (ACS) cools the control room pressure envelope. From an ACS perspective, the envelope consists of four zones: 1) the Unit 1 side of the control room (including the Unit 1 air conditioning equipment and computer rooms), 2) the Unit 2 side of the control room (including the annex area, the Unit 2 air conditioning equipment and computer rooms), 3) the Unit 1 ESGR and relay room (referred to as the Unit 1 ESGR), and 4) the Unit 2 ESGR and relay room (including MER-3), referred to as the Unit 2 ESGR. The design basis of the MCR and ESGR ACS is to maintain the control room pressure envelope temperature within the equipment design limits for 30 days of continuous occupancy after a design basis accident (DBA). The ACS includes five chillers (1-VS-E-4A, 4B, 4C, 4D, and 4E). Chillers 4A, 4B, and 4C are located in MER-3, in the Unit 2 ESGR. Chillers 4D and 4E are located in MER-5, in the Unit 2 Turbine Building. The chillers supply chilled water to eight air handling units (AHUs), arranged in two independent and redundant chilled water loops. Each chilled water loop provides redundant 100% heat removal capacity per unit. Each loop contains four AHUs (one AHU in each unit's air conditioning zones), the necessary power supplies, the associated valves, piping (from the supply header to return header), instrumentation, and controls. Each AHU has 100% capacity for cooling its zone.

The combination of five chillers and two chilled water loops affords considerable flexibility in meeting the cooling requirements. Two chillers are powered from single emergency buses (1-VS-E-4C from 2H, 1-VS-E-4E from 1H). The remaining three chillers can be powered from either of two emergency buses (1-VS-E-4A from 1J or 2J, 1-VS-E-4B from 1J or 2H, and 1-VS-E-4D from 1H or 2J). The AHUs are powered from the four emergency buses in pairs. For example, the Unit 1 MCR and ESGR AHUs 1-VS-AC-1 and 1-VS-AC-7 are powered from the 1H bus; the redundant Unit 1 MCR and ESGR AHUs 1-VS-AC-2 and 1-VS-AC-6 are powered from the 1J bus. Control of the ACS is by manual action.

The chillers are procedurally aligned by power supply to meet TS 3.23.C.1.b, and the AHU pairs are normally aligned to match the power supplies of the OPERABLE chillers. For example, chiller 1-VS-E-4E and AHUs 1-VS-AC-1 and 1-VS-AC-7 are powered from the 1H emergency bus. However, due to the number of emergency diesel generators (EDGs) and the chiller/AHU piping layout, only one chiller and AHU pair can be powered from each emergency bus at a time. Also, if chilled water is needed in both chilled water loops, two chillers must be operated. Only one chiller can be operated on each chilled water loop at a time, and the 4D and 4E chillers cannot be operated simultaneously. The combinations of OPERABLE chillers/AHUs allowed by procedure ensure that sufficient cooling capacity is available during a DBA with a coincident loss of offsite power (LOOP) and single failure of an EDG, a chiller, or an AHU.

Acceptable operating alignments include one chiller supplying one chilled water loop with four operating AHUs, or two chillers supplying two chilled water loops with two AHUs operating on each loop. In either case, one AHU must be operated in the MCR and ESGR air conditioning zones of each unit. During normal operation, and accident scenarios with a LOOP and single failure of an EDG, one chiller providing chilled water to one chilled water loop with four operating AHUs is sufficient to maintain the MCR and ESGR air temperature within normal limits. In the event of a DBA with all mitigation equipment operating (i.e., higher heat loads due to offsite power available and no single failures), two chillers and two chilled water loops, with one operating AHU in each unit's MCR and ESGR, are necessary to maintain temperatures within normal limits; with one chiller, one chilled water loop, and four operating AHUs, temperatures will be maintained within the equipment design limits.

The MCR and ESGR ACS is considered to be OPERABLE when the individual components necessary to cool the MCR and ESGR envelope are OPERABLE. The operability requirements for the chillers and AHUs are separate but interdependent. The required chillers are considered OPERABLE when required chilled water and service water flowpaths, required power supplies, and controls are OPERABLE. A chiller does not have to be in operation to be considered OPERABLE. An AHU is OPERABLE when the associated chilled water flowpath, fan, motor, dampers, as well as associated ductwork and controls, are OPERABLE.

The Technical Specifications require the operability of the ACS components. Due to the redundancy and diversity of components, the inoperability of one active component does not render the ACS incapable of performing its function. This allows increased flexibility in unit operations under circumstances when more than one ACS component is inoperable. Similarly, the inoperability of two different components, each in a different loop or powered from a different power supply, does not necessarily result in a loss of function for the ACS. However, due to the emergency power design (three EDGs and four emergency buses), realignment of the swing or shared EDG is required in certain instances of inoperable AHUs and is directed by procedure.

The requirements and action statements for the AHUs powered from an H emergency bus eliminate the potential for complex operator actions in certain instances of two inoperable AHUs. The swing EDG can supply either J bus, but not both. With an AHU powered from the H bus inoperable on each unit, a DBA with a LOOP and no single failure would result in one air conditioning zone with no AHU available. In this case, in order to ensure power is available to an AHU in each air conditioning zone, operators would have to procedurally realign the swing diesel and cross-connect emergency buses. By prohibiting the simultaneous inoperability of an H-bus powered AHU on each unit, cross-connect of the emergency buses will not be necessary. Realignment of the swing diesel is still required, and procedures direct the operators to realign the swing EDG (from the MCR) as necessary to ensure that there is an operating AHU in the MCR and ESGR air conditioning zones of each unit.

- TS 3.10.A.13 and TS 3.10.A.14 are added for MCR and ESGR ACS chillers and AHUs during REFUELING OPERATIONS:

  A.13. Three chillers shall be OPERABLE in accordance with the power supply requirements of Specification 3.23.C. With one of the required OPERABLE chillers inoperable or not powered as required by Specification 3.23.C.1, return the inoperable chiller to OPERABLE status within 7 days or comply with Specification 3.10.C. With two of the required OPERABLE chillers inoperable or not powered as required by Specification 3.23.C.1, comply with Specification 3.10.C.

  A.14. Eight air handling units (AHUs) shall be OPERABLE in accordance with the operability requirements of Specification 3.23.C. With two AHUs inoperable on the shutdown unit, ensure that one AHU is OPERABLE in each unit's main control room and emergency switchgear room, and restore an inoperable AHU to OPERABLE status within 7 days, or comply with Specification 3.10.C. With more than two AHUs inoperable, comply with Specification 3.10.C.

- TS 3.10.B.6 and TS 3.10.B.7 are added for MCR and ESGR ACS chillers and AHUs during irradiated fuel movement in the Fuel Building:

  B.6. Three chillers shall be OPERABLE in accordance with the power supply requirements of Specification 3.23.C. With one of the required OPERABLE chillers inoperable or not powered as required by Specification 3.23.C.1, return the inoperable chiller to OPERABLE status within 7 days or comply with Specification 3.10.C. With two of the required OPERABLE chillers inoperable or not powered as required by Specification 3.23.C.1, comply with Specification 3.10.C.

  B.7. Eight air handling units (AHUs) shall be OPERABLE in accordance with the operability requirements of Specification 3.23.C. With two AHUs inoperable on

either unit, ensure that one AHU is OPERABLE in each unit's main control room and emergency switchgear room, and restore an inoperable AHU to OPERABLE status within 7 days, or comply with Specification 3.10.C. With more than two AHUs inoperable on a unit, comply with Specification 3.10.C.

- TS 3.10.C currently states:

  C. If any one of the specified limiting conditions for refueling is not met, REFUELING OPERATIONS or irradiated fuel movement in the Fuel Building shall cease, work shall be initiated to correct the conditions so that the specified limit is met, and no operations which increase the reactivity of the core shall be made.

  TS 3.10.C is revised as follows:

  C. If any one of the specified limiting conditions for refueling is not met, REFUELING OPERATIONS or irradiated fuel movement in the Fuel Building shall cease and irradiated fuel shall be placed in a safe position, work shall be initiated to correct the conditions so that the specified limit is met, and no operations which increase the reactivity of the core shall be made.

- The following paragraph is added in the TS 3.10 Basis:

  The requirements in this specification for the control and relay room emergency ventilation system, control room bottled air system, and the main control room and emergency switchgear room air conditioning system (chillers and air handling units) apply to the shutdown unit. If any of the specified limiting conditions is not met, the requirements appropriately suspend activities that could result in a release of radioactivity that might require isolation of the control room envelope and place irradiated fuel in a safe position without delay and in a controlled manner. The requirements applicable to the operating unit are contained in Specifications 3.19 and 3.23.

- TS 3.14 is being revised to delete TS 3.14.C (SW requirements for MCR and ESGR chiller condensers), to add TS 3.14.A.7 (SW requirements for MCR and ESGR chiller condensers), and to revise the references to TS 3.14.C in TS 3.14.D accordingly. This will clarify the ACS SW requirements and improve consistency with TS 3.14.A. The new TS 3.14.A.7 states:

  7. Two service water flow paths to the main control room and emergency switchgear room air conditioning subsystems are OPERABLE.

5.0 TECHNICAL ANALYSIS OF PROPOSED CHANGE

5.1 Air Conditioning System Design / Design Basis

The ACS for the Surry Power Station MCR and ESGRs includes five chillers (1-VS-E-4A, 4B, 4C, 4D, and 4E). Chillers 4A, 4B, and 4C are located in MER-3, in the Unit 2 Emergency Switchgear Room. Chillers 4D and 4E are located in MER-5, in the Unit 2 Turbine Building. The chillers supply chilled water to eight AHUs, arranged in two independent and redundant chilled water loops. Each loop contains four AHUs (one for each MCR and ESGR of each unit), the necessary power supplies, the associated valves, piping (from the supply header to return header), instrumentation, and controls. Two chillers are powered from single emergency buses (1-VS-E-4C from 2H, 1-VS-E-4E from 1H). The remaining three chillers can be powered from either of two emergency buses (1-VS-E-4A from 1J or 2J, 1-VS-E-4B from 1J or 2H, and 1-VS-E-4D from 1H or 2J). The AHUs are powered from the four emergency buses in pairs. Control of the ACS is by manual action. A diagram is included (at the end of Attachment 1) to illustrate the chiller, AHU, and chilled water loop arrangement.

The design basis of the MCR and ESGR ACS is to maintain the MCR and ESGR envelope temperature within the equipment design limits for 30 days of continuous occupancy after a DBA. The proposed change does not affect the capability of the ACS to perform its required function.

The MCR and ESGR ACS components are procedurally arranged in redundant, SR combinations. A single active failure of a component of the MCR and ESGR ACS with a LOOP does not impair the ability of the system to perform its design function. The MCR and ESGR ACS is designed in accordance with Seismic Category I requirements and is capable of removing heat loads from the MCR and ESGR envelope, which include consideration of equipment heat loads and personnel occupancy requirements, to ensure equipment operability. The MCR and ESGR ACS satisfies Criterion 3 of 10 CFR 50.36(c)(2)(ii): part of the primary success path and functions or actuates to mitigate a DBA or transient that either assumes the failure of or presents a challenge to the integrity of a fission product barrier.

5.2 Technical Specification / Accident Analyses

TS 3.23.C currently requires that the AHUs on each unit be operable and, if one becomes inoperable, the respective unit be placed in a 7-day action. Multiple AHU inoperability is not addressed in the current TS or TS Basis. The proposed TS change resolves this by adding requirements and action statements for inoperability of two or more AHUs. These additions are appropriate based on the final modifications discussed in Section 2.0. The proposed TS change does not affect the capability of the MCR and ESGR ACS to perform its required function.

The MCR and ESGR ACS is considered to be OPERABLE when the individual components necessary to cool the MCR and ESGR envelope are OPERABLE. The operability requirements for the chillers and AHUs are separate but interdependent.

The required chillers are considered OPERABLE when required chilled water and service water flowpaths, required power supplies, and controls are OPERABLE. A chiller does not have to be in operation to be considered OPERABLE. An AHU is OPERABLE when the associated chilled water flowpath, fan, motor, dampers, as well as associated ductwork and controls, are OPERABLE.

Acceptable operating alignments include one chiller supplying one chilled water loop with four operating AHUs, or two chillers supplying two chilled water loops with two AHUs operating on each loop. In either case, one AHU must be operated in the MCR and ESGR air conditioning zones of each unit. Two independent and redundant chilled water loops of the MCR and ESGR ACS provide cooling to the units' ESGRs and MCRs to ensure that sufficient cooling capability is available, assuming a single failure. During normal operation, and accident scenarios with a LOOP and single failure of an EDG, one chiller providing chilled water to one chilled water loop with four operating AHUs is sufficient to maintain the MCR and ESGR air temperature within normal limits. In the event of a DBA with all mitigation equipment operating (i.e., higher heat loads due to offsite power available and no single failures), two chillers and two chilled water loops, with one operating AHU in each unit's MCR and ESGR, are necessary to maintain temperatures within normal limits; with one chiller, one chilled water loop, and four operating AHUs, temperatures will be maintained within the equipment design limits.

6.0 SAFETY SIGNIFICANCE

The proposed change to TS 3.23.C revises the current interim TS to reflect the final equipment configuration, including associated power supply configuration and capacity, and adds requirements and action statements for AHUs. The proposed change adds MCR and ESGR ACS requirements during Refueling Operations and irradiated fuel movement in the Fuel Building in TS 3.10 to parallel requirements in the Improved Technical Specifications (ITS). The revision of TS 3.14 clarifies the SW requirements necessary to maintain the heat sink for the MCR and ESGR ACS. The proposed change has no adverse safety impact based on the following considerations:

- The proposed TS change does not adversely affect the design, operation, or performance of the MCR and ESGR ACS components. No physical modifications to the chillers, AHUs, or any associated piping, valves or instrument and controls are required. Operation of the ACS during accident conditions will not be changed.

- The current TS requirements do not include action statements for inoperability of two or more AHUs on a unit, so they are being added. These additions are appropriate based on the final modifications discussed in Section 2.0. As indicated in the April 21, 1993 TS change submittal and the NRC Safety Evaluation for TS Amendments 182/182, the larger AHU capacity AHUs installed by the final modifications returned the AHU heat removal capacity of each chilled water loop to 100%. Thus, each chilled water loop provides redundant 100% AHU heat removal capacity per unit. Each AHU has 100% capacity for cooling its air conditioning zone. Note that the

current 7-day allowed outage time for only one inoperable AHU on a unit has been overly conservative since completion of the final modifications. [NOTE: The referenced 1993 correspondence refers to the air handling capacity of the two trains. Following completion of the final modifications, the MCR and ESGR ACS is no longer aligned in trains, as it was in the original system design. Thus, the train terminology is no longer appropriate.]

- Requirements and action statements for the AHUs powered from an H emergency bus are being added to eliminate the potential for complex operator actions in certain instances of two inoperable AHUs. The swing EDG can supply either J bus, but not both. With an AHU powered from the H bus inoperable on each unit, a DBA with a LOOP and no single failure would result in one air conditioning zone with no AHU available. In this case, in order to ensure power is available to an AHU in each air conditioning zone, operators would have to procedurally realign the swing diesel and cross-connect emergency buses. By prohibiting the simultaneous inoperability of an H-bus powered AHU on each unit, cross-connect of the emergency buses will not be necessary. Current operating practice disallows the simultaneous inoperability of an H-bus powered AHU on each unit. Realignment of the swing diesel required in certain instances of inoperable AHUs is directed by existing procedures.

- The proposed TS change makes no actual changes to the condition or peformance of equipment or systems used in accident mitigation or assumed for any accident analysis. The proposed change does not affect the capability of the ACS to perform its required function.

7.0 SIGNIFICANT HAZARDS CONSIDERATION

Virginia Electric and Power Company (Dominion) requests revisions to the Technical Specifications for Surry Power Station Units 1 and 2. The proposed change revises the Main Control Room (MCR) and Emergency Switchgear Room (ESGR) Air Conditioning System (ACS) portion of TS 3.23 to reflect the completion of permanent modifications to the equipment and associated power supply configuration and deletes the interim specification footnote. Requirements and action statements are added in TS 3.23 for air handling units (AHUs), addressing 1) inoperability of two or more AHUs on a unit and 2) AHUs powered from an H emergency bus. The proposed change adds MCR and ESGR ACS requirements during Refueling Operations and irradiated fuel movement in the Fuel Building in TS 3.10 to parallel requirements in the Improved Technical Specifications (ITS). The proposed change also clarifies the TS 3.14 Service Water (SW) requirements for the ACS chillers that serve the MCR and ESGRs. Dominion has reviewed the requirements of 10 CFR 50.92 as they relate to the proposed change to the Surry Power Station Units 1 and 2 Technical Specifications and has determined that a significant hazards consideration does not exist. The basis for this determination is provided as follows:

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

The proposed change does not impact the condition or performance of any plant structure, system, or component. The proposed change does not affect the initiators of analyzed events or the assumed mitigation of accident or transient events. No physical changes to the ACS or SW System are involved, and accident operation of the ACS will not change. As a result, the proposed change to the Surry Technical Specifications does not involve any significant increase in the probability or the consequences of any accident or malfunction of equipment important to safety previously evaluated since neither accident probabilities nor consequences are being affected by this proposed change.

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

The proposed change does not involve a physical alteration of the plant or a change in the methods used to respond to plant transients. No new or different equipment is being installed, and no installed equipment is being removed. There is no alteration to the parameters within which the plant is normally operated or in the setpoints, which initiate protective or mitigative actions. The ACS will continue to perform its required function. Consequently, no new failure modes are introduced by the proposed change. Therefore, the proposed change to the Surry Technical Specifications does not create the possibility of a new or different kind of accident or malfunction of equipment important to safety from any previously evaluated.

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

The proposed TS change does not impact any plant structure, system, or component that is relied upon for accident mitigation. Margin of safety is established through the design of the plant structures, systems, and components, the parameters within which the plant is operated, and the establishment of the setpoints for the actuation of equipment relied upon to respond to an event. Since ACS performance is not affected by the proposed change, the ACS will continue to be available to perform its required function. Furthermore, the change does not affect the condition or performance of structures, systems, or components relied upon for accident mitigation or any safety analysis assumptions. Therefore, the proposed change to the Surry Technical Specifications does not involve a significant reduction in a margin of safety.

8.0 ENVIRONMENTAL ASSESSMENT

This amendment request meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9) as follows:

(i) The amendment involves no significant hazards consideration.

As described above, the proposed TS change does not involve a significant hazards consideration.

(ii) There is no significant change in the types or significant increase in the amounts of any effluents that may be released offsite.

The proposed TS change does not involve the installation of any new equipment or the modification of any equipment that may affect the types or amounts of effluents that may be released offsite. Accident operation of the ACS is not affected in any manner by this proposed change. Therefore, there is no significant change in the types or significant increase in the amounts of any effluents that may be released offsite.

(iii) There is no significant increase in individual or cumulative occupational radiation exposure.

The proposed TS change does not involve plant physical changes and does not impact accident operation of the ACS. Therefore, there is no significant increase in individual or cumulative occupational radiation exposure.

Based on the above assessment, Dominion concludes that the proposed change meets the criteria specified in 10 CFR 51.22 for a categorical exclusion from the requirements of 10 CFR 51.22 relative to requiring a specific environmental assessment or impact statement by the Commission.

9.0 CONCLUSION

The proposed TS change reflects the current ACS configuration, deletes the reference to the interim status of TS 3.23, adds requirements and action statements for AHUs, adds ACS requirements during Refueling Operations and irradiated fuel movement in the Fuel Building, and clarifies the TS 3.14 SW requirements for the ACS chillers. The ACS design, performance, and accident operation are not affected by the proposed change. The Station Nuclear Safety and Operating Committee (SNSOC) has reviewed the proposed change, and it has been concluded that this change does not have an adverse impact on safety, does not involve a significant hazards consideration, and will not endanger the health and safety of the public.

10.0 REFERENCES

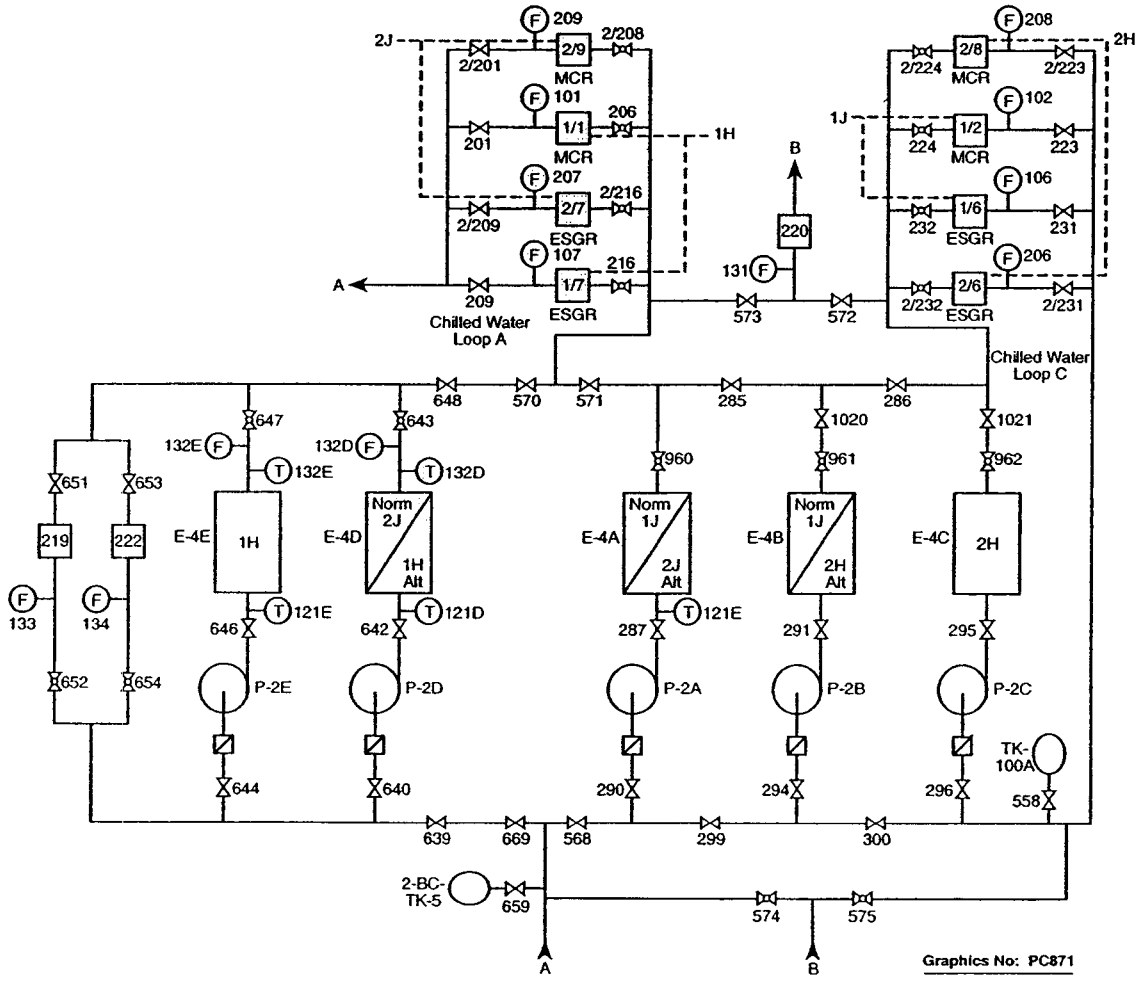
1. NUREG-1366, "Improvements to Technical Specification Surveillance Requirements," dated December 1992.

2. Letter Serial No. 88-689E, dated March 20, 1989, MCR and ESGR Air Conditioning System – Proposed TS Change Request.

3. Letter from the USNRC to Mr. W. R. Cartwright of Virginia Electric and Power Company dated May 30, 1989, "Surry Units 1 and 2 – Issuance of Amendments Re: Main Control Room and Emergency Switchgear Room Air Conditioning System (TAC Nos. 72721 and 72722)" - TS Amendments 129/129.

4. Letter Serial No. 93-122A, dated April 21, 1993, Proposed TS Changes – MCR and ESGR Air Conditioning System.

5. Letter from the USNRC to Mr. W. L. Stewart of Virginia Electric and Power Company dated September 1, 1993, "Surry Units 1 and 2 – Issuance of Amendments Re: Main Control Room and Emergency Switchgear Room Air Conditioning System (TAC Nos. M86108 and M86109)" - TS Amendments 182/182.



CONTROL ROOM / ESGR CHILLED WATER
SYSTEM OVERVIEW

Attachment 2

Marked-up Technical Specifications Pages

Revision of Main Control Room and Emergency Switchgear Room Air Conditioning System Requirements

Surry Power Station Units 1 and 2
Virginia Electric and Power Company
(Dominion)

3.23 MAIN CONTROL ROOM AND EMERGENCY SWITCHGEAR ROOM VENTILATION AND AIR CONDITIONING SYSTEMS

Applicability

Applies to the Main Control Room (MCR) and Emergency Switchgear Room (ESGR) Air Conditioning System and Emergency Ventilation System.

Objective

To specify requirements to ensure the proper function of the Main Control Room and Emergency Switchgear Room Air Conditioning System and Emergency Ventilation System.

Specification

A. Both trains of the Main Control Room and Emergency Switchgear Room Emergency Ventilation System shall be OPERABLE whenever either unit is above COLD SHUTDOWN.

B. With one train of the Main Control Room and Emergency Switchgear Room Emergency Ventilation System inoperable for any reason, return the inoperable train to an OPERABLE status within 7 days or be in at least HOT SHUTDOWN within the next 6 hours and in COLD SHUTDOWN within the following 48 hours.

C. The Main Control Room and Emergency Switchgear Room Air Conditioning System shall be OPERABLE as delineated in the following:

*1. Chiller Refrigeration Units

a. Three main control room and emergency switchgear room chillers must be OPERABLE whenever either unit is above COLD SHUTDOWN.

* This interim specification is necessary until the air conditioning system modifications are completed. Following completion of the permanent modifications, a revised air conditioning system specification will be submitted.

b. The three OPERABLE chillers are required to be powered from three of the four emergency buses with one of those chillers capable of being powered from the fourth emergency bus.

c. If one of the OPERABLE chillers becomes inoperable or is not powered as required by Specification 3.23.C.1.b, return an inoperable chiller to OPERABLE status within seven (7) days or bring both units to HOT SHUTDOWN within the next six (6) hours and be in COLD SHUTDOWN within the following 30 hours.

d. If two of the OPERABLE chillers become inoperable or are not powered as required by Specification 3.23.C.1.b, return an inoperable chiller to OPERABLE status within one (1) hour or bring both units to HOT SHUTDOWN within the next six (6) hours and be in COLD SHUTDOWN within the following 30 hours.

2. Air Handling Units ~~(AHU)~~ (AHUs)

a. Unit 1 air handling units, 1-VS-AC-1, 1-VS-AC-2, 1-VS-AC-6, and 1-VS-AC-7, must be OPERABLE whenever Unit 1 is above COLD SHUTDOWN.

INSERT A

1. If one Unit 1 AHU becomes inoperable, return the inoperable AHU to OPERABLE status within seven (7) days or bring Unit 1 to HOT SHUTDOWN within the next six (6) hours and be in COLD SHUTDOWN within the following 30 hours.

b. Unit 2 air handling units, 2-VS-AC-8, 2-VS-AC-9, 2-VS-AC-6, and 2-VS-AC-7 must be OPERABLE whenever Unit 2 is above COLD SHUTDOWN.

INSERT B

1. If one Unit 2 AHU becomes inoperable, return the inoperable AHU to OPERABLE status within seven (7) days or bring Unit 2 to HOT SHUTDOWN within the next six (6) hours and be in COLD SHUTDOWN within the following 30 hours.

Basis

When the supply of compressed bottled air is depleted, the Main Control Room (MCR) and Emergency Switchgear Room (ESGR) Emergency Ventilation System is manually started to continue to maintain the control room pressure at the design positive pressure so that leakage is outleakage. One train of the main control room emergency ventilation consists of one fan powered from an independent emergency power source.

The ~~Main Control Room~~ MCR and ~~Emergency Switchgear Room~~ ESGR Emergency Ventilation System is designed to filter the intake air to the control room pressure envelope ~~which consists of the control room, relay rooms, and emergency switchgear rooms~~ during a loss of coolant accident.

High efficiency particulate air (HEPA) filters are installed before the charcoal adsorbers to prevent clogging of the iodine adsorbers. The charcoal adsorbers are installed to reduce the potential intake of radio-iodine to the control room.

If the system is found to be inoperable, there is no immediate threat to the control room, and reactor operation may continue for a limited period of time while repairs are being made. If the system cannot be repaired within the specified time, procedures are initiated to establish conditions for which the filter system is not required.

The control room pressure envelope consists of the control room complex (including the control room, control room annex area, Units 1 and 2 air conditioning equipment rooms, and Units 1 and 2 computer rooms), Units 1 and 2 emergency switchgear rooms, Unit 1 relay room, and Unit 2 relay room (including Mechanical Equipment Room 3 (MER-3)).

INSERT A – Add as TS 3.23.C.2.a.1 - 4:

1. If either any single Unit 1 AHU or two Unit 1 AHUs on the same chilled water loop (1-VS-AC-1 and 1-VS-AC-7 or 1-VS-AC-2 and 1-VS-AC-6) become inoperable, restore operability of the one inoperable AHU or two inoperable AHUs within seven (7) days or bring Unit 1 to HOT SHUTDOWN within the next six (6) hours and be in COLD SHUTDOWN within the following 30 hours.

2. If two Unit 1 AHUs on different chilled water loops and in different air conditioning zones (1-VS-AC-1 and 1-VS-AC-6 or 1-VS-AC-2 and 1-VS-AC-7) become inoperable, restore operability of the two inoperable AHUs within seven (7) days or bring Unit 1 to HOT SHUTDOWN within the next six (6) hours and be in COLD SHUTDOWN within the following 30 hours.

3. If two Unit 1 AHUs in the same air conditioning zone (1-VS-AC-1 and 1-VS-AC-2 or 1-VS-AC-6 and 1-VS-AC-7) become inoperable, restore operability of at least one Unit 1 AHU in each air conditioning zone (1-VS-AC-1 or 1-VS-AC-2 and 1-VS-AC-6 or 1-VS-AC-7) within one (1) hour or bring Unit 1 to HOT SHUTDOWN within the next six (6) hours and be in COLD SHUTDOWN within the following 30 hours.

4. If more than two Unit 1 AHUs become inoperable, restore operability of at least one Unit 1 AHU in each air conditioning zone (1-VS-AC-1 or 1-VS-AC-2 and 1-VS-AC-6 or 1-VS-AC-7) within one (1) hour or bring Unit 1 to HOT SHUTDOWN within the next six (6) hours and be in COLD SHUTDOWN within the following 30 hours.

INSERT B – Add as TS 3.23.C.2.b.1 - 4, TS 3.23.C.2.c:

1. If either any single Unit 2 AHU or two Unit 2 AHUs on the same chilled water loop (2-VS-AC-7 and 2-VS-AC-9 or 2-VS-AC-6 and 2-VS-AC-8) become inoperable, restore operability of the one inoperable AHU or two inoperable AHUs within seven (7) days or bring Unit 2 to HOT SHUTDOWN within the next six (6) hours and be in COLD SHUTDOWN within the following 30 hours.

2. If two Unit 2 AHUs on different chilled water loops and in different air conditioning zones (2-VS-AC-7 and 2-VS-AC-8 or 2-VS-AC-6 and 2-VS-AC-9) become inoperable, restore operability of the two inoperable AHUs within seven (7) days or bring Unit 2 to HOT SHUTDOWN within the next six (6) hours and be in COLD SHUTDOWN within the following 30 hours.

3. If two Unit 2 AHUs in the same air conditioning zone (2-VS-AC-8 and 2-VS-AC-9 or 2-VS-AC-6 and 2-VS-AC-7) become inoperable, restore operability of at least one Unit 2 AHU in each air conditioning zone (2-VS-AC-8 or 2-VS-AC-9 and 2-VS-AC-6 or 2-VS-AC-7) within one (1) hour or bring Unit 2 to HOT SHUTDOWN within the next six (6) hours and be in COLD SHUTDOWN within the following 30 hours.

4. If more than two Unit 2 AHUs become inoperable, restore operability of at least one Unit 2 AHU in each air conditioning zone (2-VS-AC-8 or 2-VS-AC-9 and 2-VS-AC-6 or 2-VS-AC-7) within one (1) hour or bring Unit 2 to HOT SHUTDOWN within the next six (6) hours and be in COLD SHUTDOWN within the following 30 hours.

c. Both Unit 1 AHUs or both Unit 2 AHUs powered from the respective H buses (1-VS-AC-1 and 1-VS-AC-7 or 2-VS-AC-6 and 2-VS-AC-8) must be OPERABLE whenever both units are above COLD SHUTDOWN.

1. If one or two AHUs on each unit powered from an H bus is inoperable, restore operability of the inoperable AHU(s) on one unit within one (1) hour or bring both units to HOT SHUTDOWN within the next six (6) hours and be in COLD SHUTDOWN within the next 30 hours.

INSERT C

The Main Control Room and Emergency Switchgear Room Air Conditioning System cools the main control room, the control room annex and the Units 1 and 2 emergency switchgear rooms. The existing air conditioning system includes three chillers (1-VS-E-4A, 4B, and 4C) and eight air handling units (1-VS-AC-1, 2, 6, 7 and 2-VS-AC-6, 7, 8, and 9).

Interim modifications were completed on the Main Control Room and Emergency Switchgear Room Air Conditioning System to address interim failure and increased cooling requirements for the emergency switchgear rooms. Permanent modifications will include replacement of the main control room and emergency switchgear room air handling units (AHU) and installation of additional chiller capacity to restore original design flexibility.

Units 1 and 2 main control room and emergency switchgear room AHUs have been replaced in the initial phases of the permanent modification, restoring redundancy to the AHU portion of the original system design. As a result, the following main control room and emergency switchgear room equipment is required to operate to maintain design temperature under maximum heat load conditions:

- Two chillers
- One Unit 1 MCR AHU and one Unit 1 ESGR AHU
- One Unit 2 MCR AHU and one Unit 2 ESGR AHU

The existing chiller configuration requires that the three chillers in MER-3 (1-VS-E-4A, 4B, and 4C) be OPERABLE so that in the event of a total Loss of Offsite Power to the station and the single failure of an emergency bus or a chiller, two chillers remain available. Installation of the two additional chillers in MER-5 (1-VS-E-4D and 4E) will provide operational flexibility. Any three of the five installed chillers, powered from separate emergency buses with one of those capable of being powered from the fourth emergency bus, will ensure two chillers are available to maintain design temperature under maximum heat load conditions. This operational flexibility is necessary to complete the permanent modification of the existing chillers.

In addition to the equipment restrictions above, a fire watch will be required during this interim period in MER-3 to address Appendix R considerations.

INSERT C – Insert as indicated in TS 3.23 Basis:

The MCR and ESGR Air Conditioning System (ACS) cools the control room pressure envelope. From an ACS perspective, the envelope consists of four zones: 1) the Unit 1 side of the control room (including the Unit 1 air conditioning equipment and computer rooms), 2) the Unit 2 side of the control room (including the annex area, the Unit 2 air conditioning equipment and computer rooms), 3) the Unit 1 ESGR and relay room (referred to as the Unit 1 ESGR), and 4) the Unit 2 ESGR and relay room (including MER-3), referred to as the Unit 2 ESGR. The design basis of the MCR and ESGR ACS is to maintain the control room pressure envelope temperature within the equipment design limits for 30 days of continuous occupancy after a design basis accident (DBA). The ACS includes five chillers (1-VS-E-4A, 4B, 4C, 4D, and 4E). Chillers 4A, 4B, and 4C are located in MER-3, in the Unit 2 ESGR. Chillers 4D and 4E are located in MER-5, in the Unit 2 Turbine Building. The chillers supply chilled water to eight air handling units (AHUs), arranged in two independent and redundant chilled water loops. Each chilled water loop provides redundant 100% heat removal capacity per unit. Each loop contains four AHUs (one AHU in each unit's air conditioning zones), the necessary power supplies, the associated valves, piping (from the supply header to return header), instrumentation, and controls. Each AHU has 100% capacity for cooling its zone.

The combination of five chillers and two chilled water loops affords considerable flexibility in meeting the cooling requirements. Two chillers are powered from single emergency buses (1-VS-E-4C from 2H, 1-VS-E-4E from 1H). The remaining three chillers can be powered from either of two emergency buses (1-VS-E-4A from 1J or 2J, 1-VS-E-4B from 1J or 2H, and 1-VS-E-4D from 1H or 2J). The AHUs are powered from the four emergency buses in pairs. For example, the Unit 1 MCR and ESGR AHUs 1-VS-AC-1 and 1-VS-AC-7 are powered from the 1H bus; the redundant Unit 1 MCR and ESGR AHUs 1-VS-AC-2 and 1-VS-AC-6 are powered from the 1J bus. Control of the ACS is by manual action.

The chillers are procedurally aligned by power supply to meet TS 3.23.C.1.b, and the AHU pairs are normally aligned to match the power supplies of the OPERABLE chillers. For example, chiller 1-VS-E-4E and AHUs 1-VS-AC-1 and 1-VS-AC-7 are powered from the 1H emergency bus. However, due to the number of emergency diesel generators (EDGs) and the chiller/AHU piping layout, only one chiller and AHU pair can be powered from each emergency bus at a time. Also, if chilled water is needed in both chilled water loops, two chillers must be operated. Only one chiller can be operated on each chilled water loop at a time, and the 4D and 4E chillers cannot be operated simultaneously. The combinations of OPERABLE chillers/AHUs allowed by procedure ensure that sufficient cooling capacity is available during a DBA with a coincident loss of offsite power (LOOP) and single failure of an EDG, a chiller, or an AHU.

Acceptable operating alignments include one chiller supplying one chilled water loop with four operating AHUs, or two chillers supplying two chilled water loops with two

Acceptable operating alignments include one chiller supplying one chilled water loop with four operating AHUs, or two chillers supplying two chilled water loops with two AHUs operating on each loop. In either case, one AHU must be operated in the MCR and ESGR air conditioning zones of each unit. During normal operation, and accident scenarios with a LOOP and single failure of an EDG, one chiller providing chilled water to one chilled water loop with four operating AHUs is sufficient to maintain the MCR and ESGR air temperature within normal limits. In the event of a DBA with all mitigation equipment operating (i.e., higher heat loads due to offsite power available and no single failures), two chillers and two chilled water loops, with one operating AHU in each unit's MCR and ESGR, are necessary to maintain temperatures within normal limits; with one chiller, one chilled water loop, and four operating AHUs, temperatures will be maintained within the equipment design limits.

The MCR and ESGR ACS is considered to be OPERABLE when the individual components necessary to cool the MCR and ESGR envelope are OPERABLE. The operability requirements for the chillers and AHUs are separate but interdependent. The required chillers are considered OPERABLE when required chilled water and service water flowpaths, required power supplies, and controls are OPERABLE. A chiller does not have to be in operation to be considered OPERABLE. An AHU is OPERABLE when the associated chilled water flowpath, fan, motor, dampers, as well as associated ductwork and controls, are OPERABLE.

The Technical Specifications require the operability of the ACS components. Due to the redundancy and diversity of components, the inoperability of one active component does not render the ACS incapable of performing its function. This allows increased flexibility in unit operations under circumstances when more than one ACS component is inoperable. Similarly, the inoperability of two different components, each in a different loop or powered from a different power supply, does not necessarily result in a loss of function for the ACS. However, due to the emergency power design (three EDGs and four emergency buses), realignment of the swing or shared EDG is required in certain instances of inoperable AHUs and is directed by procedure.

The requirements and action statements for the AHUs powered from an H emergency bus eliminate the potential for complex operator actions in certain instances of two inoperable AHUs. The swing EDG can supply either J bus, but not both. With an AHU powered from the H bus inoperable on each unit, a DBA with a LOOP and no single failure would result in one air conditioning zone with no AHU available. In this case, in order to ensure power is available to an AHU in each air conditioning zone, operators would have to procedurally realign the swing diesel and cross-connect emergency buses. By prohibiting the simultaneous inoperability of an H-bus powered AHU on each unit, cross-connect of the emergency buses will not be necessary. Realignment of the swing diesel is still required, and procedures direct the operators to realign the swing EDG (from the MCR) as necessary to ensure that there is an operating AHU in the MCR and ESGR air conditioning zones of each unit.

NO CHANGE ON THIS PAGE - PROVIDED FOR INFORMATION & REVIEW CONVENIENCE

3.10 REFUELING

Applicability

Applies to operating limitations during REFUELING OPERATIONS or irradiated fuel movement in the Fuel Building.

Objective

To assure that no accident could occur during REFUELING OPERATIONS or irradiated fuel movement in the Fuel Building that would affect public health and safety.

Specification

A. During REFUELING OPERATIONS the following conditions are satisfied:

1. The equipment access hatch and at least one door in the personnel airlock shall be capable of being closed. For those penetrations which provide a direct path from containment atmosphere to the outside atmosphere, the containment isolation valves shall be OPERABLE or the penetration shall be closed by a valve, blind flange, or equivalent or the penetration shall be capable of being closed.

10. A spent fuel cask or heavy loads exceeding 110 percent of the weight of a fuel assembly (not including fuel handling tool) shall not be moved over spent fuel, and only one spent fuel assembly will be handled at one time over the reactor or the spent fuel pit.

    This restriction does not apply to the movement of the transfer canal door.

11. Two trains of the control and relay room emergency ventilation system shall be OPERABLE. With one train inoperable for any reason, demonstrate the other train is OPERABLE by performing the test in Specification 4.20.A.1. With both trains inoperable, comply with Specification 3.10.C.

12. Two trains of the control room bottled air system shall be OPERABLE. With one train inoperable for any reason, restore the inoperable train to OPERABLE status within 7 days or comply with Specification 3.10.C. With two trains inoperable, comply with Specification 3.10.C.

INSERT D

B. During irradiated fuel movement in the Fuel Building the following conditions are satisfied:

    1. The fuel pit bridge area monitor and the ventilation vent stack 2 particulate and gas monitors shall be OPERABLE and continuously monitored to identify the occurrence of a fuel handling accident.

    2. A spent fuel cask or heavy loads exceeding 110 percent of the weight of a fuel assembly (not including fuel handling tool) shall not be moved over spent fuel, and only one spent fuel assembly will be handled at one time over the reactor or the spent fuel pit.

       This restriction does not apply to the movement of the transfer canal door.

    3. A spent fuel cask shall not be moved into the Fuel Building unless the Cask Impact Pads are in place on the bottom of the spent fuel pool.

INSERT D – Insert as TS 3.10.A.13 and 3.10.A.14:

13. Three chillers shall be OPERABLE in accordance with the power supply requirements of Specification 3.23.C. With one of the required OPERABLE chillers inoperable or not powered as required by Specification 3.23.C.1, return the inoperable chiller to OPERABLE status within 7 days or comply with Specification 3.10.C. With two of the required OPERABLE chillers inoperable or not powered as required by Specification 3.23.C.1, comply with Specification 3.10.C.

14. Eight air handling units (AHUs) shall be OPERABLE in accordance with the operability requirements of Specification 3.23.C. With two AHUs inoperable on the shutdown unit, ensure that one AHU is OPERABLE in each unit's main control room and emergency switchgear room, and restore an inoperable AHU to OPERABLE status within 7 days, or comply with Specification 3.10.C. With more than two AHUs inoperable, comply with Specification 3.10.C.

4. Two trains of the control and relay room emergency ventilation system shall be OPERABLE. With one train inoperable for any reason, demonstrate the other train is OPERABLE by performing the test in Specification 4.20.A.1. With both trains inoperable, comply with Specification 3.10.C.

5. Two trains of the control room bottled air system shall be OPERABLE. With one train inoperable for any reason, restore the inoperable train to OPERABLE status within 7 days or comply with Specification 3.10.C. With two trains inoperable, comply with Specification 3.10.C.

INSERT E

C. If any one of the specified limiting conditions for refueling is not met, REFUELING OPERATIONS or irradiated fuel movement in the Fuel Building shall cease, work shall be initiated to correct the conditions so that the specified limit is met, and no operations which increase the reactivity of the core shall be made.

D. After initial fuel loading and after each core refueling operation and prior to reactor operation at greater than 75% of rated power, the movable incore detector system shall be utilized to verify proper power distribution.

E. The requirements of 3.0.1 are not applicable.

and irradiated fuel shall be placed in a safe position,

INSERT E – Insert as TS 3.10.B.6 and 3.10.B.7:

6. Three chillers shall be OPERABLE in accordance with the power supply requirements of Specification 3.23.C. With one of the required OPERABLE chillers inoperable or not powered as required by Specification 3.23.C.1, return the inoperable chiller to OPERABLE status within 7 days or comply with Specification 3.10.C. With two of the required OPERABLE chillers inoperable or not powered as required by Specification 3.23.C.1, comply with Specification 3.10.C.

7. Eight air handling units (AHUs) shall be OPERABLE in accordance with the operability requirements of Specification 3.23.C. With two AHUs inoperable on either unit, ensure that one AHU is OPERABLE in each unit's main control room and emergency switchgear room, and restore an inoperable AHU to OPERABLE status within 7 days, or comply with Specification 3.10.C. With more than two AHUs inoperable on a unit, comply with Specification 3.10.C.

Containment penetrations that terminate in the Auxiliary Building or Safeguards and provide direct access from containment atmosphere to outside atmosphere must be isolated or capable of being closed by at least one barrier during REFUELING OPERATIONS. The other containment penetrations that provide direct access from containment atmosphere to outside atmosphere must be isolated by at least one barrier during REFUELING OPERATIONS. Isolation may be achieved by an OPERABLE isolation valve, a closed valve, a blind flange, or by an equivalent isolation method. Equivalent isolation methods must be evaluated and may include use of a material that can provide a temporary, atmospheric pressure ventilation barrier.

For the personnel airlock, equipment access hatch, and other penetrations, 'capable of being closed' means the openings are able to be closed; they do not have to be sealed or meet the leakage criteria of TS 4.4. Station procedures exist that ensure in the event of a fuel handling accident, that the open personnel airlock and other penetrations can and will be closed. Closure of the equipment hatch will be accomplished in accordance with station procedures and as allowed by dose rates in containment. The radiological analysis of the fuel handling accident does not take credit for closure of the personnel airlock, equipment access hatch or other penetrations.

The fuel building ventilation exhaust and containment ventilation purge exhaust may be diverted through charcoal filters whenever refueling is in progress. However, there is no requirement for filtration since the Fuel Handling Accident analysis takes no credit for these filters. At least one flow path is required for cooling and mixing the coolant contained in the reactor vessel so as to maintain a uniform boron concentration and to remove residual heat.

INSERT F AS NEW PARAGRAPH

INSERT F – Insert as indicated in TS 3.10 Basis:

The requirements in this specification for the control and relay room emergency ventilation system, control room bottled air system, and the main control room and emergency switchgear room air conditioning system (chillers and air handling units) apply to the shutdown unit. If any of the specified limiting conditions is not met, the requirements appropriately suspend activities that could result in a release of radioactivity that might require isolation of the control room envelope and place irradiated fuel in a safe position without delay and in a controlled manner. The requirements applicable to the operating unit are contained in Specifications 3.19 and 3.23.

NO CHANGE ON THIS PAGE - PROVIDED -FOR INFORMATION & REVIEW CONVENIENCE

3.14 CIRCULATING AND SERVICE WATER SYSTEMS

Applicability

Applies to the operational status of the Circulating and Service Water Systems.

Objective

To define those limiting conditions of the Circulating and Service Water Systems necessary to assure safe station operation.

Specification

A. The Reactor Coolant System temperature or pressure of a reactor unit shall not exceed 350° F or 450 psig, respectively, or the reactor shall not be critical unless:

1. The high level intake canal is filled to at least elevation +23.0 feet at the high level intake structure.

2. Unit subsystems, including piping and valves, shall be operable to the extent of being able to establish the following:

   a. Flow to and from one bearing cooling water heat exchanger.

   b. Flow to and from the component cooling heat exchangers required by Specification 3.13.

3. At least two circulating water pumps are operating or are operable.

4. Three emergency service water pumps are operable; these pumps will service both units simultaneously.

7. Two service water flow paths to the main control room and emergency switchgear room air conditioning subsystems are OPERABLE. TS 3.14-2 ~~05-17-93~~

5. Two service water flow paths to the charging pump service water subsystem are OPERABLE.

6. Two service water flow paths to the recirculation spray subsystems are OPERABLE.

B. The requirements of Specification 3.14.A.4 may be modified to allow one Emergency Service Water pump to remain inoperable for a period not to exceed 7 days. If this pump is not OPERABLE in 7 days, then place both units in HOT SHUTDOWN within the next 6 hours and COLD SHUTDOWN within the next 30 hours.

The requirements of 3.14.A.4 may be modified to have two Emergency Service Water pumps OPERABLE with one unit in COLD SHUTDOWN with combined Spent Fuel pit and shutdown unit decay heat loads of 25 million BTU/HR or less. One of the two remaining pumps may be inoperable for a period not to exceed 7 days. If this pump is not OPERABLE in 7 days, then place the operating unit in HOT SHUTDOWN within the next 6 hours and COLD SHUTDOWN within the next 30 hours.

C. There shall be an operating service water flow path to and from one operating main control and emergency switchgear rooms air conditioning condenser and at least one OPERABLE service water flow path to and from at least one OPERABLE main control and emergency switchgear rooms air conditioning condenser whenever fuel is loaded in the reactor core. Refer to Section 3.23.C for air conditioning system operability requirements above COLD SHUTDOWN.

C. D. The requirements of Specifications 3.14.A.5, 3.14.A.6, and ~~3.14.C~~ 3.14.A.7 may be modified to allow unit operation with only one OPERABLE flow path to the charging pump service water subsystem, the recirculation spray subsystems, and to the main control and emergency switchgear rooms air conditioning condensers. If the affected systems are not restored to the requirements of Specifications 3.14.A.5, 3.14.A.6, and ~~3.14.C~~ 3.14.A.7 within 24 hours,

3.14.A.7

the reactor shall be placed in HOT SHUTDOWN. If the requirements of Specifications 3.14.A.5, 3.14.A.6, and ~~3.14.C~~ are not met within an additional 48 hours, the reactor shall be placed in COLD SHUTDOWN.

Basis

The Circulating and Service Water Systems are designed for the removal of heat resulting from the operation of various systems and components of either or both of the units. Untreated water, supplied from the James River and stored in the high level intake canal is circulated by gravity through the recirculation spray coolers and the bearing cooling water heat exchangers and to the charging pumps lubricating oil cooler service water pumps which supply service water to the charging pump lube oil coolers.

In addition, the Circulating and Service Water Systems supply cooling water to the component cooling water heat exchangers and to the main control and emergency switchgear rooms air conditioning condensers. The Component Cooling heat exchangers are used during normal plant operations to cool various station components and when in shutdown to remove residual heat from the reactor. Component Cooling is not required on the accident unit during a loss-of-coolant accident. If the loss-of-coolant accident is coincident with a loss of off-site power, the nonaccident unit will be maintained at HOT SHUTDOWN with the ability to reach COLD SHUTDOWN.

The long term Service Water requirement for a loss-of-coolant accident in one unit with simultaneous loss-of-station power and the second unit being brought to HOT SHUTDOWN is greater than 15,000 gpm. Additional Service Water is necessary to bring the nonaccident unit to COLD SHUTDOWN. Three diesel driven Emergency Service Water pumps with a design capacity of 15,000 gpm each, are provided to supply water to the High Level Intake canal during a loss-of-station power incident. Thus, considering the single active failure of one pump, three Emergency Service Water pumps are required to be OPERABLE. The allowed outage time of 7 days provides operational flexibility to allow for repairs up to and

Attachment 3

Proposed Technical Specifications Pages

Revision of Main Control Room and Emergency Switchgear Room Air Conditioning System Requirements

Surry Power Station Units 1 and 2
Virginia Electric and Power Company
(Dominion)

3.23 MAIN CONTROL ROOM AND EMERGENCY SWITCHGEAR ROOM VENTILATION AND AIR CONDITIONING SYSTEMS

Applicability

Applies to the Main Control Room (MCR) and Emergency Switchgear Room (ESGR) Air Conditioning System and Emergency Ventilation System.

Objective

To specify requirements to ensure the proper function of the Main Control Room and Emergency Switchgear Room Air Conditioning System and Emergency Ventilation System.

Specification

A. Both trains of the Main Control Room and Emergency Switchgear Room Emergency Ventilation System shall be OPERABLE whenever either unit is above COLD SHUTDOWN.

B. With one train of the Main Control Room and Emergency Switchgear Room Emergency Ventilation System inoperable for any reason, return the inoperable train to an OPERABLE status within 7 days or be in at least HOT SHUTDOWN within the next 6 hours and in COLD SHUTDOWN within the following 48 hours.

C. The Main Control Room and Emergency Switchgear Room Air Conditioning System shall be OPERABLE as delineated in the following:

1. Chiller Refrigeration Units

   a. Three main control room and emergency switchgear room chillers must be OPERABLE whenever either unit is above COLD SHUTDOWN.

   b. The three OPERABLE chillers are required to be powered from three of the four emergency buses with one of those chillers capable of being powered from the fourth emergency bus.

   c. If one of the OPERABLE chillers becomes inoperable or is not powered as required by Specification 3.23.C.1.b, return an inoperable chiller to OPERABLE status within seven (7) days or bring both units to HOT SHUTDOWN within the next six (6) hours and be in COLD SHUTDOWN within the following 30 hours.

   d. If two of the OPERABLE chillers become inoperable or are not powered as required by Specification 3.23.C.1.b, return an inoperable chiller to OPERABLE status within one (1) hour or bring both units to HOT SHUTDOWN within the next six (6) hours and be in COLD SHUTDOWN within the following 30 hours.

2. Air Handling Units (AHUs)

   a. Unit 1 air handling units, 1-VS-AC-1, 1-VS-AC-2, 1-VS-AC-6, and 1-VS-AC-7, must be OPERABLE whenever Unit 1 is above COLD SHUTDOWN.

      1. If either any single Unit 1 AHU or two Unit 1 AHUs on the same chilled water loop (1-VS-AC-1 and 1-VS-AC-7 or 1-VS-AC-2 and 1-VS-AC-6) become inoperable, restore operability of the one inoperable AHU or two inoperable AHUs within seven (7) days or bring Unit 1 to HOT SHUTDOWN within the next six (6) hours and be in COLD SHUTDOWN within the following 30 hours.

      2. If two Unit 1 AHUs on different chilled water loops and in different air conditioning zones (1-VS-AC-1 and 1-VS-AC-6 or 1-VS-AC-2 and 1-VS-AC-7) become inoperable, restore operability of the two inoperable AHUs within seven (7) days or bring Unit 1 to HOT SHUTDOWN within the next six (6) hours and be in COLD SHUTDOWN within the following 30 hours.

      3. If two Unit 1 AHUs in the same air conditioning zone (1-VS-AC-1 and 1-VS-AC-2 or 1-VS-AC-6 and 1-VS-AC-7) become inoperable, restore operability of at least one Unit 1 AHU in each air conditioning zone (1-VS-AC-1 or 1-VS-AC-2 and 1-VS-AC-6 or 1-VS-AC-7) within one (1) hour or bring Unit 1 to HOT SHUTDOWN within the next six (6) hours and be in COLD SHUTDOWN within the following 30 hours.

      4. If more than two Unit 1 AHUs become inoperable, restore operability of at least one Unit 1 AHU in each air conditioning zone (1-VS-AC-1 or 1-VS-AC-2 and 1-VS-AC-6 or 1-VS-AC-7) within one (1) hour or bring Unit 1 to HOT SHUTDOWN within the next six (6) hours and be in COLD SHUTDOWN within the following 30 hours.

   b. Unit 2 air handling units, 2-VS-AC-8, 2-VS-AC-9, 2-VS-AC-6, and 2-VS-AC-7 must be OPERABLE whenever Unit 2 is above COLD SHUTDOWN.

      1. If either any single Unit 2 AHU or two Unit 2 AHUs on the same chilled water loop (2-VS-AC-7 and 2-VS-AC-9 or 2-VS-AC-6 and 2-VS-AC-8) become inoperable, restore operability of the one inoperable AHU or two inoperable AHUs within seven (7) days or bring Unit 2 to HOT SHUTDOWN within the next six (6) hours and be in COLD SHUTDOWN within the following 30 hours.

2. If two Unit 2 AHUs on different chilled water loops and in different air conditioning zones (2-VS-AC-7 and 2-VS-AC-8 or 2-VS-AC-6 and 2-VS-AC-9) become inoperable, restore operability of the two inoperable AHUs within seven (7) days or bring Unit 2 to HOT SHUTDOWN within the next six (6) hours and be in COLD SHUTDOWN within the following 30 hours.

3. If two Unit 2 AHUs in the same air conditioning zone (2-VS-AC-8 and 2-VS-AC-9 or 2-VS-AC-6 and 2-VS-AC-7) become inoperable, restore operability of at least one Unit 2 AHU in each air conditioning zone (2-VS-AC-8 or 2-VS-AC-9 and 2-VS-AC-6 or 2-VS-AC-7) within one (1) hour or bring Unit 2 to HOT SHUTDOWN within the next six (6) hours and be in COLD SHUTDOWN within the following 30 hours.

4. If more than two Unit 2 AHUs become inoperable, restore operability of at least one Unit 2 AHU in each air conditioning zone (2-VS-AC-8 or 2-VS-AC-9 and 2-VS-AC-6 or 2-VS-AC-7) within one (1) hour or bring Unit 2 to HOT SHUTDOWN within the next six (6) hours and be in COLD SHUTDOWN within the following 30 hours.

c. Both Unit 1 AHUs or both Unit 2 AHUs powered from the respective H buses (1-VS-AC-1 and 1-VS-AC-7 or 2-VS-AC-6 and 2-VS-AC-8) must be OPERABLE whenever both units are above COLD SHUTDOWN.

1. If one or two AHUs on each unit powered from an H bus is inoperable, restore operability of the inoperable AHU(s) on one unit within one (1) hour or bring both units to HOT SHUTDOWN within the next six (6) hours and be in COLD SHUTDOWN within the next 30 hours.

Basis

When the supply of compressed bottled air is depleted, the Main Control Room (MCR) and Emergency Switchgear Room (ESGR) Emergency Ventilation System is manually started to continue to maintain the control room pressure at the design positive pressure so that leakage is outleakage. One train of the main control room emergency ventilation consists of one fan powered from an independent emergency power source.

The MCR and ESGR Emergency Ventilation System is designed to filter the intake air to the control room pressure envelope during a loss of coolant accident. The control room pressure envelope consists of the control room complex (including the control room, control room annex area, Units 1 and 2 air conditioning equipment rooms, and Units 1 and 2 computer rooms), Units 1 and 2 emergency switchgear rooms, Unit 1 relay room, and Unit 2 relay room (including Mechanical Equipment Room 3 (MER-3)).

High efficiency particulate air (HEPA) filters are installed before the charcoal adsorbers to prevent clogging of the iodine adsorbers. The charcoal adsorbers are installed to reduce the potential intake of radio-iodine to the control room.

If the system is found to be inoperable, there is no immediate threat to the control room, and reactor operation may continue for a limited period of time while repairs are being made. If the system cannot be repaired within the specified time, procedures are initiated to establish conditions for which the filter system is not required.

The MCR and ESGR Air Conditioning System (ACS) cools the control room pressure envelope. From an ACS perspective, the envelope consists of four zones: 1) the Unit 1 side of the control room (including the Unit 1 air conditioning equipment and computer rooms), 2) the Unit 2 side of the control room (including the annex area, the Unit 2 air conditioning equipment and computer rooms), 3) the Unit 1 ESGR and relay room (referred to as the Unit 1 ESGR), and 4) the Unit 2 ESGR and relay room (including MER-3), referred to as the Unit 2 ESGR. The design basis of the MCR and ESGR ACS is to maintain the control room pressure envelope temperature within the equipment design limits for 30 days of continuous occupancy after a design basis accident (DBA). The ACS includes five chillers (1-VS-E-4A, 4B, 4C, 4D, and 4E). Chillers 4A, 4B, and 4C are located in MER-3, in the Unit 2 ESGR. Chillers 4D and 4E are located in MER-5, in the Unit 2 Turbine Building. The chillers supply chilled water to eight air handling units (AHUs), arranged in two independent and redundant chilled water loops. Each chilled water loop provides redundant 100% heat removal capacity per unit. Each loop contains four AHUs (one AHU in each unit's air conditioning zones), the necessary power supplies, the associated valves, piping (from the supply header to return header), instrumentation, and controls. Each AHU has 100% capacity for cooling its zone.

The combination of five chillers and two chilled water loops affords considerable flexibility in meeting the cooling requirements. Two chillers are powered from single emergency buses (1-VS-E-4C from 2H, 1-VS-E-4E from 1H). The remaining three chillers can be powered from either of two emergency buses (1-VS-E-4A from 1J or 2J, 1-VS-E-4B from 1J or 2H, and 1-VS-E-4D from 1H or 2J). The AHUs are powered from the four emergency buses in pairs. For example, the Unit 1 MCR and ESGR AHUs 1-VS-AC-1 and 1-VS-AC-7 are powered from the 1H bus; the redundant Unit 1 MCR and ESGR AHUs 1-VS-AC-2 and 1-VS-AC-6 are powered from the 1J bus. Control of the ACS is by manual action.

The chillers are procedurally aligned by power supply to meet TS 3.23.C.1.b, and the AHU pairs are normally aligned to match the power supplies of the OPERABLE chillers. For example, chiller 1-VS-E-4E and AHUs 1-VS-AC-1 and 1-VS-AC-7 are powered from the 1H emergency bus. However, due to the number of emergency diesel generators (EDGs) and the chiller/AHU piping layout, only one chiller and AHU pair can be powered from each emergency bus at a time. Also, if chilled water is needed in both chilled water loops, two chillers must be operated. Only one chiller can be operated on each chilled water loop at a time, and the 4D and 4E chillers cannot be operated simultaneously. The combinations of OPERABLE chillers/AHUs allowed by procedure ensure that sufficient cooling capacity is available during a DBA with a coincident loss of offsite power (LOOP) and single failure of an EDG, a chiller, or an AHU.

Acceptable operating alignments include one chiller supplying one chilled water loop with four operating AHUs, or two chillers supplying two chilled water loops with two AHUs operating on each loop. In either case, one AHU must be operated in the MCR and ESGR air conditioning zones of each unit. During normal operation, and accident scenarios with a LOOP and single failure of an EDG, one chiller providing chilled water to one chilled water loop with four operating AHUs is sufficient to maintain the MCR and ESGR air temperature within normal limits. In the event of a DBA with all mitigation equipment operating (i.e., higher heat loads due to offsite power available and no single failures), two chillers and two chilled water loops, with one operating AHU in each unit's MCR and ESGR, are necessary to maintain temperatures within normal limits; with one chiller, one chilled water loop, and four operating AHUs, temperatures will be maintained within the equipment design limits.

The MCR and ESGR ACS is considered to be OPERABLE when the individual components necessary to cool the MCR and ESGR envelope are OPERABLE. The operability requirements for the chillers and AHUs are separate but interdependent. The required chillers are considered OPERABLE when required chilled water and service water flowpaths, required power supplies, and controls are OPERABLE. A chiller does not have to be in operation to be considered OPERABLE. An AHU is OPERABLE when the associated chilled water flowpath, fan, motor, dampers, as well as associated ductwork and controls, are OPERABLE.

The Technical Specifications require the operability of the ACS components. Due to the redundancy and diversity of components, the inoperability of one active component does not render the ACS incapable of performing its function. This allows increased flexibility in unit operations under circumstances when more than one ACS component is inoperable. Similarly, the inoperability of two different components, each in a different loop or powered from a different power supply, does not necessarily result in a loss of function for the ACS. However, due to the emergency power design (three EDGs and four emergency buses), realignment of the swing or shared EDG is required in certain instances of inoperable AHUs and is directed by procedure.

The requirements and action statements for the AHUs powered from an H emergency bus eliminate the potential for complex operator actions in certain instances of two inoperable AHUs. The swing EDG can supply either J bus, but not both. With an AHU powered from the H bus inoperable on each unit, a DBA with a LOOP and no single failure would result in one air conditioning zone with no AHU available. In this case, in order to ensure power is available to an AHU in each air conditioning zone, operators would have to procedurally realign the swing diesel and cross-connect emergency buses. By prohibiting the simultaneous inoperability of an H-bus powered AHU on each unit, cross-connect of the emergency buses will not be necessary. Realignment of the swing diesel is still required, and procedures direct the operators to realign the swing EDG (from the MCR) as necessary to ensure that there is an operating AHU in the MCR and ESGR air conditioning zones of each unit.

10. A spent fuel cask or heavy loads exceeding 110 percent of the weight of a fuel assembly (not including fuel handling tool) shall not be moved over spent fuel, and only one spent fuel assembly will be handled at one time over the reactor or the spent fuel pit.

    This restriction does not apply to the movement of the transfer canal door.

11. Two trains of the control and relay room emergency ventilation system shall be OPERABLE. With one train inoperable for any reason, demonstrate the other train is OPERABLE by performing the test in Specification 4.20.A.1. With both trains inoperable, comply with Specification 3.10.C.

12. Two trains of the control room bottled air system shall be OPERABLE. With one train inoperable for any reason, restore the inoperable train to OPERABLE status within 7 days or comply with Specification 3.10.C. With two trains inoperable, comply with Specification 3.10.C.

13. Three chillers shall be OPERABLE in accordance with the power supply requirements of Specification 3.23.C. With one of the required OPERABLE chillers inoperable or not powered as required by Specification 3.23.C.1, return the inoperable chiller to OPERABLE status within 7 days or comply with Specification 3.10.C. With two of the required OPERABLE chillers inoperable or not powered as required by Specification 3.23.C.1, comply with Specification 3.10.C.

14. Eight air handling units (AHUs) shall be OPERABLE in accordance with the operability requirements of Specification 3.23.C. With two AHUs inoperable on the shutdown unit, ensure that one AHU is OPERABLE in each unit's main control room and emergency switchgear room, and restore an inoperable AHU to OPERABLE status within 7 days, or comply with Specification 3.10.C. With more than two AHUs inoperable, comply with Specification 3.10.C.

B. During irradiated fuel movement in the Fuel Building the following conditions are satisfied:

1. The fuel pit bridge area monitor and the ventilation vent stack 2 particulate and gas monitors shall be OPERABLE and continuously monitored to identify the occurrence of a fuel handling accident.

2. A spent fuel cask or heavy loads exceeding 110 percent of the weight of a fuel assembly (not including fuel handling tool) shall not be moved over spent fuel, and only one spent fuel assembly will be handled at one time over the reactor or the spent fuel pit.

   This restriction does not apply to the movement of the transfer canal door.

3. A spent fuel cask shall not be moved into the Fuel Building unless the Cask Impact Pads are in place on the bottom of the spent fuel pool.

4. Two trains of the control and relay room emergency ventilation system shall be OPERABLE. With one train inoperable for any reason, demonstrate the other train is OPERABLE by performing the test in Specification 4.20.A.1. With both trains inoperable, comply with Specification 3.10.C.

5. Two trains of the control room bottled air system shall be OPERABLE. With one train inoperable for any reason, restore the inoperable train to OPERABLE status within 7 days or comply with Specification 3.10.C. With two trains inoperable, comply with Specification 3.10.C.

6. Three chillers shall be OPERABLE in accordance with the power supply requirements of Specification 3.23.C. With one of the required OPERABLE chillers inoperable or not powered as required by Specification 3.23.C.1, return the inoperable chiller to OPERABLE status within 7 days or comply with Specification 3.10.C. With two of the required OPERABLE chillers inoperable or not powered as required by Specification 3.23.C.1, comply with Specification 3.10.C.

7. Eight air handling units (AHUs) shall be OPERABLE in accordance with the operability requirements of Specification 3.23.C. With two AHUs inoperable on either unit, ensure that one AHU is OPERABLE in each unit's main control room and emergency switchgear room, and restore an inoperable AHU to OPERABLE status within 7 days, or comply with Specification 3.10.C. With more than two AHUs inoperable on a unit, comply with Specification 3.10.C.

C. If any one of the specified limiting conditions for refueling is not met, REFUELING OPERATIONS or irradiated fuel movement in the Fuel Building shall cease and irradiated fuel shall be placed in a safe position, work shall be initiated to correct the conditions so that the specified limit is met, and no operations which increase the reactivity of the core shall be made.

D. After initial fuel loading and after each core refueling operation and prior to reactor operation at greater than 75% of rated power, the movable incore detector system shall be utilized to verify proper power distribution.

E. The requirements of 3.0.1 are not applicable.

Containment penetrations that terminate in the Auxiliary Building or Safeguards and provide direct access from containment atmosphere to outside atmosphere must be isolated or capable of being closed by at least one barrier during REFUELING OPERATIONS. The other containment penetrations that provide direct access from containment atmosphere to outside atmosphere must be isolated by at least one barrier during REFUELING OPERATIONS. Isolation may be achieved by an OPERABLE isolation valve, a closed valve, a blind flange, or by an equivalent isolation method. Equivalent isolation methods must be evaluated and may include use of a material that can provide a temporary, atmospheric pressure ventilation barrier.

For the personnel airlock, equipment access hatch, and other penetrations, 'capable of being closed' means the openings are able to be closed; they do not have to be sealed or meet the leakage criteria of TS 4.4. Station procedures exist that ensure in the event of a fuel handling accident, that the open personnel airlock and other penetrations can and will be closed. Closure of the equipment hatch will be accomplished in accordance with station procedures and as allowed by dose rates in containment. The radiological analysis of the fuel handling accident does not take credit for closure of the personnel airlock, equipment access hatch or other penetrations.

The fuel building ventilation exhaust and containment ventilation purge exhaust may be diverted through charcoal filters whenever refueling is in progress. However, there is no requirement for filtration since the Fuel Handling Accident analysis takes no credit for these filters. At least one flow path is required for cooling and mixing the coolant contained in the reactor vessel so as to maintain a uniform boron concentration and to remove residual heat.

The requirements in this specification for the control and relay room emergency ventilation system, control room bottled air system, and the main control room and emergency switchgear room air conditioning system (chillers and air handling units) apply to the shutdown unit. If any of the specified limiting conditions is not met, the requirements appropriately suspend activities that could result in a release of radioactivity that might require isolation of the control room envelope and place irradiated fuel in a safe position without delay and in a controlled manner. The requirements applicable to the operating unit are contained in Specifications 3.19 and 3.23.

5. Two service water flow paths to the charging pump service water subsystem are OPERABLE.

6. Two service water flow paths to the recirculation spray subsystems are OPERABLE.

7. Two service water flow paths to the main control room and emergency switchgear room air conditioning subsystems are OPERABLE.

B. The requirements of Specification 3.14.A.4 may be modified to allow one Emergency Service Water pump to remain inoperable for a period not to exceed 7 days. If this pump is not OPERABLE in 7 days, then place both units in HOT SHUTDOWN within the next 6 hours and COLD SHUTDOWN within the next 30 hours.

   The requirements of 3.14.A.4 may be modified to have two Emergency Service Water pumps OPERABLE with one unit in COLD SHUTDOWN with combined Spent Fuel pit and shutdown unit decay heat loads of 25 million BTU/HR or less. One of the two remaining pumps may be inoperable for a period not to exceed 7 days. If this pump is not OPERABLE in 7 days, then place the operating unit in HOT SHUTDOWN within the next 6 hours and COLD SHUTDOWN within the next 30 hours.

C. The requirements of Specifications 3.14.A.5, 3.14.A.6, and 3.14.A.7 may be modified to allow unit operation with only one OPERABLE flow path to the charging pump service water subsystem, the recirculation spray subsystems, and to the main control and emergency switchgear rooms air conditioning condensers. If the affected systems are not restored to the requirements of Specifications 3.14.A.5, 3.14.A.6, and 3.14.A.7 within 24 hours,

the reactor shall be placed in HOT SHUTDOWN. If the requirements of Specifications 3.14.A.5, 3.14.A.6, and 3.14.A.7 are not met within an additional 48 hours, the reactor shall be placed in COLD SHUTDOWN.

Basis

The Circulating and Service Water Systems are designed for the removal of heat resulting from the operation of various systems and components of either or both of the units. Untreated water, supplied from the James River and stored in the high level intake canal is circulated by gravity through the recirculation spray coolers and the bearing cooling water heat exchangers and to the charging pumps lubricating oil cooler service water pumps which supply service water to the charging pump lube oil coolers.

In addition, the Circulating and Service Water Systems supply cooling water to the component cooling water heat exchangers and to the main control and emergency switchgear rooms air conditioning condensers. The Component Cooling heat exchangers are used during normal plant operations to cool various station components and when in shutdown to remove residual heat from the reactor. Component Cooling is not required on the accident unit during a loss-of-coolant accident. If the loss-of-coolant accident is coincident with a loss of off-site power, the nonaccident unit will be maintained at HOT SHUTDOWN with the ability to reach COLD SHUTDOWN.

The long term Service Water requirement for a loss-of-coolant accident in one unit with simultaneous loss-of-station power and the second unit being brought to HOT SHUTDOWN is greater than 15,000 gpm. Additional Service Water is necessary to bring the nonaccident unit to COLD SHUTDOWN. Three diesel driven Emergency Service Water pumps with a design capacity of 15,000 gpm each, are provided to supply water to the High Level Intake canal during a loss-of-station power incident. Thus, considering the single active failure of one pump, three Emergency Service Water pumps are required to be OPERABLE. The allowed outage time of 7 days provides operational flexibility to allow for repairs up to and