VIRGINIA ELECTRIC AND POWER COMPANY
RICHMOND, VIRGINIA 23261

June 9, 1994

U.S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, DC. 20555

Serial No. 94-346
SPS/MDK"/ETS:
Docket Nos. 50-280
50-281
License Nos. DPR-32
DPR-37

Gentlemen:

VIRGINIA ELECTRIC AND POWER COMPANY
SURRY POWER STATION UNITS 1 AND 2
PROPOSED TECHNICAL SPECIFICATIONS CHANGES
CHEMICAL AND VOLUME CONTROL SYSTEM AND
SAFETY INJECTION SYSTEM

Pursuant to 10 CFR 50.90, the Virginia Electric and Power Company requests amendments, in the form of changes to the Technical Specifications, to Facility Operating License Nos. DPR-32 and DPR-37 for Surry Power Station Units 1 and 2, respectively. The proposed changes will modify, in part, the Chemical and Volume Control System specifications and the Safety Injection System specifications in accordance with NUREG-0452, "Standard Technical Specifications for Westinghouse Pressurized Water Reactors," Revision 4, NUREG-1431, "Standard Technical Specifications for Westinghouse Pressurized Water Reactors," dated September 1992, and Generic Letter 93-05, "Line-Item Technical Specifications Improvements to Reduce Surveillance Requirements for Testing During Power Operation," dated September 27, 1993. This request is being submitted as part of our Cost Beneficial Licensing Action (CBLA) program and complies with NRC guidelines for consideration as a CBLA submittal.

Discussions of the proposed Technical Specifications changes are provided in Attachment 1. The proposed Technical Specifications changes are provided in Attachment 2. It has been determined that the proposed Technical Specifications changes do not involve an unreviewed safety question as defined in 10 CFR 50.59 or a significant hazards consideration as defined in 10 CFR 50.92. The basis for our determination that these changes do not involve a significant hazards consideration is provided in Attachment 3. The proposed Technical Specifications changes have been reviewed and approved by the Stations Nuclear Safety and Operating Committees and the Management Safety Review Committee.

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Should you have any questions or require additional information, please contact us.

Very truly yours,

J. P. O'Hanlon

J. P. O'Hanlon
Senior Vice President - Nuclear

Attachments

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Surry Power Station

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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 J. P. O'Hanlon, who is Vice President - Nuclear Operations, of Virginia Electric and Power Company. He is duly authorized to execute and file the foregoing document in behalf of that Company, and the statements in the document are true to the best of his knowledge and belief.

Acknowledged before me this 9TH day of June, 1994.

My Commission Expires: May 31, 1998

Vicki L. Hull
Notary Public

(SEAL)

50-280 SURRY 1 VE&PCO

DISCUSSION OF CHANGES--ATTACHMENT 1

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Attachment 1

Discussion of Changes

Surry Power Station

Discussion of Changes

Introduction

Surry Power Station's charging pumps are dual purpose pumps. As components of the Chemical and Volume Control System, they provide normal charging to the Reactor Coolant System. As part of the emergency core cooling system, they provide high head safety injection when required. Our charging pump manufacturer, Byron Jackson, has proposed a once-through process flow cooling arrangement for the Surry Unit 1 and 2 charging pumps mechanical seals. This modification eliminates the need for the existing mechanical seal coolers, charging pump component cooling subsystem, and intermediate seal coolers, by providing a seal cooling supply from the low pressure stages of the charging pump casing. Our engineering evaluation of the manufacturer's proposed modification and the pump seal manufacturer's concurrence with the modification, have determined this modification to be acceptable with no reduction in the pump's capability or function. The pump modification with its elimination of the charging pump component cooling subsystem, results in significant operational and maintenance savings, reduced personnel exposure, and improved pump reliability and operability. Elimination of the charging pump component cooling subsystem and implementation of the proposed modifications will require changes to Surry Technical Specifications and issuance of a License Amendment prior to implementation of the proposed modifications.

Changes are also being proposed to restructure the Chemical and Volume Control System (CVCS) specifications and the Safety Injection System (SI) specifications consistent with the proposed modification of the charging pump seal cooling, elimination of the charging pump component cooling subsystem, and prior removal of the boron injection tank. The requirement to maintain two channels of heat tracing operable is being deleted and a minimum boric acid solution temperature is being specified consistent with NUREG-0452, "Standard Technical Specifications for Westinghouse Pressurized Water Reactors," Revision 4. The heat tracing requirements of the Safety Injection System Specifications were not previously deleted when the boric acid concentration was reduced and the boron injection tank requirements were removed consistent with Amendment 95 (Unit 1) and 94 (Unit 2). The restructuring of the Specifications continues to ensure that no single failure can disable both emergency core cooling trains and that the criteria of 10 CFR 50.46 remain satisfied.

To support restructuring of the Chemical and Volume Control System and Safety Injection System specifications, certain requirements are being relocated. The Specification 3.3 requirement regarding Reactor Coolant System loop stop valves is appropriately being relocated to Specification 3.1, Reactor Coolant System. The Specification 3.3 requirement for total system leakage outside containment is being deleted. Specification 6.4.K and Chapter 6 of the Updated Final Safety Analysis Report, adequately address this leakage requirement. The requirement to position and remove AC power from specified Safety Injection System motor operated valves (existing Specifications 3.3.A.8 and 3.3.A.9) is relocated to surveillance specification 4.11, Safety Injection System Tests, consistent with the requirements in NUREG-0452 for similar valves.

Also, consistent with restructuring of the Chemical and Volume Control System and Safety Injection System specifications, portions of the changes will include certain line-item improvements identified in Generic Letter 93-05, "Line-Item Technical Specifications Improvements to Reduce Surveillance Requirements for Testing During Power Operation." Consistent with Generic Letter 93-05, Item 7.1, Item 7.4 and NUREG-1366, we are requesting changes to the safety injection accumulator surveillance requirements for boron concentration, solution level, and nitrogen cover-pressure instrumentation channels. A surveillance requirement is added to Specification 4.11, Safety Injection System Tests, for the safety injection accumulators.

Background

The Chemical and Volume Control System (CVCS) is designed to provide boric acid solution through the charging pumps to the Reactor Coolant System (RCS) for reactivity control and to compensate for minor leakage of reactor coolant. The Chemical and Volume Control System also has the capability to achieve Cold Shutdown of both units from any operating condition with one control rod assembly completely withdrawn at any time in core life, and has the capability to achieve Refueling Shutdown from Cold Shutdown. The Safety Injection System (SI) functions to provide adequate emergency core cooling thereby maintaining core geometry and clad integrity during the unlikely event of postulated accidents. This system includes passive safety injection accumulators, high head charging, and low-head injection subsystems. To ensure operability of the CVCS and SI systems, the pumps and various components are tested on a surveillance frequency as required by Technical Specifications.

The NRC has completed a comprehensive examination of surveillance requirements in technical specifications that require testing at power. The evaluation is documented in NUREG-1366, "Improvements to Technical Specification Surveillance Requirements," dated December 1992. The NRC staff found that while the majority of testing at power is important, safety can be improved, equipment degradation decreased, and an unnecessary burden on personnel resources eliminated by reducing the amount of testing at power that is required by technical specifications. Based on the results of the evaluations documented in NUREG-1366, the NRC issued Generic Letter 93-05, dated September 27, 1993. Consistent with Generic Letter 93-05, Item 7.1, a surveillance requirement has been added (new Specification 4.11.B) to verify safety injection accumulator boron concentration, volume, and nitrogen cover-pressure. A requirement to verify boron concentration within 6 hours of a specified solution volume increase has also been added but is not required when the volume increase makeup source is the RWST. The minimum RWST boron concentration is equal to or greater than the minimum required safety injection accumulator boron concentration limit. Also, consistent with Generic Letter 93-05, Item 7.4, the safety injection accumulator instrument channel surveillance requirements for level and pressure are deleted. The NRC Staff recognized that safety injection accumulator instrumentation operability is not directly related to the capability of the accumulators to perform their safety function. Therefore, surveillance requirements for this instrumentation are being relocated from Technical Specifications. These changes are requested consistent with Generic Letter 93-05, Item 7.1, Item 7.4, and NUREG-1366.

Specific Changes

The operability requirements for the Chemical and Volume Control System in Specification 3.2 are modified as follows:

- Specification 3.2.B has been restructured to address operability requirements on a subsystem basis rather than an individual component basis. The CVCS subsystems and major components required to be operable prior to Reactor Critical are identified (new Specification 3.2.B). The subsystems and components are required to be operable in accordance with the Specification 1.0.D definition of "operable," allowing for the elimination of redundant language regarding piping, valves and control board indication.

- The requirements of the common boric acid storage system are clarified with requirements for boric acid solution volume, concentration, and temperature specified to support subsystem operability. Specifically, a minimum boric acid solution temperature is being specified in lieu of requiring heat tracing channel operability, (new Specification 3.2.B.1.a). This approach is consistent with NUREG-1431, Standard Technical Specifications for Westinghouse Plants, dated September 1992 (subsequently referenced as NUREG-1431). Specifying a minimum boric acid solution temperature and requiring an operable boric acid transfer pump within an operable CVCS subsystem assures boron precipitation does not occur within the common boric acid storage system. Although deleted from Technical Specifications requirements, heat tracing will continue to be maintained in accordance with station procedures and administratively controlled in accordance with Specification 6.4.

- The major components required to be operable for the supply of borated water from the refueling water storage tank (RWST) to the Reactor Coolant System (RCS), (portions of existing Specification 3.2.B.4 and 3.2.C.4) prior to Reactor Critical are included consistent with NUREG-0452, Revision 4, Standard Technical Specifications for Westinghouse Pressurized Water Reactors (subsequently referenced as NUREG-0452). Specific parameters for borated water volume, concentration, and temperature already identified in Specification 3.3.A.1 are added to maintain consistency within the Specifications. Additional restrictions on RWST operability are added in Specification 3.2.B.1.b. In addition, the allowed outage time for conditions where the RWST is inoperable due to the boron concentration or solution temperature not being within specified limits, is changed to 8 hours (new Specification 3.2.C.2.a) consistent with NUREG-1431. The Specification changes regarding the RWST continue to ensure that an adequate supply of borated water remains available to cool and depressurize the containment, to cool and cover the core, and to maintain the reactor subcritical following a Design Basis Accident.

- The requirement for a charging pump from the opposite Unit to be <u>available</u> (existing Specification 3.2.B.1, 3.2.B.6, 3.2.E and footnote page TS 3.2-2) prior to Reactor Critical has been clarified. The requirements identifying availability of the opposite Unit's charging pump and explaining its meaning, were previously

identified in a footnote and throughout the Specification. The requirement to have one charging pump available from the opposite unit is the result of a compliance assessment to Appendix R fire protection requirements. This requirement was identified in an NRC Safety Evaluation on fire protection dated September 19, 1979. The NRC required a change to Technical Specifications by letter dated November 24, 1980. These requirements were added and later clarified in Amendment 99 (Unit 1) and Amendment 98 (Unit 2), dated October 12, 1984. The availability requirements of the opposite Unit's charging pumps are now included as a specific requirement within the Specification. (new Specification 3.2.B.2)

- Specification 3.2.F, addressing dilutions during Refueling Shutdown and Cold Shutdown conditions, is clarified. An administrative change is made to restructure the specification by numbering the requirement that the specified valves be locked, sealed, or otherwise secured within 15 minutes following planned dilutions and makeup activities. (new Specification 3.2.E.3)

- The operability requirements and allowed outage times for inoperable components and heat tracing circuits (portions of existing Specification 3.2.D) are deleted consistent with restructuring the Specifications to address operability on a subsystem basis. Modifications to the charging pumps, elimination of the charging pump component cooling subsystem, and prior removal of the boron injection tank (BIT) requirements result in improved reliability and improved operability. An allowed outage time of 72 hours is specified for an inoperable boron injection subsystem. The allowed period of 48 hours between achieving Hot Shutdown and initiating Cold Shutdown procedures, is deleted. The required allowed outage time to achieve Cold Shutdown is not being increased. The boron injection subsystems are identified in new Specification 3.2.B.1. The proposed 72 hour action statement is based upon our engineering evaluation of the changes and is consistent with NUREG-0452 which permits a 72 hour action statement for an inoperable boron injection flow path to the RCS.

- An allowed outage time of one hour is added for conditions where the RWST becomes inoperable. This allowed outage time of one hour is consistent with Safety Injection Specification 3.3.B.10 which allows the RWST to be inoperable for one hour. The allowed outage time of one hour is also consistent with

NUREG-0452 for the boric acid flow path from the RWST to the RCS. An allowed outage time of 8 hours is added for the specific condition where the RWST boron concentration or solution temperature is not within specified limits. This 8 hour allowed outage time is also consistent with NUREG-1431.

- The Basis of Specification 3.2 (existing page TS 3.2-5) is changed, deleting reference to the boron injection tank and heat tracing channels. The boron injection tank operability requirements were previously removed following issuance of Amendment 95 (Unit 1) and 94 (Unit 2), dated February 24, 1984. The tank was physically cut out of the system and abandoned in place with the tank heaters and heat tracing removed.

The operability requirements for the Safety Injection System in Specification 3.3 are modified as follows:

- Specification 3.3.A has been restructured to address operability requirements on a subsystem basis rather than an individual component basis. The Safety Injection subsystems and major components required to be operable prior to Reactor Critical are identified. The subsystems and components are required to be operable in accordance with Specification 1.0.D, definition of "operable", allowing for the elimination of redundant language regarding piping, valves and associated interlocks.

- The requirement to maintain two channels of heat tracing operable is deleted. This requirement existed to support operation of the boron injection tank and its higher boric acid concentrations and solution temperatures. The boric acid concentration was previously reduced and the boron injection tank (BIT) requirements were removed in Amendment 95 (Unit 1) and Amendment 94 (Unit 2). Heat tracing is not required for operability of the Safety Injection System and should have been deleted when the BIT requirements were removed.

- Specification 3.3.A.7 requirements for an operable charging pump cooling water subsystem are being deleted. The charging pump manufacturer has recommended a passively designed pump modification which uses effluent from the charging pump low pressure stages to provide the function of the charging pump component cooling water subsystem. This modification provides for the

elimination of the charging pump component cooling water subsystem including pumps, heat exchangers, piping, and support sundries.

- Specification 3.3.A.8 and 3.3.A.9 requirements for removal of AC power to specified valves are relocated as an additional surveillance requirement. Surveillance Specification 4.11.C.4, is added with minor wording changes to specify additional verification requirements for tagging the valves' breakers to be locked, sealed, or otherwise secured in the off position. Placement of this requirement in the surveillance section of Technical Specifications is consistent with applicable portions of NUREG-0452 and NUREG-1431.

- The requirement to have the safety injection accumulator discharge valves blocked open (existing Specification 3.3.A.10) has been appropriately relocated to the requirement for safety injection accumulator operability, with an additional requirement that the valves' breakers be locked, sealed, or otherwise secured in the open position. (new Specification 3.3.A.2.d)

- The requirements for Reactor Coolant System (RCS) loop isolation valves (existing Specification 3.3.A.11) have been relocated to Specification 3.1.A.4. The relocation of this requirement appropriately places the RCS loop isolation valve requirements within the Reactor Coolant System Specification, 3.1. The requirement to lock these valves in the open position after AC power is removed is changed. These valves are located inside the containment building which is locked and access controlled during Power Operations. A requirement is added to have the valves' breakers to be locked, sealed, or otherwise secured in the open position after AC power is removed.

- The requirement for total system uncollected leakage (existing Specification 3.3.A.12) is deleted. The requirements for reducing leakage from systems outside containment, which includes total uncollected system leakage from valves, flanges, and pumps located outside containment, are identified in Specification 6.4.K and Chapter 6 of the Updated Final Safety Analysis Report. Also, deletion of this requirement and similar requirements in Specifications 3.3.B.9, 3.4.A.6, 3.4.B.4, 4.5.B.4, 4.11.A.4.d and their associated basis, eliminates the existing confusion resulting from assigning separate leakage components to total uncollected system leakage. Total uncollected system

leakage requirements are controlled by existing programs. This approach is covered by the requirements contained in Specification 6.4.K and is consistent with NUREG-0452. NRC Safety Evaluation for Amendment 162 (Surry Unit 1) and Amendment 161 (Surry Unit 2), which addressed total system uncollected leakage, determined that the associated changes were "a non-required change" and that there are "no requirements in the Westinghouse Standardized Technical Specifications for total leakage limits allowed for the RS system and for periodic verification of system leakage within limits for the RS and SI systems". Consequently, uncollected system leakage requirements for the Safety Injection (SI) and Recirculation Spray (RS) Systems, are being deleted.

- The allowed outage times for inoperable components and heat tracing circuits (portions of existing Specification 3.3.B and Specification 4.1, Table 4.1-2A, Item 12) are deleted consistent with restructuring the Specification to address operability on a subsystem basis. An allowed outage time of 72 hours is specified (new Specification 3.3.B.3) for an inoperable Safety Injection System subsystem. The 48 hour period between achieving Hot Shutdown and initiating Cold Shutdown procedures, is deleted. There is no increase in the required allowed outage times to achieve Cold Shutdown. The Safety Injection System subsystem is identified in New Specification 3.3.A.3. The proposed 72 hours is based upon our engineering evaluation which identified no significant increase in risk by the changes being made and is consistent with NUREG-0452 which specifies a 72 hour action statement for an inoperable Safety Injection System subsystem.

- The allowed outage time of one hour for an inoperable RWST is not changed. However, an allowed outage time of 8 hours is established for conditions where the RWST is inoperable due to the boron concentration or solution temperature not being within specified limits (new Specification 3.3.B.1.a), consistent with NUREG-1431. Also, clarification is made to TS Figure 3.8-1, Figure Notes, Item 1, by adding reference to the eight hour allowed outage time for conditions where the RWST temperature in not within specified limits.

- The allowed outage time of 4 hours for an inoperable safety injection accumulator is not changed. However, an allowed outage time of 72 hours is established for conditions where the safety injection accumulator is inoperable due to the boron

concentration not being within specified limits (new Specification 3.3.B.2.a), which is consistent with NUREG-1431 and recognizes that the safety function of the accumulators is most dependent upon nitrogen cover pressure and volume.

- The Basis Section of Specification 3.3 is revised in support of the Specification being restructured to address Safety Injection System operability on a subsystem basis. Reference to total uncollected leakage and offsite doses (page TS 3.3-7) is deleted from Specification 3.3 Basis. The requirements for reducing leakage from systems outside containment, which includes total uncollected system leakage from valves, flanges, and pumps located outside containment, are identified in Specification 6.4.K and Chapter 6 of the Updated Final Safety Analysis Report. The reference to maximum acceptable inleakage for a safety injection accumulator (page TS 3.3-7) is deleted from Specification 3.3 Basis and is included as a new surveillance requirement within Specification 4.11.B.2, consistent with NUREG-0452, NUREG-1431, and Generic Letter 93-05, Item 7.1. Reference to the safety injection accumulator discharge motor operated valves receiving an open signal (page TS 3.3-7) is deleted. These valves are required by Specification 3.3.A.10 (new Specification 3.3.A.2.d) to be de-energized in the open position when RCS pressure exceeds 1000 psig. While de-energized, they do not receive an open signal, and do not require an open signal to perform their safety injection function.

The operability requirements for Spray Systems, Specification 3.4, are modified as follows:

- Specifications 3.4.A.6, 3.4.B.4 and portions of the Basis are deleted. The requirements for reducing leakage from systems outside containment, which includes total uncollected system leakage from valves, flanges, and pumps located outside containment, are identified in Specification 6.4.K and Chapter 6 of the Updated Final Safety Analysis Report.

- An allowed outage time of 8 hours is established for conditions where the RWST is inoperable due to the boron concentration or solution temperature not being within specified limits (new Specification 3.4.B.4.a) consistent with new Specification 3.3.B.1.a, NUREG-1431 and the safety function of the refueling water storage tank. Also, clarification is made to TS Figure 3.8-1, Figure Notes,

Item 1, by adding reference to the eight hour allowed outage time for conditions where the RWST temperature in not within specified limits.

The Surveillance Requirements for the Safety Injection System Tests in Specification 4.11 are modified as follows:

- Specification 4.11.A.4.d regarding total uncollected system leakage is deleted. The requirements for reducing leakage from systems outside containment, which includes total uncollected system leakage from valves, flanges, and pumps located outside containment, are identified in Specification 6.4.K and Chapter 6 of the Updated Final Safety Analysis Report.

- The surveillance requirements for solution temperature, boron concentration, and volume for the refueling water storage tank are changed and moved to new Specification 4.11.A. These requirements include a weekly surveillance interval for RWST volume and boron concentration consistent with similar conditions specified in NUREG-0452 and NUREG-1431. The RWST volume and temperature surveillance requirements were previously specified in Table 4.1-2A, Item 22, and performed each shift. The RWST boron concentration surveillance was previously specified in Table 4.1-2B, Item 2, and performed weekly. The RWST temperature is included in new Specification 4.11.A with a daily surveillance interval.

- A new surveillance requirement is added for the safety injection accumulators (new Specification 4.11.B.1). This requirement includes a 12 hour surveillance interval for accumulator volume and nitrogen cover-pressure, consistent with similar conditions specified in NUREG-0452 and Generic Letter 93-05, Item 7.4. The safety injection accumulator volume and nitrogen cover-pressure surveillance requirements were previously specified in Table 4.1-1, Item 20, and performed each shift. The safety injection accumulator boron concentration surveillance requirement is moved (new Specification 4.11.B.2) and performed at least once per 31 days. Accumulator boron concentration was previously specified in Table 4.1-2B, Item 8, and performed monthly. A requirement is added requiring verification of safety injection accumulator boron concentration within 6 hours after each solution volume increase of greater than or equal to 1 % of tank volume consistent with NUREG 0452, NUREG-1431, and Generic Letter

93-05, Item 7.1. This additional surveillance requirement replaces a previously stated maximum acceptable inleakage volume of 50 cubic feet per tank previously identified in Specification 3.3 Basis, page TS 3.3-7. The safety injection accumulator discharge isolation valves are verified to be in their proper position based on station procedures which are maintained in accordance with the administrative requirements of Specification 6.4.

- The surveillance requirements for the Safety Injection System are restructured to address Safety Injection System surveillance requirements on a subsystem basis. The requirements for low head safety injection pump surveillance (existing Specification 4.11.A.1) have not changed and are renumbered (new Specification 4.11.C.1). The charging pump surveillance requirements (existing Specification 4.11.A.2), are changed to delete the words "on recirculation flow," and are renumbered (new Specification 4.11.C.2). During testing, these pumps are flow tested to the Reactor Coolant System. The motor-operated valve surveillance requirements (existing Specification 4.11.A.3) have not changed and are renumbered (new Specification 4.11.C.3).

- A surveillance requirement has been added to demonstrate each safety injection subsystem is operable by verifying: (1) specified motor operated valves are blocked open by de-energizing AC power to the valve operators (existing Specification 3.3.A.8), and (2) specified motor operated valves are blocked closed by de-energizing AC power to the valve operators (existing Specification 3.3.A.9). These surveillance requirements (new Specifications 4.11.C.4) include the previous requirements that power may be restored to the valve or breaker for purposes of testing or maintenance provided not more than one valve has power restored and the testing and maintenance is completed and power removed within 24 hours (existing Specification 3.3.B.7). An additional requirement is added for the valves' breakers to be locked, sealed, or otherwise secured in the off position after de-energizing AC power. The addition of these requirements to the surveillance section of Specification 4.11.C.4, is consistent with similar valves being blocked in specified positions and de-energized as identified in NUREG-0452 and NUREG-1431 for similar conditions.

- Minor wording changes are made for consistency by using the terminology "actuates to its correct position upon receipt of a safety injection test signal"

consistently when referring to surveillance testing of automatic valves capable of receiving a safety injection signal and pump circuit breakers during Refueling Shutdown (new Specifications 4.11.C.5.a and 4.11.C.5.b).

The operability requirements for the Component Cooling System in Specification 3.13 are modified as follows:

- The paragraph addressing "Applicability" is revised to delete reference to the charging pump component cooling water subsystem. Specification 3.13.B regarding the charging pump component cooling water subsystem operability is deleted, and the associated portions of the Specification Basis are also deleted. Administrative changes are made to renumber the Specification appropriately, and capitalize defined terms for consistency within the Specifications.

The operability requirements for the Emergency Power System in Specification 3.16 Basis, page TS 3.16-5 are modified as follows:

- The Basis is changed to delete Item K from the list of engineered safeguards equipment. Item K addressed the charging pump cooling water pump for charging pump seal coolers. The modified charging pump seal cooling system eliminates this pump and its associated electrical load from the list of engineered safeguards equipment. Item J is revised to delete reference to the charging pump intermediate seal coolers. The modified charging pump seal cooling system eliminates the charging pump intermediate seal coolers.

The operability requirements for Reactor Coolant System in Specification 3.1 are modified as follows:

- Specification 3.1.A.4 is revised to add a requirement that during Power Operation specified loop stop valves shall have AC power removed and the breakers tagged open. A list of the specific valves by applicable unit is included. Also included, is a requirement that Power Operation with less than three loops in service is prohibited. These requirements were previously contained in Specification 3.3.A.11 and have been appropriately relocated. A minor wording change is included clarifying that the valves "breakers" are tagged open. The

valves are located inside the containment building which is secured and access is controlled. (new Specification 3.1.A.4.b)

The Surveillance Requirements for the Operational Safety Review, Specification 4.1 are modified as follows:

- The safety injection accumulator level and pressure instrumentation surveillance requirement is deleted from Specification 4.1, Table 4.1-1, Item 20. In accordance with Generic Letter 93-05, Item 7.4, the NRC Staff recognized that safety injection accumulator instrumentation operability is not directly related to the capability of the accumulators to perform their safety function. Therefore, surveillance requirements for this instrumentation are relocated from Technical Specifications. The performance of the instrument channel surveillance for this instrumentation will remain in station procedures and be administratively controlled in accordance with Specification 6.4.

- The monthly sampling requirement for safety injection accumulator boron concentration is moved from Specification 4.1, Table 4.1-2B, Item 8 to new Specification 4.11.B.2, and performed at least once per 31 days. A requirement is also added requiring verification of safety injection accumulator boron concentration within 6 hours after each solution volume increase of greater than or equal to 1 % of tank volume. This surveillance is consistent with NUREG-1431, and Generic Letter 93-05, Item 7.1, and is not required when the volume increase makeup source is the RWST. The RWST minimum boron concentration is equal to or greater than the safety injection accumulator boron concentration limit. This change is consistent with NUREG-1431 and Generic Letter 93-05, Item 7.1.

- The RWST volume and temperature surveillance specified in Table 4.1-2A, Item 22, and performed each shift, is relocated. Also, the RWST boron concentration sampling surveillance specified in Table 4.1-2B, Item 2, and performed weekly, is relocated. The surveillance requirements for solution temperature, boron concentration, and volume for the refueling water storage tank are changed and moved to new Specification 4.11.A. These requirements include a weekly surveillance interval for RWST volume and boron concentration consistent with NUREG-0452 and NUREG-1431. Daily surveillance of the RWST temperature is

added to new Specification 4.11.A. This surveillance requirement is consistent with NUREG-1431 surveillance requirements for RWST borated water temperature.

The Surveillance Requirements for Spray System Tests in Specification 4.5 are modified as follows:

- Specification 4.5.B.4 is deleted. The requirements for reducing leakage from systems outside containment, which includes total uncollected system leakage from valves, flanges, and pumps located outside containment, are identified in Specification 6.4.K and Chapter 6 of the Updated Final Safety Analysis Report.

Miscellaneous editorial changes are made throughout the Technical Specifications changes for consistency, capitalization of defined words, and clarity.

Safety Significance

Charging Pump Modifications

The charging pump manufacturer has proposed a once-through process flow cooling arrangement for the Surry Unit 1 and Unit 2 charging pumps' mechanical seals. The modifications to the charging pumps involve installation of a passively designed seal cooling arrangement which results in the elimination of the charging pump component cooling subsystem. The modifications include removal of the existing mechanical seal coolers, charging pump component cooling subsystem, intermediate seal coolers, associated component cooling and service water piping, and miscellaneous support sundries. The modification of the pumps and elimination of the charging pump component cooling subsystem, result in significant savings, reduced personnel exposure and improved pump reliability and operability. Our engineering evaluation of the manufacturer's proposed modification and the pump seal manufacturer's concurrence with the modification, have determined this modification to be acceptable with no reduction in the pump's safety-related function. Therefore, there is no decrease in the systems ability to mitigate the consequences of any accident identified in the safety analysis report.

Restructure of CVCS, SI and associated Specifications

The changes proposed to restructure the Chemical and Volume Control System and the Safety Injection System specifications are consistent with the proposed modifications of the charging pump seal cooling, and elimination of the charging pump component cooling subsystem. The Chemical and Volume Control System and Safety Injection System, including their subsystems and components, are required to be operable in accordance with the Specification 1.0.D definition of "operable," allowing for the elimination of redundant language regarding piping, valves and control board indication. The operability requirements of the common boric acid storage system are clarified with requirements for boric acid solution volume, concentration, and temperature specified to support operability on a subsystem basis. An allowed outage time of 72 hours is specified for conditions where a Chemical and Volume Control System subsystem or Safety Injection System subsystem becomes inoperable. This specified allowed outage time is reasonable for the repair of affected components and is consistent with NRC Memorandum, "Recommended Interim Revisions to LCOs for ECCS Components," dated December 1, 1975, and NUREG-1431, Standard Technical Specifications for Westinghouse Pressurized Water Reactors. A reliability analysis (reference NRC memo above) has shown that the impact of having one subsystem inoperable is sufficiently small to justify continued operation for 72 hours. The allowed period of 48 hours between achieving Hot Shutdown and initiating Cold Shutdown procedures, presently specified, is deleted. Therefore, the proposed changes do not increase the required allowed outage times to achieve Cold Shutdown. The major components required to be operable for the supply of borated water from the refueling water storage tank to the Reactor Coolant System are being added consistent with NUREG-0452. The restructuring of the Chemical and Volume Control System and Safety Injection System specifications on a subsystem basis, as described above, maintain the capability of ensuring that the reactor can be made subcritical from any operating condition and provide sufficient shutdown margin to preclude inadvertent criticality when in the shutdown condition. The Safety Injection System subsystems continue to maintain sufficient boration capability to mitigate reactivity transients within the design limits associated with postulated accident conditions, including inadvertent depressurization, a loss-of-coolant accident, or a steam line rupture. The two Safety Injection System subsystems ensure that sufficient emergency core cooling capability will be available in the event of a LOCA assuming the loss of one subsystem through any single failure consideration. Either subsystem operating in conjunction with the

accumulators remains capable of supplying sufficient core cooling to limit the peak cladding temperatures within acceptable limits in accordance with the loss-of-coolant accident analyses.

The allowed outage times are based upon engineering evaluation of the changes being made and are consistent with the safety analysis and NUREG-0452. Specific parameters for refueling water storage tank borated water volume, concentration, and temperature are added for consistency within the Specifications. These additions define system parameters for inoperability and therefore have no impact on system availability in themselves. An allowed outage time of 8 hours is added for conditions where the refueling water storage tank is inoperable due to the boron concentration or solution temperature not being within specified limits consistent with NUREG-1431. The refueling water storage tank contents remain available for injection or sprays during the 8 hour period allowed for restoring the temperature and boron concentration to within specified limits. The changes ensure that the refueling water storage tank remains capable of providing a sufficient supply of borated water for injection by the emergency core cooling system in the event of a LOCA. The limits specified for refueling water storage tank volume and boron concentration continue to ensure that sufficient solution is available for initial containment depressurization and within the containment sump for recirculation cooling flow to the core, and that the reactor will remain subcritical in Cold Shutdown consistent with the LOCA analyses.

The proposed changes include certain line-item improvements identified in Generic Letter 93-05, "Line-Item Technical Specifications Improvements to Reduce Surveillance Requirements for Testing During Power Operation." Changes to the safety injection accumulator surveillance requirements for boron concentration, boron solution volume, and nitrogen cover-pressure are requested consistent with Generic Letter 93-05, Item 7.1, Item 7.4 and NUREG-1366. An allowed outage time of 72 hours is specified for conditions where one accumulator is inoperable due to boron concentration not being within specified limits, consistent with NUREG-1431.

A surveillance requirement is established requiring a borated water volume and nitrogen cover-pressure surveillance interval of at least once per 12 hours consistent with NUREG-1431 and Generic Letter 93-05, Item 7.4. This surveillance was previously performed each shift in accordance with Specification Table 4.1-1, Item 20. As identified in Generic Letter 93-05, Item 7.4, the NRC Staff recognized that accumulator

instrumentation operability is not directly related to the capability of the safety injection accumulators to perform their safety function, and permitted surveillance requirements for this instrumentation to be relocated from technical specifications. Therefore, the surveillance requirements for the accumulator instrumentation are being relocated from Technical Specifications. Safety injection accumulator instrumentation surveillance requirements will be maintained within station procedures in accordance with the administrative requirements of Specification 6.4.

Also, a boron concentration surveillance of at least once per 31 days is specified consistent with NUREG-1431 and Generic Letter 93-05, Item 7.1. This surveillance was previously performed monthly in accordance with Specification Table 4.1-2B, Item 8. A surveillance requirement is added to verify boron concentration within 6 hours of each solution volume increase of greater than or equal to 1 % of accumulator tank volume consistent with NUREG-1431 and Generic Letter 93-05, Item 7.1. As permitted in Generic Letter 93-05, Item 7.1, this surveillance is not required when the volume makeup source is the RWST. The RWST minimum boron concentration is maintained equal to or greater than the accumulator boron concentration limit.

Heat Tracing vs. Minimum Solution Temperature

The requirement to maintain two channels of heat tracing operable is deleted, and a minimum boric acid solution temperature is specified. The heat tracing requirements in Specification 3.3 existed to support operation of the boron injection tank and its higher boric acid concentrations and solution temperatures. The boric acid concentration was previously reduced and the boron injection tank (BIT) operability requirements were previously removed as allowed in Amendment 95 (Unit 1) and Amendment 94 (Unit 2) of the facility operating license. The heat tracing operability requirements of Specification 3.3 were not previously deleted when the boric acid concentration was reduced and the BIT operability requirements were removed. The heat tracing is not required for operability of the Safety Injection System nor does it affect the ability of the Safety Injection System to mitigate the consequences of any postulated accident identified in our safety analysis, and is therefore removed.

In lieu of specifying heat tracing channel operability requirements in Specification 3.2, Chemical and Volume Control System, a minimum solution temperature is being specified consistent with NUREG-1431 for similar system parameters. The associated

piping is located inside heated buildings and operating experience has indicated that boron precipitation has not been a problem. The heat tracing will be maintained in accordance with station procedures and continue to be administratively controlled in accordance with Specification 6.4. Temperature monitoring circuitry is provided with automatic actuation of undertemperature and overtemperature alarms indicated in the Main Control Room. An additional trouble alarm is also indicated in the Main Control Room. Temperatures are monitored locally at least weekly in accordance with operating procedures. Chemical and Volume Control System subsystem operability requires an operable boric acid transfer pump. This pump circulates the boric acid solution within the boric acid storage system, providing continuous mixing of the solution during normal operation, and has the capability of providing boric acid solution to the charging pumps suction during accident conditions. The solution temperature is monitored and a limit of 112 degrees F ensures that the solution does not reach the boric acid precipitation point. The Chemical Volume and Control System remains capable of achieving Cold Shutdown of both units during any operating conditions in accordance with the safety analysis with a minimum specified solution temperature of 112 degrees F. Chapter 9.1 of the Updated Final Safety Analysis Report does not require heat tracing to be operable for proper functioning of the Chemical and Volume Control System.

Relocation of Specified Items

To support restructuring these specifications, certain requirements are being relocated. The Specification 3.3 requirement regarding Reactor Coolant System loop stop valves is appropriately being relocated to Specification 3.1, Reactor Coolant System with no change in the specified requirements. The Specification 3.3 requirement for total system leakage outside containment is being deleted. The requirements for reducing leakage from systems located outside containment are identified in Specification 6.4.K and Chapter 6 of the Updated Final Safety Analysis Report. Deletion of this requirement and similar requirements in Specifications 3.3.B.9, 3.4.A.6, 3.4.B.4, 4.5.B.4 and 4.11.A.4.d eliminates the existing confusion and redundancy, and maintains total uncollected system leakage requirements within existing administrative controls consistent with the requirements contained in Specification 6.4.K and NUREG-0452. The NRC Safety Evaluation for Amendment 162 (Surry Unit 1) and Amendment 161 (Surry Unit 2) to our facility operating licenses, regarding total system uncollected leakage, determined that the associated changes were "a non-required change" and

that there are "no requirements in the Westinghouse Standardized Technical Specifications for total leakage limits allowed for the RS system and for periodic verification of system leakage within limits for the RS and SI systems". Consequently, uncollected system leakage requirements in Specifications 3.3.A.12, 3.3.B.9, 3.4.A.6, 3.4.B.4, 4.5.B.4 and 4.11.A.d and their associated Basis for the Safety Injection System (SI) and Recirculation Spray System (RS) are deleted.

Certain Safety Injection System motor operated valves required to be de-energized in a specified position prior to power operation, are being relocated to the safety injection surveillance section, Specification 4.11, consistent with restructuring the safety injection specification and NUREG-0452. The added surveillance involves tagging each valve's breaker in the off position once the valve has been properly positioned and de-energized. The change is administrative in nature and does not constitute a safety concern. De-energizing these valves in their proper position and tagging the valves' breaker, ensure that they cannot change position as a result of an active failure or be inadvertently misaligned. These actions ensure the flow path from the emergency core cooling pumps to the reactor coolant system are maintained and that misalignment of these valves does not render both emergency core cooling system trains inoperable.

Miscellaneous Changes

Administrative changes are made throughout the Technical Specifications changes for capitalization of defined terms, consistency in terminology, and clarity.

Safety Significance

The modifications to the charging pumps and elimination of the charging pump component cooling subsystem do not increase the probability of occurrence of any accident or malfunction previously evaluated in the safety analysis report. The charging pump seal cooling modifications use a passively designed process flow cooling arrangement to reduce exposure, improve reliability, and improve operability. The overall operation of the Safety Injection System is not changed. Therefore, the possibility of a new or different kind of accident is not created by these pump modifications. The charging pump modifications will not decrease the pump or associated subsystem capability or function. Therefore, the margin of safety in any part of the accident analyses is not reduced. The Safety Injection System subsystem's

operability requirements continue to maintain sufficient boration capability to mitigate reactivity transients within the design limits associated with postulated accident conditions. The Safety Injection System subsystems' operability requirements continue to ensure that sufficient emergency core cooling capability will be available in the event of a LOCA assuming the loss of one subsystem through any single failure consideration. Either subsystem operating in conjunction with the accumulators remains capable of supplying sufficient core cooling to limit the peak cladding temperatures within acceptable limits in accordance with the loss-of-coolant accident analyses. Therefore, the consequences of an accident are not increased due to the modification or restructuring of the specifications.

The restructuring of the Chemical and Volume Control System and Safety Injection System operability requirements on a subsystem basis continue to ensure that the reactor can be made subcritical from any operating condition and provide sufficient shutdown margin to preclude inadvertent criticality when in the shutdown condition. The Chemical and Volume Control System remains capable of achieving Cold Shutdown of both units during any operating conditions in accordance with the safety analysis specified solution temperature of 112 degrees F. Heat tracing is not required for operability of the Safety Injection System nor does it affect the ability of the Safety Injection System to mitigate the consequences of any postulated accident identified in the safety analysis.

The changes ensure that the refueling water storage tank remains capable of providing a sufficient supply of borated water for injection by the emergency core cooling system in the event of a LOCA. The limits specified for refueling water storage tank volume and boron concentration continue to ensure that sufficient solution is available within containment for recirculation cooling flow to the core, and that the reactor will remain subcritical in Cold Shutdown consistent with the LOCA analyses.

The specified allowed outage time of 72 hours for an inoperable Chemical and Volume Control System subsystem or Safety Injection System subsystem for the repair of affected components is consistent with and documented in NRC Memorandum, "Recommended Interim Revisions to LCOs for ECCS Components," dated December 1, 1975, and NUREG-1431, Standard Technical Specifications for Westinghouse Pressurized Water Reactors. A reliability analysis summarized within the NRC Memorandum referenced above has shown that the impact of having one subsystem

inoperable is sufficiently small to justify continued operation for 72 hours. The NRC Memorandum specifically recommended that PWR Standard Technical Specifications be revised to permit a single ECCS train to be out of service for 72 hours. The NRC funded a study performed by Science Applications, Inc. (SAI-75-550-WA) entitled, "The Impact of Component Outages on ECCS Unavailability," which contains the reliability analysis summarized within the NRC Memorandum referenced above. The study fault trees that were based specifically on Surry Units 1 and 2. Consequently, the Safety Injection Systems ability to mitigate the consequences of any accident as described in the safety analyses is not reduced by the restructuring of the operability requirements or changing the allowed outage times. The restructuring and relocation of specifications has not reduced any limiting condition for operation or surveillance specification requirements. Changes in allowed outage times are consistent with NUREG-0452, NUREG-1431, or Generic Letter 93-05. Consequently, the possibility of a new or different kind of accident is not created, and the Specifications restructuring will not involve a significant reduction in any margin of safety.