REQUEST FOR CHANGE TO TECHNICAL SPECIFICATIONS

CHEMICAL AND VOLUME CONTROL SYSTEM

PART 1

MARKUP OF CURRENT TECHNICAL SPECIFICATIONS (CTS)

SPECIFICATION 3.4.17

Proposed TS 3.2 CHEMICAL AND VOLUME CONTROL SYSTEM

A35

Applicability

Applies to the operational status of the Chemical and Volume Control System.

Objective

To define those conditions of the Chemical and Volume Control System necessary to ensure safe reactor operation.

Specification

LA11

3.2.1 When fuel is in the reactor there shall be at least one flow path to the core for boric acid injection. The minimum capability for boric acid injection shall be equivalent to that supplied from the refueling water storage tank.

A33

3.2.2 The reactor shall not be made critical in MODES 1, 2, 3 and 4 unless the following Chemical and Volume Control System conditions are met:

A34

[Applicability]

[LCO 3.4.17]

a. Two charging pumps shall be operable.[1] and

L21

b. Both boric acid transfer pumps shall be operable.

LA12

c. The boric acid tanks together shall contain a total minimum of 3080 gallons of 20,000 to 22,500 ppm boron solution at a temperature of at least 145°F.

L21

d. System piping, instrumentation, controls, and valves shall be operable to the extent of establishing one flow path from the boric acid tanks and one flow path from the refueling water storage tank to the Reactor Coolant System.

[LCO 3.4.17] Add: "Reactor Coolant Pump (RCP) Seal injection shall be OPERABLE."

M43

[LCO 3.4.17] Add: "Two Makeup Water Pathways from the RWST shall be OPERABLE"

L21

A34

[1] The Emergency Power sources are not required for operability of the charging pumps.

(With Required Action and Completion Time for Condition A or B not met)

e. Two channels of heat tracing shall be operable for the flow path from the boric acid tanks.

f. The primary water storage tank contains not less than 30,000 gallons of water.

3.2.3 During power operation, the requirements of 3.2.2 may be modified to allow any one of the following components to be inoperable. If the system is not restored to meet the requirements of 3.2.2 within the time period specified, the reactor shall be placed in the hot shutdown condition utilizing normal operating procedures. If the requirements of 3.2.2 are not satisfied within an additional 48 hours, the reactor shall be placed in the cold shutdown condition utilizing normal operating procedures.

[RA C.1]

[RAA.1]

a. One of the two operable charging pumps may be removed from service provided a charging pump is restored to operable status within ~~24~~ 72 hours.

b. One boric acid transfer pump may be out of service provided the pump is restored to operable status within 24 hours.

c. One channel of heat tracing may be out of service for 24 hours.

3.2.4 Extended Maintenance

As soon as there is reason to expect that maintenance to restore components or systems to an operable condition will last longer than periods specified, the circumstances of the extended maintenance and the estimated date for returning the components or systems to an operable condition shall promptly be reported to the Director - Office

A35 LA12 A33 M41 MODE 3 within 6 hours A37 required A34 L22 L23 M46

Add RA. B.1 — L23

Add RA E.1, RA E.2, RA E.3, RA F.1, RA F.2 — M44

Add RA D.1, RA D.2, RA D.3 — L20

of Nuclear Reactor Regulation and to the Director - Region II Office of Inspection and Enforcement. The purpose of prompt reporting is to allow the NRC to review the circumstances of the request for extended outage and to render a timely decision on whether to extend the specified out-of-service period while reactor operations continue.

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M46

[Applicability]

3.2.5 When the reactor is in the hot shutdown condition, the requirements of 3.2.2, 3.2.3, and 3.2.4 shall be met. Except that any one component as defined in 3.2.3 may be inoperable for a period equal to the time period specified in the subparagraphs 3.2.2 plus 48 hours, after which the plant shall be placed in the cold shutdown condition utilizing normal operating procedures.

MODES 3 and 4

A33

[RAC.2]

M45

and the Required Actions and Completion Times of Condition A or B not met, be in Mode 5 within 36 hours

Basis

The chemical and volume control system provides control of the Reactor Coolant System boron inventory.[1] This is normally accomplished by using either one of the three charging pumps in series with one of the two boric acid pumps. An alternate method of boration will be to use the charging pumps directly from the refueling water storage tank. A third method will be to depressurize and use the safety injection pumps. There are two sources of borated water available for injection through two different paths.

a. The boric acid transfer pumps can deliver the boric acid tank contents (concentration of boric acid) to the charging pumps.

b. The charging pumps can take suction from the refueling water storage tank (1950 ppm boron solution).

A36

Add SR 3.4.17.1

M40

Add SR 3.4.17.2
3.4.17.3

M42

SPECIFIKATION 3.4.17

c. The safety injection pumps can take their suction from the refueling water storage tank.

System reliability is reduced when two of the three charging pumps are out of service; therefore, the outage time has been limited. Since credit is not taken for the charging pumps as accident mitigation equipment (i.e., engineered safety feature equipment assumed to function in an accident analyzed in the Final Safety Analysis Report (FSAR), Chapter 15), operability of the respective emergency electrical power source (i.e., emergency diesel generator) is not necessary for the operability of a charging pump.

The quantity of boric acid in storage from either the boric acid tanks or the refueling water storage tank is sufficient and fast enough to borate the reactor to cold shutdown at any time during core life. Thus, the out of service interval for the boric acid pumps is considered conservative since borated water is also available from the refueling water storage tank via the charging pumps. Approximately 2640 gallons of the 20,000 to 22,500 ppm boron solution are required to meet cold shutdown conditions.[2] Thus a minimum of 3080 gallons in the boric acid tanks is specified. An upper concentration limit of 13% boric acid (22,500 ppm) in the tank is specified to maintain solution solubility at the specified low temperature limit of 145°F. Two channels of heat tracing are installed on lines normally containing concentrated boric acid solution to maintain the specified low temperature limit. The plant operating procedures require immediate action to affect repairs of an inoperable component; therefore, in most cases repairs will be completed in less than the specified repair time.

When borating to the cold shutdown condition using boric acid from the boric acid tanks, make up water must be supplied to compensate for shrinkage of the reactor coolant. Sufficient water for this purpose must be maintained in the primary water storage tank and the refueling water storage tank as required in 3.2.2.f and 3.3.1.1.a.

The overall reliability of the chemical and volume control system is improved by its normal mode of operation, i.e., at least one charging pump, one boric acid transfer pump and one boric acid tank are in continuous operation.

The plant operating procedures will require immediate action to effect repairs of an inoperable component and, therefore, in most cases repairs

A3b

will be completed in less than the specified allowable repair times. Infrequently, however, major maintenance might be required. Replacement of principal system components could necessitate outages of more than the time allowed for a system or component to be out of service. The prompt reporting of an anticipated need for an extended maintenance period is intended to allow a timely ruling by the NRC on whether to allow continued operation during an anticipated extended equipment outage on a case-by-case basis.

A36

References

(1) FSAR Section 9.2.2
(2) FSAR Table 9.2-2

A36

A33 CTS Specification 3.2.2 has Applicability that the reactor "shall not be made critical unless . . ." CTS Specification 3.2.3 has Applicability of "power operation." CTS Specification 3.2.5 has the Applicability of "hot shutdown." ITS Specification 3.4.17 has Applicability of MODES 1, 2, 3, and 4. The Applicability of CTS Specifications 3.2.2, 3.2.3 and 3.2.5 taken together is equivalent to ITS Specification 3.4.17. Therefore, this change is administrative, and has no adverse impact on safety.

A34 Footnote 1 to CTS 3.2.2 states that the "Emergency Power sources are not required for operability of the charging pumps." This is an exception to the CTS Section 1.3 definition of Operability which would otherwise require that the charging pumps have both the normal and emergency power supply to be OPERABLE. ITS Specification 3.4.17 requires that two required charging pumps be OPERABLE. The ITS definition of OPERABILITY allows the specified system to be powered from either the normal or the emergency power supply. Since the ITS requirement is equivalent to the CTS requirements for the charging pumps, this change is administrative and has no impact on safety.

A35 In the conversion of the H. B. Robinson Steam Electric Plant (HBRSEP), Unit 2 Current Technical Specifications (CTS) to the proposed plant specific Improved Technical Specifications (ITS) certain wording preferences or conventions are adopted which do not result in technical changes (either actual or interpretational). Editorial changes, reformatting, and revised numbering are adopted to make ITS consistent with the conventions in the Standard Technical Specifications, Westinghouse Plants, NUREG 1431, Revision 1 (i.e., Improved Standard Technical Specifications (ISTS)). These changes are administrative, and have no adverse impact on safety.

A36 The CTS Bases (and References) are not retained in the ITS, but are replaced in their entirety. The ITS includes significantly expanded and improved Bases. The Bases do not define or impose any specific requirements but serve to explain, clarify and document the reasons (i.e., Bases) for the associated Specification. The Bases are not part of the Technical Specifications required by 10 CFR 50.36. This change is administrative, and has no adverse impact on safety.

A37 CTS Specification 3.2.3 which requires that the reactor be placed in the cold shutdown condition utilizing normal operating procedures if the requirements of Section 3.2.2 are not satisfied within an additional 48 hours, is not separately retained in the ITS. This requirement is duplicated in CTS Specification 3.2.5, which is modified to include a Completion Time and is retained in ITS LCO 3.4.17 Required Action C.2. Refer to DOC M45 which discusses the change to CTS Specification 3.2.5. This change is administrative, and has no adverse impact on safety.

M40 The CTS is revised to adopt ITS SR 3.4.17.1, which requires that seal injection flow be verified to each RCP every 12 hours. This change adds restrictions to ensure OPERABILITY of the charging system. This change is acceptable because no current surveillance for RCP seal injection exists, and RCP seal injection is the required function for OPERABILITY of the charging pumps. SR 3.4.17.1 verifies OPERABILITY of the seal injection in MODES 1, 2, 3, and 4. The 12 hour frequency for SR 3.4.17.1 is considered reasonable in view of other administrative controls and the existence of plant alarms that will ensure that an undetected loss of seal injection flow for more than a short time period is unlikely. Since this change imposes new requirements, it is more restrictive and has no adverse impact on safety.

M41 CTS Specification 3.2.3 requires that if the requirements for an inoperable component are not satisfied within the allowed outage time of 24 hours, the plant is to be placed in the hot shutdown condition utilizing normal operating procedures. Required Action C.1 requires that if the Required Action and Completion Time for Conditions A or B are not met, the plant is to be placed into MODE 3 within 6 hours. The completion time of 6 hours to achieve MODE 3 not meeting the allowed outage time for one inoperable component adds the restriction of a Completion Time when no restriction existed previously in CTS. The specific negative reactivity requirement of MODE 3 is more restrictive than the CTS requirement of hot shutdown (i.e., subcritical). The 6 hour completion time is reasonable when considering the amount of time based on operating experience to allow an orderly transition to MODE 3 from MODE 1 without challenging plant systems. Therefore, this more restrictive change has no impact on safety.

M42 The CTS is revised to add ITS SR 3.4.17.2 which requires that seal injection be verified to each RCP from each Makeup Water Pathway every 18 months, and SR 3.4.17.3, which requires that SR 3.5.4.2 be applicable. This change adds restrictions to ensure OPERABILITY of the charging system. This change is acceptable because no current surveillance for RCP seal injection pathways exists, and redundant pathways are a required function for OPERABILITY of the charging pumps. SR 3.4.17.2 verifies that the Makeup Water Pathways from the RWST are capable of supplying the required seal injection to the RCPs. SR 3.4.17.3, which references SR 3.5.4.2, ensures that the RWST is OPERABLE. The Frequency for SR 3.4.17.2 is reasonable considering the unlikely failure mechanisms associated with passive piping and operation of the two valves. The Frequency for SR 3.4.17.3 is specified in the applicable referenced SR. Since this change imposes new requirements, it is more restrictive and has no adverse impact on safety.

M43 CTS Specification 3.2.2 is modified to add requirements for RCP seal injection OPERABILITY in ITS LCO 3.4.17. The CVCS is required to maintain minimum seal injection flow as measured by flow indication.

The minimum seal injection flow assures that the RCP seal integrity will be maintained. RCP seal integrity is required to be maintained in order to avoid a Loss-of Coolant Accident through the RCP seals. Adequate seal injection flow is present when the measured minimum seal injection flow meets the surveillance requirement of ≥ 6 gpm to each RCP. This change adds requirements and is more restrictive, and has no adverse impact on safety.

M44 The CTS is revised to adopt ITS Specification 3.4.17 Required Actions E.1, that requires immediate action to reestablish seal injection, E.2 and F.1 that require a shutdown and entry into MODE 3 within 6 hours, and E.3 and F.2 that require entry into MODE 5 in 36 hours. Condition E is a condition where seal injection to the RCPs is not being met, RCP seal cooling is only available from the component cooling system, and prompt action is required to bring the plant to a safer condition in an orderly manner without challenging plant systems. Condition F is a condition where borated makeup water is not assured to the charging pumps, and prompt action is required to bring the plant to a safer condition in an orderly manner without challenging plant systems. The Required Actions, which allow 6 hours to reach MODE 3, and 36 hours to reach MODE 5, are more restrictive than the CTS which would allow 8 hours to achieve hot shutdown and 38 hours to achieve cold shutdown. This change is acceptable because Conditions E and F represent a condition in which no OPERABLE means of Reactor Coolant Pump (RCP) seal injection is assured and prompt action is required to be taken to assure reestablishment of RCP seal injection or by placing the plant in a condition that would no longer require seal injection capability. Since this change imposes new requirements, it is more restrictive and has no adverse impact on safety.

Condition E is the result of loss of seal injection to an RCP as evidenced by inadequate measured seal flow to one or more RCPs. In this condition, the required charging pumps may be operable but not in operation, or at least one charging pump may be in operation but an obstruction may exist limiting seal flow to one or more RCPs to inadequate levels.

M45 CTS Specification 3.2.5 requires that if the requirements for an inoperable component are not satisfied within the allowed outage time while in the hot shutdown condition, the reactor is to be placed in the cold shutdown condition utilizing normal operating procedures. The reference to CTS Section 3.2.2 in CTS Section 3.2.5 is in error and the correct reference is CTS Section 3.2.3. ITS 3.4.17 Required Action C.2 requires that if the Required Action and Completion Time for Conditions A and B are not met, the plant is to be placed into MODE 5 within 36 hours. This Action adds the restriction of a Completion Time when no

restriction existed previously in CTS. The 36 hour completion time is reasonable based on operating experience to allow an orderly transition to MODE 5 from MODE 3 or MODE 4 without challenging plant systems. Therefore, this more restrictive change has no adverse impact on safety.

M46 CTS Specification 3.2.4 allows, under certain conditions, an extension of the allowed outage time for inoperable Chemical and Volume Control System (CVCS) equipment beyond the required allowed outage times specified in the CTS. The extension is required to be reported to the NRC promptly and the NRC must approve the extension in order to continue reactor operations. This provision is not retained in ITS and therefore removes operational flexibility that would otherwise be available. The removal of the provision for extended maintenance is acceptable because the ITS allowed outage time has been increased to 72 hours from the CTS allowed outage time of 24 hours. Additionally, the inclusion of an extended maintenance provision in the ITS would be inconsistent with ISTS, and since the NRC has suitable means of modifying Technical Specifications on an emergency or exigent basis in accordance with 10 CFR 50.91(a)(5) or 10 CFR 50.91(a)(6), this provision is not needed or requested to be included in ITS. Therefore, this change is more restrictive and has no adverse impact on safety.

LA11 CTS Specification 3.2.1 requires a flow path for boric acid injection equivalent to that supplied from the RWST in all plant conditions when fuel is in the reactor. This requirement is not retained in the ITS and is relocated to the Technical Requirements Manual.

The requirement is not required to be in the ITS to provide adequate protection of the public health and safety, since other ITS LCO requirements provide adequate protection. ITS LCO 3.1.1 requires that a shutdown margin be maintained in all MODES except MODE 1 and MODE 2 with $K_{eff} \geq 1.0$. ITS LCO 3.9.1 requires that boron concentrations in the RCS be within the limits specified by the COLR in MODE 6. ITS LCOs 3.1.1 and 3.9.1 provide an adequate basis for maintaining boron concentration at required levels. As stated in WCAP-11618, "Methodically Engineered, Restructured and Improved Technical Specifications," Westinghouse Electric Corporation, November 1987, the response to a malfunction of the CVCS, which causes a boron dilution event, is to close the appropriate valves in the reactor makeup system. This action is required before the shutdown margin is lost. Since the boron addition capability is not assumed to function to mitigate the consequences of any analyzed accident the CTS Specification for a boric acid addition pathway is a detail that is relocated to licensee controlled documents.

This approach provides an effective level of regulatory control and provides for a more appropriate change control process. The level of safety of facility operation is unaffected by the change because there is no change in the overall operational requirements. Furthermore, NRC and licensee resources associated with processing license amendments to these requirements will be reduced. Therefore, relocation of these requirements is acceptable.

LA12 CTS Specification 3.2.2, Items b and c require both boric acid transfer pumps be operable and that the boric acid tanks contain a minimum volume and concentration of boric acid. CTS Specification 3.2.2, Items e and f require two channels of heat tracing to be operable for the flow path from the boric acid tanks and that the primary water storage tank contain a minimum volume. The corresponding actions are provided in CTS Specification 3.2.3, items b and c.

These requirements for component operability provide a means of assuring an operable boron injection capability into the RCS. These requirements are not required to be in the ITS to provide adequate protection of the public health and safety, since other ITS LCO requirements provide adequate protection. ITS LCO 3.1.1 requires that a shutdown margin be maintained in all MODES except MODE 1 and MODE 2 with $K_{eff} \geq 1.0$. ITS LCO 3.9.1 requires that boron concentrations in the RCS be within the limits specified by the COLR in MODE 6. ITS LCOs 3.1.1 and 3.9.1 provide an adequate basis for maintaining boron concentration at required levels. As stated in WCAP-11618, "Methodically Engineered, Restructured and Improved Technical Specifications," Westinghouse

Electric Corporation, November 1987, the response to a malfunction of the CVCS, which causes a boron dilution event, is to close the appropriate valves in the reactor makeup system. This action is required before the shutdown margin is lost. Since the boron addition capability is not assumed to function to mitigate the consequences of any analyzed accident these requirements for component operability relating to boron addition to the RCS are details that are relocated to the Technical Requirements Manual.

This approach provides an effective level of regulatory control and provides for a more appropriate change control process. The level of safety of facility operation is unaffected by the change because there is no change in the overall operational requirements. Furthermore, NRC and licensee resources associated with processing license amendments to these requirements will be reduced. Therefore, relocation of these requirements is acceptable.

L20 The CTS is modified by the addition of ITS LCO 3.4.17 Required Actions D.1, D.2, and D.3 to require that in the event that seal injection to any RCP is not within limits and both required charging pumps are inoperable, the plant be cooled down and depressurized to an RCS pressure < 1400 psig. No comparable action is contained in CTS, and in such a condition, entry into CTS 3.0 would be required, which requires that the plant be placed in hot shutdown within 8 hours and in cold shutdown within an additional 30 hours. The ITS 3.4.17 Required Actions associated with ITS 3.4.17 Condition D are a relaxation of requirements and is more appropriate than requiring entry into cold shutdown. If ITS Condition D were entered, seal injection to the RCPs is not assured. Cooling of the RCPs is only available from the component cooling system, and if the component cooling system were lost, RCP seal failure would eventially occur if seal injection or component cooling were not restored. When no charging capability is available, the RCS will lose RCS inventory through the RCP seals. With no operable means of RCP seal injection, it would be imprudent to require the plant to go to MODE 4, where a requirement for RCP seal injection remains and shutdown margin requirements would be difficult to maintain. Therefore, the appropriate action is to initiate measures to restore RCP seal injection immediately and to continue the action to cool down and depressurize to an RCS pressure less than 1400 psig to allow makeup to the RCS through the Safety Injection (SI) System. The Completion Time of 12 hours is reasonable based on operating experience to allow an orderly transition between MODES 3 and MODE 4, which is the closest condition corresponding to depressurization to an RCS pressure < 1400 psig, without challenging plant systems. Maintaining the plant in MODE 3 with the RCS pressure < 1400 psig until charging is reestablished to the RCPs is reasonable to avoid further challenging plant systems in this condition.

L21 CTS Specification 3.2.2.d requires that system piping, instrumentation, controls, and valves shall be operable to the extent of establishing one flow path from the BASTs and one flow path from the RWST to the RCS. This requirement is modified in ITS LCO 3.4.17 as the requirement that two Makeup Water Pathways from the RWST shall be OPERABLE. The ITS provides more operational flexibility and is less restrictive because the BASTs are not specified to be a pathway source. There are two pathways available from the RWST to the charging pump suction header, any one of which provides an equivalent source of makeup water for RCP seal injection. The Operability requirement for ITS Specifications 3.4.17 is to maintain sufficient seal water injection flow to the RCPs. Two pathways provide redundant capability to assure a continuous source of makeup water without specifying each pathway source. Therefore, the increased flexibility in ITS Specifications 3.4.17 is acceptable.

L22 CTS Specification 3.2.3 permits power operation to continue with one of the two operable charging pumps inoperable for up to 24 hours. In ITS Specification 3.4.17, the allowed outage time for a required charging pump is 72 hours. This is a relaxation of allowed outage time

requirements. The 72 hour Completion Time is reasonable, based on the redundant capabilities afforded by the OPERABLE train, and the low probability of a total loss of RCP seal injection occurring during this period. The 72 hour allowed outage time is consistent with other allowed outage times for a single component in NUREG-1431.

L23 CTS Specification 3.2.3.a allows one boric acid transfer pump to be inoperable for up to 24 hours. CTS Specification 3.2.3.c allows one channel of heat tracing to be inoperable for up to 24 hours. The CTS is modified by not including these specific requirements and by adding ITS LCO 3.4.17 Required Action B.1 which allows a Makeup Water Pathway from the RWST to be inoperable for up to 72 hours. This change adds operational flexibility and is less restrictive because the allowable inoperable components in the Makeup Water Pathways are not specified and because there are no longer Required Actions for the boric acid pumps and heat tracing. There are two pathways available from the RWST to the charging pump suction header. These pathways consist of a remotely operated air operated valve and a locally operated manual valve. Either of these pathways provide an equivalent source of makeup water for RCP seal injection. The Operability requirement for ITS Specifications 3.4.17 is to maintain sufficient seal water injection flow to the RCPs. The two pathways provide redundant capability to assure a continuous source of makeup water without specifying each pathway source.

Additionally, other components than those named in CTS Specification 3.2.3 (i.e., valves) may be inoperable in the makeup water pathways that render the pathway inoperable. In such cases the CTS would require entry into CTS Specification 3.0, which requires that hot shutdown be achieved in 8 hours and cold shutdown be achieved within an additional 30 hours. The addition of ITS LCO 3.4.17 Required Action B.1 avoids entry into ITS Specification 3.0.3 for the valves. This change is acceptable because the allowed outage time places an ultimate time requirement that must be met to exit the Condition.

Therefore, the increased flexibility in ITS Specifications 3.4.17 Required Action B.1 is acceptable.

ADMINISTRATIVE CHANGES
("A" Labeled Comments/Discussions)

In the conversion of the HBRSEP Unit No. 2 Technical Specifications to the proposed plant specific Improved Technical Specifications certain wording preferences or conventions are being adopted which do not result in technical changes (either actual or interpretational). Editorial changes, clarification, reformatting, rewording and revised numbering are being adopted to make the Improved Technical Specifications consistent with NUREG 1431, Revision 1, the Improved Standard Technical Specifications for Westinghouse plants, including approved generic changes.

Carolina Power & Light Company has evaluated each of the proposed Technical Specification changes identified as "Administrative" and has concluded that they do not involve a significant hazards consideration. Our conclusion is in accordance with the criteria set forth in 10 CFR 50.92. The bases for the conclusion that the proposed changes do not involve a significant hazards consideration are discussed below.

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

   The proposed changes consist of editorial changes and clarification, reformatting, rewording and renumbering of the current Technical Specifications. This process does not involve any technical changes to existing requirements. As such, these changes are administrative in nature and do not impact initiators of analyzed events or alter any assumptions relative to mitigation of accident or transient events. Therefore, these changes do not involve any increase in the probability or consequences of an accident previously evaluated.

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

   The proposed changes do not involve any physical alteration of plant systems, structures, or components or changes in parameters governing normal plant operation. The proposed changes do not impose or eliminate any requirements. Therefore, these changes do not create the possibility of a new or different kind of accident from any accident previously evaluated.

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

   The proposed changes will not reduce a margin of safety because they do not impact any safety analysis assumptions. These changes are administrative in nature and, as such, do not impact any technical requirements. Therefore, these changes do not involve any reduction in a margin of safety.

MORE RESTRICTIVE CHANGES
("M" Labeled Comments/Discussions)

The HBRSEP Unit No. 2 Technical Specifications are proposed to be modified in some areas to impose more restrictive requirements than currently exist. These more restrictive changes are being imposed to be consistent with NUREG 1431, Revision 1, the Improved Standard Technical Specifications for Westinghouse plants, including approved generic changes.

Carolina Power & Light Company has evaluated each of the proposed Technical Specification changes identified as "More Restrictive" and has concluded that they do not involve a significant hazards consideration. Our conclusion is in accordance with the criteria set forth in 10 CFR 50.92. The bases for the conclusion that the proposed changes do not involve a significant hazards consideration are discussed below.

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

   The proposed changes provide requirements concluded to be more restrictive than the current Technical Specifications requirements for operation of the facility. These more restrictive requirements are not assumed to be initiators of analyzed events and will not alter assumptions relative to mitigation of accident or transient events. These changes have been confirmed to ensure that no previously evaluated accident has been adversely affected. The more restrictive requirements being proposed enhance assurance that process variables, structures, systems, and components are maintained consistent with the safety analyses and licensing basis of the unit. Therefore, these changes do not involve any increase in the probability or consequences of an accident previously evaluated.

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

   The proposed changes do not involve any physical alteration of plant systems, structures, or components or changes in parameters governing normal plant operation. These changes do impose new or additional requirements which are consistent with assumptions made in the safety analysis and licensing basis. The additional requirements include new Surveillance Requirements, more restrictive Frequencies and Completion Times, new LCOs, more restrictive Required Actions and Applicabilities, and other operational restrictions that enhance safe operation. Therefore, these changes do not create the possibility of a new or different kind of accident from any accident previously evaluated.

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

   The imposition of more restrictive requirements either has no impact or increases the margin of plant safety. Each of the changes in this category, while providing new or additional requirements designed to

enhance plant safety, is consistent with the safety analyses and licensing basis. Therefore, these changes do not involve a reduction in a margin of safety.

LESS RESTRICTIVE-GENERIC CHANGES
("LA" Labeled Comments/Discussions)

In the conversion of the HBRSEP Unit No. 2 Technical Specifications to the proposed plant specific Improved Technical Specifications, portions of some Specifications which are descriptive in nature regarding equipment, systems, actions, surveillances or programs are proposed to be relocated from the Specifications to the Bases, Updated Final Safety Analysis Report, procedures or other licensee controlled documents. The details associated with the involved specifications are not required to be in the ITS to provide adequate protection of the public health and safety, since the ITS still retains the requirement for compliance with the applicable specifications. Changes to the Bases are controlled in accordance with the proposed Bases Control Program described in Chapter 5 of the Improved Technical Specifications. Changes to the UFSAR and administrative procedures which control revisions to these relocated requirements are controlled in accordance with licensee controlled programs.

This approach provides an effective level of regulatory control and provides for a more appropriate change control process. The level of safety of facility operation is unaffected by the change because there is no change in the Technical Specification requirements. Furthermore, NRC and utility resources associated with processing license amendments to these requirements will be reduced. Therefore, relocation of these details is acceptable.

Carolina Power & Light Company has evaluated each of the proposed Technical Specification changes identified as "Less Restrictive-Generic" and has concluded that they do not involve a significant hazards consideration. Our conclusion is in accordance with the criteria set forth in 10 CFR 50.92. The bases for the conclusion that proposed changes do not involve a significant hazards consideration are discussed below.

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

   The proposed changes relocate requirements from the Technical Specifications to the Bases, Updated Final Safety Analysis Report, procedures or other licensee controlled documents. The documents containing the relocated requirements are subject to the change control of licensee controlled programs. Since any changes to these documents will be evaluated in accordance with the requirements of licensee controlled programs, no increase in the probability or consequences of an accident previously evaluated will be permitted without further NRC review. Therefore, these changes do not involve any increase in the probability or consequences of an accident previously evaluated.

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

   The proposed changes do not involve any physical alteration of plant systems, structures or components or changes in parameters governing normal plant operation. These changes do not introduce a new mode of

plant operation. Since any future changes to these requirements will be evaluated in accordance with licensee controlled programs, the possibility of a new or different kind of accident from any accident previously evaluated will not be permitted without further NRC review. Therefore, these changes do not create the possibility of a new or different kind of accident from any accident previously evaluated.

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

The proposed changes will not reduce a margin of safety because they do not impact any safety analysis assumptions. The requirements that are transposed from the Technical Specifications to other licensee controlled documents are the same as the existing Technical Specifications. Since any future changes to these requirements will be evaluated in accordance with the requirements of licensee controlled programs, no reduction in any margin of safety will be permitted without further NRC review. Therefore, these changes do not involve any reduction in a margin of safety.

LESS RESTRICTIVE CHANGES
("L20" Labeled Comments/Discussions)

Carolina Power & Light Company has evaluated the proposed Technical Specification change and has concluded that it does not involve a significant hazards consideration. Although the criteria set forth in 10 CFR 50.92 applies to analyzed accidents, our conclusion also evaluated the risk significance from a loss of RCP Seal Water Injection as if it were an "analyzed accident" as discussed in the criteria set forth in 10 CFR 50.92. The bases for the conclusion that the proposed change does not involve a significant hazards consideration are discussed below.

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

   The proposed change does not involve any physical alteration of plant systems, structures or components or changes in parameters governing normal plant operation. The proposed change will provide a Required Action to cool down and depressurize to an RCS pressure less than 1400 psig rather than force a shutdown to cold shutdown conditions, as is currently required. If ITS LCO 3.4.17 Condition D were entered, seal injection to the RCPs is not assured. Cooling of the RCPs is only available from the component cooling system, and if the component cooling system were lost, RCP seal failure would eventually occur. When no charging capability is available, the RCS will lose RCS inventory through the RCP seals. With no operable means of RCP seal injection, it would be imprudent to require the plant to go to MODE 4, where a requirement for RCP seal injection remains and shutdown margin requirements would be difficult to maintain. Therefore, the appropriate action is to initiate measures to restore RCP seal injection immediately and to continue the action to cool down and depressurize to an RCS pressure less than 1400 psig to allow makeup to the RCS through the Safety Injection (SI) System. The probability of an occurrence of an accident is the same as the probability during the currently required shutdown, until the RCS pressure of less than 1400 psig is reached. At that point, the SI System could maintain RCS inventory until RCP seal injection was restored or cold shutdown boron concentration in the RCS could be reached. Any increase in probability from the CTS requirement to place the plant in a cold shutdown condition is small and is at least partially offset by not requiring the plant to be placed in the cold shutdown condition without regard to reestablishing the capability to achieve cold shutdown margin . The consequences of an accident occurring during the required action are the same as the consequences during the currently required shutdown. Therefore, the proposed change does not involve a significant increase in the probability or an increase in the consequences of an accident previously evaluated.

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

The proposed change does not involve any physical alteration of plant systems, structures or components or changes in parameters governing normal plant operation. The required action to cool down and depressurize to an RCS pressure less than 1400 psig places the plant in a condition where RCS water and boron can be maintained without further challenging the plant until RCP seal injection can be established. Therefore, the possibility of a new or different kind of accident from any accident previously evaluated is not created.

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

The required action to cool down and depressurize to an RCS pressure < 1400 psig is reasonable based on operating experience to allow an orderly transition to MODE 3 and depressurization to an RCS pressure < 1400 psig without challenging plant systems. As a result, any reduction in the margin of safety from the CTS requirement to place the plant in a cold shutdown condition is small and is at least partially offset by a reduction in the risk associated with placing the plant in a condition where shutdown margin may not be assured, as required by the CTS. Therefore, the proposed change does not involve a significant reduction in a margin of safety.

LESS RESTRICTIVE CHANGES
("L21" Labeled Comments/Discussions)

Carolina Power & Light Company has evaluated the proposed Technical Specification change and has concluded that it does not involve a significant hazards consideration. Although the criteria set forth in 10 CFR 50.92 applies to analyzed accidents, our conclusion also evaluated the risk significance from a loss of RCP Seal Water Injection as if it were an "analyzed accident" as discussed in the criteria set forth in 10 CFR 50.92. The bases for the conclusion that the proposed change does not involve a significant hazards consideration are discussed below.

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

The proposed change does not increase the probability of an accident because it will not involve any physical changes to plant systems, structures, or components (SSC). The role of Makeup Water Pathways in the proposed Specification is to provide makeup water to the charging pumps suction for RCP Seal Water Injection function. The proposed Specification requires two pathways for makeup water from the Refueling Water Storage Tank (RWST) without specifying the Boric Acid Storage Tanks as the source of makeup water. The two pathways for makeup water from the RWST may be used to satisfy the LCO without a loss of redundancy or a loss of function. The proposed change does not increase the probability of accidents previously analyzed because two OPERABLE pathways are required which does not reduce the required redundancy. The proposed change does not increase the consequences of a loss of RCP seal injection since two OPERABLE pathways are adequate to provide the required makeup for seal

injection flow, and two OPERABLE pathways provide redundancy in the event of a single active failure. Therefore, this change will not involve an increase in the probability or consequences of an accident previously evaluated.

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

   This change does not result in any changes to the equipment design or capabilities or to the operation of the plant. Further, since the change impacts only how the Makeup Water Pathways from the Refueling Water Storage Tank (RWST) are required to be OPERABLE and does not result in any change in the response of the equipment to an accident, the change does not create the possibility of a new or different kind of accident from any previously analyzed accident.

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

   The proposed change does not reduce the margin of safety because two OPERABLE Makeup Water Pathways are adequate to provide the required reactor coolant pump seal injection. Sufficient redundancy is provided to allow a single failure in one pathway and still maintain the required RCP seal injection function. Therefore, this change does not involve a reduction in a margin of safety.

LESS RESTRICTIVE CHANGES
("L22" Labeled Comments/Discussions)

Carolina Power & Light Company has evaluated the proposed Technical Specification change and has concluded that it does not involve a significant hazards consideration. Although the criteria set forth in 10 CFR 50.92 applies to analyzed accidents, our conclusion also evaluated the risk significance from a loss of RCP Seal Water Injection as if it were an "analyzed accident" as discussed in the criteria set forth in 10 CFR 50.92. The bases for the conclusion that the proposed change does not involve a significant hazards consideration are discussed below.

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

   The proposed change does not involve any physical alteration of plant systems, structures or components or changes in parameters governing normal plant operation. The proposed change will increase the allowed outage time with one charging pump inoperable from 24 to 72 hours. The probability of an occurrence of an accident, including a loss of RCP seal injection, is increased by the increase in length of allowed outage time for one inoperable charging pump. However, continuous operation with one charging pump inoperable such that a single failure would preclude the charging pumps from fulfilling their required function is not allowed. Therefore, the significance of the increase in probability is small. The consequences of an accident occurring during the additional interval

permitted in the allowed outage time for one charging pump are the same as the consequences during the currently permitted 24 hours for an inoperable pump. Therefore, the proposed change does not involve a significant increase in the probability or an increase in the consequences of an accident previously evaluated.

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

   The proposed change does not involve any physical alteration of plant systems, structures or components or changes in parameters governing normal plant operation. An increase in the allowed outage time for a charging pump does not affect any new or different kind of accident from any accident previously evaluated. Therefore, the possibility of a new or different kind of accident from any accident previously evaluated is not created.

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

   The 72 hour allowed outage time for an inoperable charging pump is reasonable based on the redundant capabilities afforded by the OPERABLE charging pump and the low probability of a loss of RCP seal injection occurring during this time period. However, the overall reliability is reduced because a single failure of the OPERABLE charging pump could result in a loss of function. As a result, any reduction in the margin of safety is small and is at least partially offset by a reduction in the risk associated with averted plant shutdowns and associated shutdown transients. Therefore, the proposed change does not involve a significant reduction in a margin of safety.

LESS RESTRICTIVE CHANGES
("L23" Labeled Comments/Discussions)

Carolina Power & Light Company has evaluated the proposed Technical Specification change and has concluded that it does not involve a significant hazards consideration. Although the criteria set forth in 10 CFR 50.92 applies to analyzed accidents, our conclusion also evaluated the risk significance from a loss of RCP Seal Water Injection as if it were an "analyzed accident" as discussed in the criteria set forth in 10 CFR 50.92. The bases for the conclusion that the proposed change does not involve a significant hazards consideration are discussed below.

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

   The proposed change does not involve any physical alteration of plant systems, structures or components or changes in parameters governing normal plant operation. The proposed change will increase the allowed outage time with one pathway for makeup water from the RWST inoperable from 24 to 72 hours. The proposed change will also provide an allowed outage time for any components within a pathway rather than for specified

components. The probability of an occurrence of an accident, including a loss of RCP seal injection, is increased by the increase in length of allowed outage time for one inoperable pathway. However, continuous operation with one pathway inoperable such that a single failure would preclude the pathways from fulfilling their required function is not allowed. Therefore, the significance of the increase in probability is small. The consequences of an accident occurring during the additional interval permitted in the allowed outage time for one pathway are the same as the consequences during the currently permitted 24 hours for an inoperable pathway. Therefore, the proposed change does not involve a significant increase in the probability or an increase in the consequences of an accident previously evaluated.

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

   The proposed change does not involve any physical alteration of plant systems, structures or components or changes in parameters governing normal plant operation. An increase in the allowed outage time for a Makeup Water Pathway does not create the possibility of any new or different kind of accident from any accident previously evaluated. Therefore, the possibility of a new or different kind of accident from any accident previously evaluated is not created.

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

   The 72 hour allowed outage time for an inoperable Makeup Water Pathway is reasonable based on the redundant capabilities afforded by the OPERABLE pathway and the low probability of a loss of RCP seal injection occurring during this time period. However, the overall reliability is reduced because a single failure of the OPERABLE pathway could result in a loss of function. As a result, any reduction in the margin of safety is small and is at least partially offset by a reduction in the risk associated with averted plant shutdowns and associated shutdown transients. Therefore, the proposed change does not involve a significant reduction in a margin of safety.

H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2
NRC DOCKET NO. 50-261/LICENSE NO. DPR-23
REQUEST FOR TECHNICAL SPECIFICATION CHANGE
CONVERSION TO IMPROVED STANDARD TECHNICAL SPECIFICATIONS

ENVIRONMENTAL CONSIDERATIONS

10 CFR 51.22(c)(9) provides criteria for identification of licensing and regulator actions for categorical exclusion for performing an environmental assessment. A proposed change for an operating license for a facility requires no environmental assessment if operation of the facility in accordance with the proposed change would not (1) involve a significant hazards consideration; (2) result in a significant change in the types or significant increases in the amounts of any effluents that may be released offsite; (3) result in an increase in individual or cumulative occupational radiation exposure. We have reviewed this request and determined that the proposed changes meet the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22 (c)(9). Pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment needs to be prepared in connection with the issuance with the amendment. The basis for this determination follows.

Proposed Change

This request proposes to change the technical specifications to be consistent with NUREG-1431; Standard Technical Specifications, Westinghouse Plants Revision 1, 04/07/95 within limitations imposed by plant specific design and licensing basis.

Basis

The proposed changes meet the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9) for the following reasons.

1. As demonstrated in the No Significant Hazards Evaluation, the proposed changes do not involve a significant hazards consideration.

2. These proposed changes are being made to establish consistency with the Improved Standard Technical Specifications (ISTS) - Westinghouse Plants, NUREG 1431, Rev. 1, including approved generic changes, and do not involve physical changes to the facility, nor do they affect actual plant effluents.

3. These proposed changes are being made to establish consistency with the Improved Standard Technical Specifications (ISTS) - Westinghouse Plants, NUREG 1431, Rev. 1, including approved generic changes and do not involve physical changes to the facility, and they do not significantly affect individual or cumulative occupational radiation exposures.

REQUEST FOR CHANGE TO TECHNICAL SPECIFICATIONS

CHEMICAL AND VOLUME CONTROL SYSTEM

PART 4

ANNOTATED COPY OF PROPOSED CHANGE TO CTS

CTS

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.17 Chemical and Volume Control System (CVCS)

LCO 3.4.17 [M43] Reactor Coolant Pump (RCP) seal injection shall be OPERABLE, with:

[3.2.2.a] a. Two charging pumps shall be OPERABLE; and

[L21] b. Two Makeup Water Pathways from the Refueling Water Storage Tank (RWST) shall be OPERABLE.

(3.7.2) APPLICABILITY: MODES 1, 2, 3, and 4

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
[3.2.3.a] A. One required charging pump inoperable.	A.1 Restore required charging pump to OPERABLE status.	72 hours
[L23] B. One Makeup Water Pathway from the RWST inoperable.	B.1 Restore Makeup Water Pathway from the RWST to OPERABLE status.	72 hours
[3.2.3] [3.2.5] C. Required Action and associated Completion Time of Condition A or B not met.	C.1 Be in MODE 3. AND C.2 Be in MODE 5.	6 hours 36 hours

(continued)

ACTIONS (continued)

CONDITION		REQUIRED ACTION		COMPLETION TIME
D. [L20]	Seal injection to any RCP not within limits. AND Both required charging pumps inoperable. [L20]	D.1	Initiate action to restore seal injection to affected RCP(s). AND	Immediately
		D.2	Be in MODE 3. AND	6 hours
		D.3	Cool down and depressurize the RCS to a pressure of < 1400 psig.	12 hours
E. [M44]	Seal injection to any RCP not within limits. AND At least one charging pump OPERABLE. [M44]	E.1	Initiate action to restore seal injection to affected RCP(s). AND	Immediately
		E.2	Be in MODE 3. AND	6 hours
		E.3	Be in MODE 5.	36 hours
F. [M44]	Both Makeup Water Pathways from the RWST inoperable. [M44]	F.1	Be in MODE 3. AND	6 hours
		F.2	Be in MODE 5.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.17.1 [M42]	Verify seal injection flow of ≥ 6 gpm to each RCP.	12 hours
SR 3.4.17.2 [M42]	Verify seal injection flow of ≥ 6 gpm to each RCP from each Makeup Water Pathway from the RWST.	18 months
SR 3.4.17.3 [M42]	For Makeup Water Pathways from the RWST to be OPERABLE, SR 3.5.4.2 is applicable.	In accordance with SR 3.5.4.2

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.17 Chemical and Volume Control System (CVCS)

LCO 3.4.17 Reactor Coolant Pump (RCP) seal injection shall be OPERABLE, with:

a. Two charging pumps shall be OPERABLE; and

b. Two Makeup Water Pathways from the Refueling Water Storage Tank (RWST) shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3, and 4

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One required charging pump inoperable.	A.1 Restore required charging pump to OPERABLE status.	72 hours
B. One Makeup Water Pathway from the RWST inoperable.	B.1 Restore Makeup Water Pathway from the RWST to OPERABLE status.	72 hours
C. Required Action and associated Completion Time of Condition A or B not met.	C.1 Be in MODE 3. AND C.2 Be in MODE 5.	6 hours 36 hours

(continued)

ACTIONS (continued)

CONDITION		REQUIRED ACTION		COMPLETION TIME
D.	Seal injection to any RCP not within limits. AND Both required charging pumps inoperable.	D.1	Initiate action to restore seal injection to affected RCP(s). AND	Immediately
		D.2	Be in MODE 3. AND	6 hours
		D.3	Cool down and depressurize the RCS to a pressure of < 1400 psig.	12 hours
E.	Seal injection to any RCP not within limits. AND At least one charging pump OPERABLE.	E.1	Initiate action to restore seal injection to affected RCP(s) AND	Immediately 6 hours
		E.2	Be in MODE 3. AND	36 hours
		E.3	Be in MODE 5.	
F.	Both Makeup Water Pathways from the RWST inoperable.	F.1	Be in MODE 3. AND	6 hours
		F.2	Be in MODE 5.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.17.1	Verify seal injection flow of ≥ 6 gpm to each RCP.	12 hours
SR 3.4.17.2	Verify seal injection flow of ≥ 6 gpm to each RCP from each Makeup Water Pathway from the RWST.	18 months
SR 3.4.17.3	For Makeup Water Pathways from the RWST to be OPERABLE, SR 3.5.4.2 is applicable.	In accordance with SR 3.5.4.2

B 3.4 REACTOR COOLANT SYSTEM (RCS)

B 3.4.17 Chemical and Volume Control System (CVCS)

BASES

BACKGROUND

The function of the CVCS is to provide a source of borated makeup water to the RCS at operating temperatures and pressures. The CVCS provides water injection to the Reactor Coolant Pump (RCP) seals and has the additional functions of removing impurities in the RCS, controlling RCS chemistry, and controlling RCS inventory of both Boron and coolant during heatup and cooldown of the reactor (Ref. 1).

During plant operation, reactor coolant flows through the letdown line from a loop cold leg on the discharge side of the RCP. The coolant passes through heat exchangers to reduce the temperature of the coolant. After passing through one of the mixed bed demineralizers, where ionic impurities are removed, coolant flows through the reactor coolant filters and enters the volume control tank through a spray nozzle. From the volume control tank, the coolant flows to the charging pumps which raise the pressure above that in the RCS. The coolant is normally returned to the cold leg of another loop on the discharge side of the pump via a charging line.

A portion of the high pressure charging flow is injected by the charging pumps into the RCPs between the RCP impeller and the shaft seal so that the seals are not exposed to high temperature reactor coolant. Part of the flow is the shaft seal leakage flow and the remainder enters the RCS through a labyrinth seal on the pump shaft. The shaft seal leakage flow cools the lower radial bearing, passes through the seals, is cooled in the seal water heat exchanger, filtered, and returned to the volume control tank. Seal injection flow is measured by a flow indicator for each RCP.

Seal water inleakage to the RCS requires a continuous letdown of reactor coolant to maintain the desired inventory. In addition, bleed and feed of reactor coolant is required for removal of impurities and adjustment of boric acid in the reactor coolant.

(continued)

BASES

BACKGROUND (continued)

To provide a source of boron to the RCS, boric acid is dissolved at a concentration of approximately 12 percent by weight in the boric acid storage tanks. Small quantities of boric acid solution are metered from the discharge of an operating transfer pump for blending with primary water as makeup for normal leakage or for increasing the reactor coolant boron concentration during normal operation. Electric immersion heaters maintain the temperature of the boric acid tanks solution high enough to prevent precipitation.

Makeup water to the RCS is provided by the CVCS from the following sources:

a. The primary water storage tank, in combination with boric acid storage tanks provides water for makeup and RCS boron concentration adjustments, and

b The Refueling Water Storage Tank (RWST) which, via one of two pathways, supplies borated water for emergency makeup.

Three positive displacement charging pumps with variable speed drives are used to supply charging flow to the RCS. The speed of each pump can be controlled manually or automatically. During normal operation, only one charging pump is operating and the speed is modulated in accordance with pressurizer level.

APPLICABLE SAFETY ANALYSES

The LCO helps to ensure that sufficient seal water injection is provided to the RCPs. The HBRSEP, Unit No. 2 Individual Plant Examination (IPE), submitted to the NRC by letter dated August 31, 1992 (Ref. 2), found that the RCP seal injection function was a risk significant contributor to the Probabilistic Risk Assessment (PRA). The plant damage sequences of interest are a loss of all component cooling water which results in a loss of all charging capability and a loss of backup cooling to the RCP seals. The loss of all component cooling water is initiated by a loss of all AC power (station blackout), a multiple failure of component cooling, or a multiple failure resulting in loss of all service water cooling. Without either component cooling or charging flow to the RCP seals, the RCP seals fail resulting in a small break Loss-of-Coolant Accident (LOCA). The loss

(continued)

BASES

APPLICABLE SAFETY ANALYSES (continued)

of component cooling also results in a loss of cooling to the containment spray pumps and safety injection pumps. Hence, while the loss of seal injection capability is not the initiating event to the risk significant damage sequences, the charging pumps perform a key function, which if lost, enables continuation of the risk significant damage sequence to an end result of core damage.

The CVCS seal injection function satisfies Criterion 4 of the NRC Policy Statement.

LCO

In MODES 1, 2, 3, and 4, RCP seal injection is required to be OPERABLE to ensure that RCP seal integrity is maintained.

The CVCS is required to maintain minimum seal injection flow as measured by flow indication or by alternate means defined in procedures, to maintain a redundant charging capability to provide seal injection flow to the RCPs, and to maintain a redundant source of makeup water to the charging pumps.

Indication that RCP seal injection flow is within limits can be determined from indicated flow measurement to each RCP or by other means as described in procedures. RCP seal integrity is assured when seal injection flow meets surveillance requirements.

Two charging pumps powered from a normal power source are required to be OPERABLE. The emergency power supply sources are not required for the charging pumps to be OPERABLE. The charging pumps are also OPERABLE if they are powered from the emergency power source in lieu of the normal power source.

The CVCS is required to have a redundant means to provide a supply of makeup water to the charging pumps. Two supplies of makeup water are available from the RWST via a remotely operated air operated valve and locally operated manual valve. These sources provide both required Makeup Water Pathways from the RWST.

APPLICABILITY

In MODES 1, 2, 3, and 4, the CVCS OPERABILITY requirement for the risk significant function of injection to the RCP

(continued)

BASES

APPLICABILITY (continued)

seals, is based upon full power operation. Although reduced power and MODES 3 and 4 conditions would result in less severe consequences of the risk significant sequences and a longer period of time would elapse before core damage occurs, the RCP seals must continue to be cooled in the lower MODES.

In MODES 5 and 6, plant conditions are such that the risk significance of loss of seal injection to the RCPs is significantly reduced. Therefore, CVCS OPERABILITY requirements in these MODES are not maintained in Technical Specifications.

ACTIONS

A.1

With one required charging pump inoperable, the inoperable pump must be returned to OPERABLE status within 72 hours. The 72 hour Completion Time is reasonable, based on the redundant capabilities afforded by the OPERABLE pump, and the low probability of loss of all RCP seal injection during this period.

B.1

With one Makeup Water Pathway inoperable, the inoperable components must be returned to OPERABLE status within 72 hours. The 72 hour Completion Time is reasonable, based on the redundant capabilities afforded by the OPERABLE pathway, and the low probability of loss of all RCP seal injection during this period. Because there are two means of establishing a Makeup Water Pathway, the remaining OPERABLE pathway will provide the required source of makeup water.

C.1 and C.2

If the inoperable components identified in Required Actions A.1 and B.1 cannot be returned to OPERABLE status within the associated Completion Time, the plant must be brought to a MODE in which the LCO does not apply. To achieve this status, the plant must be brought to MODE 3 within 6 hours

(continued)

BASES

ACTIONS

C.1 and C.2 (continued)

and MODE 5 within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

D.1, D.2 and D.3

If seal injection to any RCP is not within limits and both required charging pumps are inoperable, adequate makeup to the RCP seals is not assured. In addition, adequate makeup to the RCS is not assured and the RCS inventory will begin to reduce. Backup cooling is provided to the RCP seals by the Component Cooling Water System. Since adequate means of adding boron to the RCS to achieve cold shutdown conditions are also not available, it is imprudent to bring the plant to MODE 5 where the LCO no longer applies. Therefore, Required Action D.1 requires that action be initiated to restore seal injection to the RCPs to within limits immediately. Required Actions D.2 and D.3 require that the plant be brought to MODE 3 within 6 hours and be depressurized to a pressure < 1400 psig within 12 hours. At this pressure, the Safety Injection (SI) system can be used to maintain RCS inventory until charging can be reestablished. The allowed Completion Times for Required Actions D.2 and D.3 are reasonable, based on operating experience, to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

E.1, E.2, and E.3

If seal injection to any RCP is not within limits and one required charging pump is OPERABLE, adequate makeup to the RCP seals is not assured. Backup cooling is provided to the RCP seals by the component cooling water system. The plant must be brought to a condition where the LCO no longer applies. Required Action E.1 requires that action be intitiated to restore seal injection to the affected RCP(s) immediately. Required Actions E.2 and E.3 require that the plant be brought to MODE 3 in 6 hours and MODE 5 in 36

(continued)

BASES

ACTIONS

E.1, E.2, and E.3 (continued)

hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

F.1 and F.2

If both Makeup Water Pathways from the RWST are inoperable, adequate makeup to the RCP seals is not assured. Backup cooling is provided to the RCP seals by the Component Cooling Water System. The plant must be brought to a condition where the LCO no longer applies. The allowed Completion Times for Required Actions F.1 and F.2 are reasonable, based on operating experience, to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

SURVEILLANCE REQUIREMENTS

SR 3.4.17.1

Verification of seal injection to the RCP seals ensures that adequate cooling to the RCP seals is maintained. Verification of seal injection flow is accomplished by direct measurement of seal injection flow or by other means as defined in procedures. A 12 hour Frequency is considered reasonable in view of other administrative controls and the existence of plant alarms that will ensure that an undetected loss of seal injection for more than a short time is unlikely.

SR 3.4.17.2

Verification of seal injection flow to the RCP seals via the Makeup Water Pathways ensures that adequate cooling to the RCP seals can be maintained from the RWST. An 18 month Frequency is considered reasonable considering the unlikely failure mechanisms associated with passive piping and operation of the two valves.

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.4.17.3

Verification of OPERABILITY of the Makeup Water Pathways from the RWST is also satisfied by SR 3.5.4.2, which verifies an adequate inventory of makeup water.

REFERENCES

1. UFSAR Paragraph 9.3.4.

2. CP&L Letter to NRC, 'Submittal of Independent Plant Examination (IPE)," dated August 31, 1992.

United States Nuclear Regulatory Commission
Attachment 2 to Serial: RNP-RA/97-0059

Page Insertion Instructions for inserting pages into Enclosure 20 to Serial: RNP-RA/96-0141, dated August 27, 1996, "Conversion Package Relocated CTS."

Remove Page	Insert Page
3.2-1	-

Page Insertion Instructions for inserting pages into Enclosure 21 to Serial: RNP-RA/96-0141, dated August 27, 1996, "Compilation of CTS pages."

Remove Page	Insert Page
3.2-1	3.2-1(3.4-17) through 3.2-5 (3.4-17)

Proposed TS

3.2 CHEMICAL AND VOLUME CONTROL SYSTEM

A35

Applicability

Applies to the operational status of the Chemical and Volume Control System.

Objective

To define those conditions of the Chemical and Volume Control System necessary to ensure safe reactor operation.

Specification

LA11

3.2.1 When fuel is in the reactor there shall be at least one flow path to the core for boric acid injection. The minimum capability for boric acid injection shall be equivalent to that supplied from the refueling water storage tank.

A33 — in MODES 1, 2, 3 and 4

3.2.2 The reactor shall not be made critical unless the following Chemical and Volume Control System conditions are met:

A34

[Applicability]

[LCO 3.4.17]

a. Two charging pumps shall be operable.[1] and

L21

b. Both boric acid transfer pumps shall be operable,

LA12

c. The boric acid tanks together shall contain a total minimum of 3080 gallons of 20,000 to 22,500 ppm boron solution at a temperature of at least 145°F.

L21

d. System piping, instrumentation, controls, and valves shall be operable to the extent of establishing one flow path from the boric acid tanks and one flow path from the refueling water storage tank to the Reactor Coolant System.

[LCO 3.4.17]

Add: "Reactor Coolant Pump (RCP) Seal injection shall be OPERABLE."

M43

[LCO 3.4.17]

Add: "Two Makeup Water Pathways from the RWST shall be OPERABLE"

L21

A34

[1] The Emergency Power sources are not required for operability of the charging pumps.

With Required Action and Completion Time of Condition A or B not met

A35

e. Two channels of heat tracing shall be operable for the flow path from the boric acid tanks. LA12

f. The primary water storage tank contains not less than 30,000 gallons of water.

A33

3.2.3 During power operation, the requirements of 3.2.2 may be modified to allow any one of the following components to be inoperable. If the system is not restored to meet the requirements of 3.2.2 within the time period specified, the reactor shall be placed in the hot shutdown condition utilizing normal operating procedures. If the requirements of 3.2.2 are not satisfied within an additional 48 hours, the reactor shall be placed in the cold shutdown condition utilizing normal operating procedures.

M41

MODE 3

within 6 hours

[RA C.1]

A37

a. One of the ~~two operable~~ required charging pumps may be removed from service provided a charging pump is restored to operable status within ~~24~~ 72 hours.

A34

[RAA.1]

b. One boric acid transfer pump may be out of service provided the pump is restored to operable status within 24 hours.

L22

c. One channel of heat tracing may be out of service for 24 hours.

L23

3.2.4 Extended Maintenance

As soon as there is reason to expect that maintenance to restore components or systems to an operable condition will last longer than periods specified, the circumstances of the extended maintenance and the estimated date for returning the components or systems to an operable condition shall promptly be reported to the Director - Office

M46

Add RA. B.1 — L23

Add RA E.1
RA E.2
RA E.3
RA F.1
RA F.2 — M44

Add RA D.1
RA D.2
RA D.3 — L20

of Nuclear Reactor Regulation and to the Director - Region II Office of Inspection and Enforcement. The purpose of prompt reporting is to allow the NRC to review the circumstances of the request for extended outage and to render a timely decision on whether to extend the specified out-of-service period while reactor operations continue.

A35

M46

[Applicability] 3.2.5

When the reactor is in the hot shutdown condition, the requirements of 3.2.2, 3.2.3, and 3.2.4 shall be met. Except that any one component as defined in 3.2.3 may be inoperable for a period equal to the time period specified in the subparagraphs 3.2.2 plus 48 hours, after which the plant shall be placed in the cold shutdown condition utilizing normal operating procedures.

MODES 3 and 4

A33

[RAC.2]

and the Required Actions and Completion Times of Condition A or B not met, Be in Mode 5 within 36 hours

M45

Basis

The Chemical and Volume Control System provides control of the Reactor Coolant System boron inventory.[1] This is normally accomplished by using either one of the three charging pumps in series with one of the two boric acid pumps. An alternate method of boration will be to use the charging pumps directly from the refueling water storage tank. A third method will be to depressurize and use the safety injection pumps. There are two sources of borated water available for injection through two different paths.

a. The boric acid transfer pumps can deliver the boric acid tank contents (concentration of boric acid) to the charging pumps.

b. The charging pumps can take suction from the refueling water storage tank (1950 ppm boron solution).

A36

Add SR 3.4.17.1

M40

Add SR 3.4.17.2
3.4.17.3

M42

SPECIFKATION 3.4.17

c. The safety injection pumps can take their suction from the refueling water storage tank. I

System reliability is reduced when two of the three charging pumps are out of service; therefore, the outage time has been limited. Since credit is not taken for the charging pumps as accident mitigation equipment (i.e., engineered safety feature equipment assumed to function in an accident analyzed in the Final Safety Analysis Report (FSAR), Chapter 15), operability of the respective emergency electrical power source (i.e., emergency diesel generator) is not necessary for the operability of a charging pump.

The quantity of boric acid in storage from either the boric acid tanks or the refueling water storage tank is sufficient and fast enough to borate the reactor to cold shutdown at any time during core life. Thus, the out of service interval for the boric acid pumps is considered conservative since borated water is also available from the refueling water storage tank via the charging pumps. Approximately 2640 gallons of the 20,000 to 22,500 ppm boron solution are required to meet cold shutdown conditions.[2] Thus a minimum of 8080 gallons in the boric acid tanks is specified. An upper concentration limit of 13% boric acid (22,500 ppm) in the tank is specified to maintain solution solubility at the specified low temperature limit of 145°F. Two channels of heat tracing are installed on lines normally containing concentrated boric acid solution to maintain the specified low temperature limit. The plant operating procedures require immediate action to affect repairs of an inoperable component; therefore, in most cases repairs will be completed in less than the specified repair time. I

When borating to the cold shutdown condition using boric acid from the boric acid tanks, make up water must be supplied to compensate for shrinkage of the reactor coolant. Sufficient water for this purpose must be maintained in the primary water storage tank and the refueling water storage tank as required in 3.2.2.f and 3.3.1.1.a.

The overall reliability of the chemical and volume control system is improved by its normal mode of operation, i.e., at least one charging pump, one boric acid transfer pump and one boric acid tank are in continuous operation.

The plant operating procedures will require immediate action to effect repairs of an inoperable component and, therefore, in most cases repairs

A36

SPECIFICATION 3.4.17

will be completed in less than the specified allowable repair times. Infrequently, however, major maintenance might be required. Replacement of principal system components could necessitate outages of more than the time allowed for a system or component to be out of service. The prompt reporting of an anticipated need for an extended maintenance period is intended to allow a timely ruling by the NRC on whether to allow continued operation during an anticipated extended equipment outage on a case-by-case basis.

A36

References

(1) FSAR Section 9.2.2
(2) FSAR Table 9.2-2

A36