Mr. J. T. Beckham, Jr.
Vice President - Plant Hatch
Georgia Power Company
P. O. Box 1295
Birmingham, Alabama 35201

March 3, 1995

SUBJECT: ISSUANCE OF AMENDMENTS - EDWIN I. HATCH NUCLEAR PLANT, UNITS 1 AND 2 (TAC NOS. M87310 AND M87311)

See Reports

Dear Mr. Beckham:

The Nuclear Regulatory Commission has issued the enclosed Amendment No. 195 to Facility Operating License DPR-57 and Amendment No. 135 to Facility Operating License NPF-5 for the Edwin I. Hatch Nuclear Plant, Units 1 and 2. The amendments consist of changes to the Technical Specifications (TS) and associated Bases in response to your application dated February 25, 1994, as supplemented July 8, August 8 and 31, September 23, October 19, November 1, 1994 and January 19, 1995 (two letters), with one exception. As we discussed with your staff, we were unable to conclude at this time that the proposed increase in the local power range monitor calibration interval is justified without further evaluation. Therefore, with your agreement, this proposed change has not been incorporated in these amendments and the current frequency has been retained.

The amendments replace the current TS and associated Bases with a set based on the new Boiling Water Reactor (BWR) Owners Group Standard Technical Specifications, NUREG-1433, "Standard Technical Specifications General Electric Plants, BWR/4."

A copy of the related Safety Evaluation is also enclosed. A Notice of Issuance has been forwarded to the Office of the Federal Register for publication.

Sincerely,

ORIGINAL SIGNED BY H.BERKOW f/

Kahtan N. Jabbour, Senior Project Manager
Project Directorate II-3
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Docket Nos. 50-321 and 50-366

Enclosures:
1. Amendment No. 195 to DPR-57
2. Amendment No. 135 to NFP-5
3. Safety Evaluation
4. Federal Register Notice

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DATE	3/2 /95	3/3 /95	1/18/95	3/2/95	3/2/95	3/3/95

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

March 3, 1995

Mr. J. T. Beckham, Jr.
Vice President - Plant Hatch
Georgia Power Company
P. O. Box 1295
Birmingham, Alabama 35201

SUBJECT: ISSUANCE OF AMENDMENTS - EDWIN I. HATCH NUCLEAR PLANT, UNITS 1 AND 2 (TAC NOS. M87310 AND M87311)

Dear Mr. Beckham:

The Nuclear Regulatory Commission has issued the enclosed Amendment No. 195 to Facility Operating License DPR-57 and Amendment No. 135 to Facility Operating License NPF-5 for the Edwin I. Hatch Nuclear Plant, Units 1 and 2. The amendments consist of changes to the Technical Specifications (TS) and associated Bases in response to your application dated February 25, 1994, as supplemented July 8, August 8 and 31, September 23, October 19, November 1, 1994 and January 19, 1995 (two letters), with one exception. As we discussed with your staff, we were unable to conclude at this time that the proposed increase in the local power range monitor calibration interval is justified without further evaluation. Therefore, with your agreement, this proposed change has not been incorporated in these amendments and the current frequency has been retained.

The amendments replace the current TS and associated Bases with a set based on the new Boiling Water Reactor (BWR) Owners Group Standard Technical Specifications, NUREG-1433, "Standard Technical Specifications General Electric Plants, BWR/4."

A copy of the related Safety Evaluation is also enclosed. A Notice of Issuance has been forwarded to the Office of the Federal Register for publication.

Sincerely,

Robert N. Berkow for

Kahtan N. Jabbour, Senior Project Manager
Project Directorate II-3
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Docket Nos. 50-321 and 50-366

Enclosures:
1. Amendment No. 195 to DPR-57
2. Amendment No. 135 to NFP-5
3. Safety Evaluation
4. Federal Register Notice

cc w/encl: See next page

Mr. J. T. Beckham, Jr.
Georgia Power Company

Edwin I. Hatch Nuclear Plant

cc: w/o tech spec pages
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Senior Vice President -
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Georgia Power Company
P. O. Box 1295
Birmingham, Alabama 35201

Chairman
Appling County Commissioners
County Courthouse
Baxley, Georgia 31513

NOTE: The Technical Specifications have been replaced in their entirety. If you would like to receive a copy, please notify this office.

Lee Berry
Licensing Assistant
(301) 415-1487

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

GEORGIA POWER COMPANY

OGLETHORPE POWER CORPORATION

MUNICIPAL ELECTRIC AUTHORITY OF GEORGIA

CITY OF DALTON, GEORGIA

DOCKET NO. 50-321

EDWIN I. HATCH NUCLEAR PLANT, UNIT 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 195
License No. DPR-57

1. The Nuclear Regulatory Commission (the Commission) has found that:

   A. The application for amendment to the Edwin I. Hatch Nuclear Plant, Unit 1 (the facility) Facility Operating License No. DPR-57 filed by the Georgia Power Company, acting for itself, Oglethorpe Power Corporation, Municipal Electric Authority of Georgia, and City of Dalton, Georgia (the licensees), dated February 25, 1994, as supplemented July 8, August 8 and 31, September 23, October 19, November 1, 1994, and January 19, 1995 (two letters), complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations as set forth in 10 CFR Chapter I;

   B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;

   C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations set forth in 10 CFR Chapter I;

   D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and

   E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, the license is hereby amended by page changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.C.(2) of Facility Operating License No. DPR-57 is hereby amended to read as follows:

   Technical Specifications

   The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 195, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

   The Surveillance Requirements (SRs) contained in the Appendix A Technical Specifications and listed below are not required to be performed immediately upon implementation of Amendment No. 195. The SRs listed below shall be successfully demonstrated prior to the time and condition specified below for each:

   a) SRs 3.3.1.1.15, 3.3.1.1.16 (for Function 9), 3.3.2.2.2, 3.3.2.2.3, 3.3.3.2.2, 3.3.6.1.6 (for Function 1.f), 3.3.8.1.4, 3.7.7.2, and 3.7.7.3 shall be successfully demonstrated prior to entering MODE 2 on the first plant startup following the sixteenth refueling outage;

   b) SRs 3.8.1.8, 3.8.1.10, 3.8.1.12, 3.8.1.13, and 3.8.1.18 shall be successfully demonstrated at their next regularly scheduled performance;

   c) SRs 3.6.4.1.3 and 3.6.4.1.4 will be met at implementation for the secondary containment configuration in effect at that time. The SRs shall be successfully demonstrated for the other secondary containment configurations prior to the plant entering the LCO applicability for that configuration.

3. This license amendment is effective as of its date of issuance and shall be implemented within 150 days from the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Herbert N. Berkow

Herbert N. Berkow, Director
Project Directorate II-3
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Attachment:
Technical Specification
Changes

Date of Issuance: March 3, 1995

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

GEORGIA POWER COMPANY

OGLETHORPE POWER CORPORATION

MUNICIPAL ELECTRIC AUTHORITY OF GEORGIA

CITY OF DALTON, GEORGIA

DOCKET NO. 50-366

EDWIN I. HATCH NUCLEAR PLANT, UNIT 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 135
License No. NPF-5

1. The Nuclear Regulatory Commission (the Commission) has found that:

   A. The application for amendment to the Edwin I. Hatch Nuclear Plant, Unit 2 (the facility) Facility Operating License No. NPF-5 filed by the Georgia Power Company, acting for itself, Oglethorpe Power Corporation, Municipal Electric Authority of Georgia, and City of Dalton, Georgia (the licensees), dated February 25, 1994, as supplemented July 8, August 8 and 31, September 23, October 19, November 1, 1994, and January 19, 1995 (two letters), complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations as set forth in 10 CFR Chapter I;

   B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;

   C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations set forth in 10 CFR Chapter I;

   D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and

   E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, the license is hereby amended by page changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.C.(2) of Facility Operating License No. NPF-5 is hereby amended to read as follows:

   Technical Specifications

   The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 135, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

   The Surveillance Requirements (SRs) contained in the Appendix A Technical Specifications and listed below are not required to be performed immediately upon implementation of Amendment No. 135. The SRs listed below shall be successfully demonstrated prior to the time and condition specified below for each:

   a) SRs 3.3.2.2.2, 3.3.2.2.3, 3.3.3.2.2, 3.3.8.1.4, 3.6.2.4.2, 3.7.7.2, and 3.7.7.3 shall be successfully demonstrated prior to entering MODE 2 on the first plant startup following the twelfth refueling outage;

   b) SRs 3.8.1.8, 3.8.1.9 (for DG 2C), 3.8.1.10, 3.8.1.12, 3.8.1.13, 3.8.1.17 (for DG 2C), and 3.8.1.18 shall be successfully demonstrated at their next regularly scheduled performance;

   c) SRs 3.6.4.1.3 and 3.6.4.1.4 will be met at implementation for the secondary containment configuration in effect at that time. The SRs shall be successfully demonstrated for the other secondary containment configurations prior to the plant entering the LCO applicability for that configuration.

3. This license amendment is effective as of its date of issuance and shall be implemented within 150 days from the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Herbert N. Berkow, Director
Project Directorate II-3
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Attachment:
Technical Specification
Changes

Date of Issuance: March 3, 1995

ATTACHMENT TO LICENSE AMENDMENT NO. 195

FACILITY OPERATING LICENSE NO. DPR-57

DOCKET NO. 50-321

AND

TO LICENSE AMENDMENT NO. 135

FACILITY OPERATING LICENSE NO. NPF-5

DOCKET NO. 50-366

The current Technical Specifications, Appendix A, will be replaced in its entirety with a set of Technical Specifications based on the new Boiling Water Reactor (BWR) Owners Group Standard Technical Specifications, NUREG-1433, "Standard Technical Specifications General Electric Plants, BWR/4."

UNITED STATES NUCLEAR REGULATORY COMMISSION

GEORGIA POWER COMPANY, ET AL.

DOCKET NOS. 50-312 AND 50-366

NOTICE OF ISSUANCE OF AMENDMENTS TO

FACILITY OPERATING LICENSES

The U.S. Nuclear Regulatory Commission (Commission) has issued Amendment Nos. 195 and 135 to Facility Operating License Nos. DPR-57 and NPF-5, respectively, issued to Georgia Power Company, et al. (the licensee), which revised the Technical Specifications (TS) and associated Bases for operation of the Edwin I. Hatch Nuclear Plant, Units 1 and 2, located in Appling County, Georgia. The amendment is effective as of the date of issuance and shall be implemented within 150 days from the date of issuance.

The amendments replaced the current TS and associated Bases with a set based on the new Boiling Water Reactor (BWR) Owners Group Standard Technical Specifications, NUREG-1433, "Standard Technical Specifications General Electric Plants, BWR/4," with one exception. The staff was unable to conclude, without further evaluation, that the proposed increase in the local power range monitor calibration interval is justified. Therefore, the change has not been incorporated in these amendments.

The application for the amendments (dated February 25, 1994, as supplemented July 8, August 8 and 31, September 23, October 19, November 1, 1994, and January 19, 1995 (two letters), complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations. The August 31, September 23, October 19, November 1, 1994, and January 19, 1995 (two letters) letters provided additional and clarifying information that did not change the initial proposed scope of the licensing action. The Commission has made appropriate findings

as required by the Act and the Commission's rules and regulations in 10 CFR Chapter I, which are set forth in the license amendment.

Notice of Consideration of Issuance of Amendment and Opportunity for Hearing in connection with this action was published in the FEDERAL REGISTER on August 18, 1994 (59 FR 42607). No request for a hearing or petition for leave to intervene was filed following this notice.

The Commission has prepared an Environmental Assessment related to the action and has determined not to prepare an environmental impact statement. Based upon the environmental assessment, the Commission has concluded that the issuance of the amendments will not have a significant effect on the quality of the human environment (59 FR 61349 dated November 30, 1994).

For further details with respect to the action see (1) the application for amendments dated February 25, 1994, as supplemented July 8, August 8 and 31, September 23, October 19, November 1, 1994, and January 19, 1995 (two letters), (2) Amendment Nos. 195 and 135 to License Nos. DPR-57 and NPF-5, respectively, (3) the Commission's related Safety Evaluation, and (4) the Commission's Environmental Assessment. All of these items are available for public inspection at the Commission's Public Document Room, the Gelman Building, 2120 L Street NW., Washington, DC, and at the local public document room located at the Appling County Public Library, 301 City Hall Drive, Baxley, Georgia.

Dated at Rockville, Maryland, this 3rd day of March 1995.

FOR THE NUCLEAR REGULATORY COMMISSION

Herbert N. Berkow, Director
Project Directorate II-3
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

50-321/366 GPC HATCH 1 & 2

SAFETY EVALTUATION BY NRR RELATED TO AMENDMENT NO. 195 TO FACILITY OL NO DPR-57 & AMENDMENT NO 135 TO FACILITY OL NO. NPF-5

50-321/366 3/3/95

#9503170063

SAFETY EVALUATION

HATCH NUCLEAR PLANT
UNITS 1 AND 2

IMPROVED TECHNICAL SPECIFICATIONS

MARCH 3, 1995

2140 pp.

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION RELATED TO AMENDMENT NO. 195 TO FACILITY OPERATING LICENSE NO. DPR-57 AND AMENDMENT NO. 135 TO FACILITY OPERATING LICENSE NO. NPF-5 GEORGIA POWER COMPANY, ET AL. EDWIN I. HATCH NUCLEAR PLANT, UNITS 1 AND 2 DOCKET NOS. 50-321 AND 50-366

1. INTRODUCTION AND BACKGROUND

1.0 Introduction

Hatch Nuclear Plant (HNP) Units 1 and 2 has been operating with technical specifications (TS) issued with the original operating licenses on August 6, 1974, and June 13, 1978, respectively, as amended from time to time over the years. By letter dated February 25, 1994, and supplemented by letters dated July 8, August 8 and 31, September 23, October 19, November 1, 1994, and January 19, 1995 (two letters), the Georgia Power Company (GPC or licensee) proposed to amend Appendix A of Operating License Nos. DPR-57 and NPF-5 to revise, in their entirety, the HNP Units 1 and 2 TS. The proposed amendments were based on NUREG-1433, "Standard Technical Specifications - General Electric Plants, BWR/4," dated September 1992, as revised through November 1994 in accordance with the improved standard technical specifications generic change process, and on guidance in the "NRC Final Policy Statement on Technical Specification Improvements for Nuclear Power Reactors" (Final Policy Statement), published on July 22, 1993 (58 *FR* 39132). The overall objective of the proposed amendments, consistent with the Final Policy Statement, was to completely rewrite, reformat, and streamline the existing TS for HNP Units 1 and 2.

Hereinafter, this safety evaluation refers to the proposed TS as the "improved TS," the existing HNP TS as the "CTS" (current TS) or the "existing TS", and the TS in NUREG-1433, revised as described above, as the "STS" (improved standard TS). The safety evaluation refers to the associated TS Bases as the improved TS Bases, CTS Bases, and STS Bases, respectively.

In addition to basing its improved TS on the STS and the Final Policy Statement, the licensee used portions of the CTS as a basis for the improved TS. Plant-specific issues, including plant-unique design features, plant-unique requirements, and plant-unique operating practices were discussed with the licensee during a series of meetings concluding on January 6, 1995. In addition, meetings were held with the Owners Groups to discuss matters of a generic nature that were not incorporated in STS; these generic issues were considered for specific applications in the improved TS. Consistent with the Final Policy Statement, GPC proposed transferring some CTS requirements to other licensee-controlled documents. In addition, human factors principles were emphasized to add clarity and understanding to the CTS requirements being retained in the improved TS and to define more clearly the appropriate scope of the improved TS. Further, significant changes were proposed to the CTS Bases to make each improved TS requirement clearer and easier to understand.

The Commission's proposed action on the HNP Units 1 and 2 application for amendments dated February 25, 1994, as supplemented by letters dated July 8 and August 8, 1994, was published in the *Federal Register* on August 18, 1994 (59 *FR* 42607). Additional changes in the licensee's improved TS proposal, submitted by letters dated August 31, September 23, October 19, November 1, 1994, and January 19, 1995, that resulted from discussions with the licensee during the staff's review, are discussed in this safety evaluation. These plant-specific changes serve to clarify the improved TS with respect to the guidance in the Final Policy Statement and the STS. Therefore, the changes are within the scope of the action described in the initial *Federal Register* notice.

During its review, the NRC staff relied on the Final Policy Statement and on the STS. This safety evaluation documents the basis for the staff's conclusion that HNP can convert its CTS to those based on the STS, as modified by plant-specific changes, and that the use of the improved TS is acceptable for continued operation of both units. The staff also acknowledges that, in accordance with the Final Policy Statement, the conversion to the STS is a voluntary process. Therefore, the improved TS for each unit reflect some differences that correspond to the existing licensing basis for each unit. The staff has described the changes to the CTS and has explained the significant changes in this safety evaluation. For ease of use as a future reference, this safety evaluation is organized in parallel with the presentation order of the improved TS, which is the same as the presentation order in the STS.

For the reasons stated infra in this safety evaluation, the staff finds that the TS issued with this license amendment comply with Section 182a of the Atomic Energy Act, 10 CFR 50.36, and the guidance in the Final Policy Statement, and that they are in accord with the common defense and security and provide adequate protection to the public health and safety.

1.1 Background

Section 182a of the Atomic Energy Act requires that applicants for nuclear power plant operating licenses shall state:

> [S]uch technical specifications, including information of the amount, kind, and source of special nuclear material required, the place of the use, the specific characteristics of the facility, and such other information as the Commission may, by rule or regulation, deem necessary in order to enable it to find that the utilization . . . of special nuclear material will be in accord with the common defense and security and will provide adequate protection to the health and safety of the public. Such technical specifications shall be a part of any license issued.

In 10 CFR 50.36, the Commission established its regulatory requirements related to the content of TS. In doing so, the Commission placed emphasis on those matters related to the prevention of accidents and those matters related to the mitigation of accident consequences; the Commission noted that

applicants were expected to incorporate into their TS "those items that are directly related to maintaining the integrity of the physical barriers designed to contain radioactivity." Statement of Consideration, "Technical Specifications for Facility Licenses; Safety Analysis Reports," 33 *FR* 18610 (December 17, 1968). Pursuant to 10 CFR 50.36, TS are required to include items in the following five specific categories: (1) safety limits, limiting safety system settings and limiting control settings; (2) limiting conditions for operation; (3) surveillance requirements; (4) design features; and (5) administrative controls. However, the rule does not specify the particular requirements to be included in a plant's TS.

For several years, the NRC and industry representatives have sought to develop guidelines for improving the content and quality of nuclear power plant TS. On February 6, 1987, the Commission issued an interim policy statement on TS improvements, "Proposed Policy Statement on Technical Specification Improvements for Nuclear Power Reactors" (52 *FR* 3288). During the period between 1989 and 1992, the utility Owners Groups and the NRC staff developed improved standard technical specifications that would establish models of the Commission's policy for each primary reactor type. In addition, the staff, licensees, and Owners Groups developed generic administrative and editorial guidelines in the form of a "Writers Guide" for preparing technical specifications, which gives greater consideration to human factors principles and which was used throughout the development of licensee-specific improved TS.

In September 1992, the Commission issued the improved standard technical specifications (with associated improved TS Bases) as Revision 0 of NUREG-1433, which was developed utilizing the guidance and criteria in the Commission's interim policy statement. It was established as a model for developing improved TS for the BWR/4 plants in general and for the HNP Units 1 and 2 improved TS specifically. The STS and associated Bases (NUREG-1433, as revised in accordance with the improved standard technical specifications generic change process through November 1994), reflect the results of a detailed review of the application of the criteria in the interim policy statement to generic system functions, which were published in a "split report" issued to the nuclear steam supply system (NSSS) Owners Groups in May 1988. The STS also reflect the results of extensive discussions on various drafts of improved standard technical specifications, so that the application of the TS criteria and the Writers Guide would consistently reflect detailed system configurations and operating characteristics for all NSSS designs. As such, the STS Bases offer an abundance of generic information regarding the extent to which the STS present requirements which are necessary to protect the public health and safety.

On July 22, 1993, the Commission issued its Final Policy Statement, expressing its view that conforming to the guidance in the Final Policy Statement also complies with Section 182a of the Atomic Energy Act and 10 CFR 50.36. The Final Policy Statement described the safety benefits of the STS and encouraged licensees to use the STS as the basis for plant-specific TS amendments, and for complete conversions to the STS. Further, the Final Policy Statement gave guidance for evaluating the required scope of the TS, and defined the guidance criteria to be used in determining which of the limiting conditions for

operation (LCOs) and associated surveillances should remain in the TS. The Commission noted (58 *FR* at 39136) that, in allowing certain items to be relocated to licensee-controlled documents while requiring that other items be retained in the TS, it was adopting the qualitative standard enunciated by the Atomic Safety and Licensing Appeal Board in *Portland General Electric Co.* (Trojan Nuclear Plant), ALAB-531, 9 NRC 263, 273 (1979). There, the Appeal Board observed:

> [T]here is neither a statutory nor a regulatory requirement that every operational detail set forth in an applicant's safety analysis report (or equivalent) be subject to a technical specification, to be included in the license as an absolute condition of operation which is legally binding upon the licensee unless and until changed with specific Commission approval. Rather, as best we can discern it, the contemplation of both the Act and the regulations is that technical specifications are to be reserved for those matters as to which the imposition of rigid conditions or limitations upon reactor operation is deemed necessary to obviate the possibility of an abnormal situation or event giving rise to an immediate threat to the public health and safety.

In accordance with this approach, existing LCO requirements that fall within or satisfy any of the criteria in the Final Policy Statement should be retained in the TS; those LCO requirements that do not fall within or satisfy these criteria may be relocated to licensee-controlled documents. The Final Policy Statement criteria are as follows:

Criterion 1

Installed instrumentation that is used to detect, and indicate in the control room, a significant abnormal degradation of the reactor coolant pressure boundary.

Criterion 2

A process variable, design feature, or operating restriction that is an initial condition of a design basis accident or transient analysis that either assumes the failure of or presents a challenge to the integrity of a fission product barrier.

Criterion 3

A structure, system, or component that is part of the primary success path and which functions or actuates to mitigate a design basis accident or transient that either assumes the failure of or presents a challenge to the integrity of a fission product barrier.

Criterion 4

A structure, system, or component which operating experience or probabilistic safety assessment has shown to be significant to public health and safety.[1]

In its license amendment application, the licensee proposed changes to CTS requirements using the Final Policy Statement and the STS as guidance. Some of the specifications proposed by the licensee differ from the STS because of differences between the plant-specific licensing basis and the design basis provided in the STS Bases.

Part 2 of this safety evaluation explains how the staff has concluded that the conversion of the HNP Units 1 and 2 CTS to those based on the STS, as modified by plant specific changes, is consistent with the HNP current licensing basis and the requirements and guidance of the Final Policy Statement.

2. EVALUATION

2.0 Safety Evaluation Format and TS Change Categories

This section explains the format of Part 2 of this safety evaluation and describes the categories of changes to CTS requirements. In addition, this section presents the staff's evaluation of several general types of less restrictive changes.

2.0.1 Format of Part 2 of This Safety Evaluation

Sections 2.1 through 2.5 of this safety evaluation parallel the order of presentation of improved TS Sections 1.0 through 5.0. Within each section, changes to CTS related to the scope of requirements of that section are described. In Sections 2.2 through 2.5, the changes are described in four separate categories (explained below). In addition, in each of these sections, significant differences between the STS and the improved TS are described. Thus, unless otherwise stated, the proposed changes to the CTS are consistent with the STS.

Within each change category, changes to the CTS are described in consecutively numbered "paragraphs." Not all changes apply to the CTS for both units. If a

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[1] The Commission recently promulgated a proposed change to 10 CFR 50.36, pursuant to which the rule would be amended to codify and incorporate these criteria see proposed rule, "Technical Specifications," 59 *FR* 48180 (September 20, 1994). The Commission's Final Policy Statement specified that Reactor Core Isolation Cooling, Isolation Condenser, Residual Heat Removal, Standby Liquid Control, and Recirculation Pump Trip are to be included in the TS under Criterion 4. In the proposed change to §50.36, the Commission specifically requested public comments regarding application of Criterion 4. Because additional guidance is being developed, Criterion 4 was not applied to add TS restrictions other than those indicated above.

paragraph does not refer to a change to CTS requirements for both units, the change being described applies only to the CTS for the unit stated.

2.0.2 Categories of TS Changes Discussed in This Safety Evaluation

In this safety evaluation, the licensee's proposed changes to existing TS are grouped into four general categories as follows: (1) relocated requirements, i.e., movement of requirements from existing TS (an NRC-controlled document) to specified licensee-controlled documents; (2)less restrictive requirements, i.e., relaxations to, or deletions from existing TS requirements; (3) more restrictive requirements, i.e., additions to existing TS; and (4) administrative, i.e., non technical changes. The four general categories of changes to the licensee's existing TS requirements may be better understood as follows.

2.0.2.1 Relocated Requirements

This safety evaluation recognizes two general types of relocations of existing TS requirements to licensee-controlled documents: (1) relocations of complete specifications and (2) relocations of existing details from retained specifications. The requirements which are being removed from the CTS and placed in licensee-controlled documents are summarized in Tables 1 and 2.

2.0.2.1.a Relocation of Existing Specifications in Their Entirety

As summarized above, the Final Policy Statement states that existing TS requirements that do not satisfy or fall within any of the four specified criteria may be relocated to appropriate licensee-controlled documents. In the licensee's application, such requirements are generally relocated to the Final Safety Analysis Report (FSAR), the inservice inspection program, and the Technical Requirements Manual (TRM). Unless otherwise stated in this safety evaluation, these specifications, which include the limiting conditions for operation (LCOs) (system description, design limits, functional capabilities, and performance levels), existing TS action statements (ACTIONS), and associated surveillance requirements (SRs), are being relocated to the TRM. These provisions will continue to be implemented by appropriate plant procedures: i.e., operating procedures, maintenance procedures, surveillance and testing procedures, and work control procedures.

Sections 2.3.1, 2.3.3 through 2.3.9, 2.4 and 2.5 of this safety evaluation describe existing specifications being entirely relocated to licensee-controlled documents. These relocations are described under the heading "Existing Specifications Entirely Relocated."

2.0.2.1.b Relocation of Details From Retained Specifications

The relocation guidance in the Final Policy Statement applies to certain kinds of information associated with current specifications (LCOs and the associated Applicability, ACTIONS, and SRs) that are being retained in the improved TS, consistent with the format of the STS. In particular, the

information in the CTS falling within the following categories is being relocated:

- details of system design
- procedural details for system operation
- procedural details for action and surveillance requirement performance
- requirements for indication-only instrumentation and alarms
- post-maintenance testing requirements
- preventive maintenance requirements

Such detailed information is not necessary to ensure the effectiveness of the improved TS to obviate the possibility of an abnormal situation or event giving rise to an immediate threat to the public health and safety. Most such information in the CTS is currently also contained in licensee-controlled documents that implement the associated current specifications. Generally, most such information is being relocated to licensee-controlled documents such as the improved TS Bases, the TRM, the FSAR, and plant procedures.

Several current specifications are being presented as programmatic specifications in improved TS Section 5.5, "Programs and Manuals," consistent with the STS. As part of this change in presentation, information related to program details and system design is being relocated to licensee-controlled procedures that implement these programs.

The principal relocation documents and controls for the above kinds of information contained in the CTS, that are being relocated, are described in the material that follows.

(1) Improved TS Bases

Details related to system design, operability, and parameter limit values are representative of the types of details in existing specifications being relocated to the improved TS Bases. In some cases, the explicit operability requirement for a support system is being replaced by appropriate discussions in the Bases for supported system(s) specification(s). However, the operability requirement for the support system is still retained through the definition of operability for the supported system(s). It is acceptable to place such details in the Bases because changes to the Bases will be adequately controlled by the provisions of the proposed Bases Control Program being established by improved TS Section 5.5.11.

(2) Inservice Test Program Documents and Procedures

The overall inservice testing (IST) program will continue to be specified by improved TS 5.5.6, "Inservice Testing Program." However, details of existing TS testing requirements falling within the scope of IST are being relocated to licensee-controlled IST program documents and procedures. It is acceptable to place such details in IST procedures because any changes to these details will be adequately controlled by

the provisions of improved TS 5.5.6, 10 CFR 50.55a, and 10 CFR 50.59 as appropriate.

(3) Final Safety Analysis Report (FSAR), the Technical Requirements Manual (TRM), or Plant Procedures Required by Improved TS 5.4, "Procedures"

Existing TS contain details for implementing requirements related to the operation, maintenance, and testing of safety-related systems and equipment. This information is better suited for placement in the plant procedures that are specified by the administrative control requirements of the improved TS for implementing those requirements. Operation, maintenance, and testing of plant systems are adequately controlled by these procedures. Therefore, such details are being relocated to plant procedures. In addition, this information is also being relocated to the FSAR and the TRM, as appropriate. It is acceptable to place such details in plant procedures, the FSAR, or the TRM because any changes to this information will be adequately controlled by the provisions of 10 CFR 50.59.

The CTS also contain requirements for indication-only instrumentation or test equipment. Such equipment is not required to be operable to support the operability of a system or component. In addition, the CTS include requirements for preventive maintenance; and any time the operability of a system or component has been affected by repair, maintenance or replacement of a component, plant procedures require that appropriate post-maintenance tests be performed to demonstrate operability of the system or component. The CTS contain a number of post-maintenance SRs. The improved TS require SRs to be met in order that a system be considered operable. This ensures that appropriate testing is performed following maintenance or repair as part of returning the equipment to an operable status. Also, preventive maintenance does not directly demonstrate system or component operability. Therefore, requirements for post-maintenance testing and preventive maintenance need not be explicitly specified in the improved TS. It is acceptable to relocate such requirements to appropriate plant procedures because any changes to these requirements will be adequately controlled by the provisions of 10 CFR 50.59.

The general types of detailed information and requirements described above, that are being relocated from the CTS to licensee-controlled documents, are not required by 10 CFR 50.36 to be in the TS, although the associated existing TS requirements are required to be there. For the reasons discussed infra with respect to each such change, such detailed information and requirements are not required to obviate the possibility of an abnormal situation or event giving rise to an immediate threat to the public health and safety. Further, they do not fall within any of the four criteria in the Final Policy Statement (discussed in Part 1 of this safety evaluation). In addition, the staff finds that sufficient regulatory controls exist in 10 CFR 50.59 and in other regulations cited herein, and in improved TS 5.5.11, "Bases Control Program." Accordingly, existing detailed information and requirements, such as generally described above, may be relocated from CTS to appropriate licensee-controlled documents.

Sections 2.2.0 and 2.2 through 2.5 of this safety evaluation describe existing detailed information and requirements that are being omitted from the corresponding improved TS requirements and relocated to licensee-controlled documents. Such relocations are described under the heading "Existing Specifications Relocated in Part."

The facility and procedures described in the FSAR and TRM can only be revised in accordance with the provisions of 10 CFR 50.59, which ensures an auditable and appropriate control over the relocated requirements and over any future changes to these provisions. Other licensee-controlled documents contain provisions for making changes consistent with other applicable regulatory requirements: for example, the Offsite Dose Calculation Manual (ODCM) can be changed in accordance with 10 CFR Part 20; the emergency plan implementing procedures (EPIPs) can be changed in accordance with 10 CFR 50.54(q); and the administrative instructions that implement the Quality Assurance Manual (QAM) can be changed in accordance with 10 CFR 50.54(a) and 10 CFR Part 50, Appendix B. Temporary procedure changes are also controlled by 10 CFR 50.54(a). The documentation of these changes will be maintained by the licensee in accordance with the record retention requirements specified in the GPC QA plan for HNP and such applicable regulations as 10 CFR 50.59.

Although the FSAR already contains most of the design information described above, the licensee committed by letter dated January 19, 1995, to confirm that these details are appropriately reflected in the FSAR, the TRM, the improved TS Bases or that they will be included in the next required update of these documents. The licensee has also committed to maintain an auditable record of, and an implementation schedule for, the procedure changes associated with the development of the improved TS. The licensee will also maintain the documentation of these changes in accordance with the record retention requirements in the QA plan and the TRM.

As described in more detail in this evaluation, the staff concludes that appropriate controls have been identified for all of the requirements that are being relocated from CTS to licensee-controlled documents. Until incorporated in the FSAR and procedures, changes to the provisions being relocated from the CTS will be controlled in accordance with the applicable current procedures that control these documents. The NRC will audit the relocated requirements following implementation to ensure that an appropriate level of control has been achieved. The staff concludes that, in accordance with the Final Policy Statement, sufficient regulatory controls exist under the regulations, particularly in 10 CFR 50.59. Accordingly, these requirements, as described in detail in this safety evaluation, may be taken from the CTS and relocated to the FSAR or to other licensee-controlled documents as specified herein.

2.0.2.2 Less Restrictive Requirements

Less restrictive requirements are justified on a case-by-case basis as discussed in Sections 2.1 through 2.5 of this safety evaluation. When requirements have been shown to give little or no safety benefit, their removal from the TS may be appropriate. In most cases, relaxations previously granted to individual plants on a plant-specific basis were the result of (1) generic NRC actions, (2) new staff positions that have evolved from

technological advancements and operating experience, or (3) resolution of the Owners Groups comments on the improved STS. The NRC staff reviewed generic relaxations contained in the STS and found them acceptable because they are consistent with current licensing practices and the Commission's regulations. The HNP design was also reviewed to determine if the specific design basis and licensing basis are consistent with the technical basis for the model requirements in the STS, and thus provide a basis for the improved TS.

Three categories of less restrictive technical changes apply to a number of existing specifications. Descriptions of these categories and the bases for finding each of them acceptable follow. The specific changes corresponding to these categories are described individually in the appropriate sections of this safety evaluation; however, those descriptions are marked with an asterisk to indicate that the basis for the change is given on a general basis in this section.

(1) Removal of Staggered Testing Requirements

The intent of a requirement for staggered testing is to increase the reliability of the component or system being tested. A number of studies have demonstrated that staggered testing has negligible impact on component reliability. These analytical and deterministic studies have shown that staggered testing (a) is operationally difficult, (b) has negligible impact on component reliability, (c) is not as safety significant as initially thought, (d) introduces additional stress on components such as diesel generators potentially causing increased component failure rates and component wearout, (e) results in more frequent reductions in system redundancy for testing purposes, and (f) increases the likelihood of human error by increasing the number of separate test evolutions. Therefore, many staggered testing requirements contained in the CTS are being omitted from the improved TS. For the reasons listed above, the staff finds that changes of this type are acceptable.

(2) Longer Time to Reach Mode 4 (24 Hours Increased to 36 Hours) to Allow More Orderly Shutdown (Affects Unit 1 Only).

Action statements in the CTS for Unit 1 usually require reaching cold shutdown (Mode 4) within 24 hours if the action requirements are not completed within the specified time intervals. This time is being increased to 36 hours, which allows for more orderly corrective actions, reduces the potential for unit upset conditions that could challenge safety systems, and provides a sufficient restriction, based on operating experience and the low likelihood of an event during this period, to avoid an undue risk to public health and safety. Included in this change is a new (more restrictive) requirement to be in Mode 3 (hot shutdown) within 12 hours. These times are consistent with the CTS for Unit 2 and the STS. On this basis, the staff finds that changes of this type are acceptable.

(3) Use of Actual Actuations or Signals in Addition to Simulated Signals to Fulfill Surveillance Requirements (SRs).

The phrase "or actual" in reference to an automatic initiation signal, is being added to those SRs which verify that each subsystem actuates on an automatic initiation signal. This allows satisfactory automatic system initiations for other than actual signals to be used to fulfill the SR. Operability is adequately demonstrated in either case since the subsystem itself cannot discriminate between "actual" or "simulated" signals. Therefore, the staff finds that changes of this type are acceptable.

The staff reviewed the above types of less-restrictive requirements and found them acceptable because they do not present a significant safety question in the operation of the plant. The TS requirements that remain are consistent with current licensing practices, operating experience, and plant accident and transient analyses, and provide reasonable assurance that the public health and safety will be protected.

2.0.2.3 More Restrictive Requirements

The improved TS contain certain more restrictive requirements than the CTS, which are either more conservative than corresponding requirements in the CTS, or are additional restrictions that are not in the CTS, but are in the STS. Examples of more restrictive requirements are: placing an LCO on plant equipment which is not required by the CTS to be operable, more restrictive requirements to restore inoperable equipment, and more restrictive SRs. These more restrictive requirements are discussed individually in this safety evaluation.

2.0.2.4 Administrative Changes

Administrative (nontechnical) changes were intended to incorporate human factors principles into the form and structure of the improved TS so that plant operations personnel could use them more easily. These changes are editorial in nature or involve the reorganization or reformatting of CTS requirements without affecting technical content or operational restrictions. Every section of the improved TS reflects this type of change. In order to ensure consistency, the NRC staff and GPC have used the STS as guidance to reformat and make other administrative changes. GPC has proposed such changes as:

- providing the appropriate numbers, etc., for STS bracketed information (information that must be supplied on a plant-specific basis, and that may change from plant to plant)
- identifying plant-specific wording for system names, etc.
- changing the wording of specification titles in the STS to conform to existing HNP practices

- splitting up requirements currently grouped under a single current specification to more appropriate locations in two or more specifications of the improved TS

- combining related requirements currently presented in separate specifications of the CTS into a single specification of the improved TS

The staff reviewed all of the administrative and editorial changes proposed by the licensee and finds them acceptable, since they are compatible with the Writers Guide and the STS, and are consistent with the Commission's regulations. The more significant administrative changes are discussed individually in this safety evaluation.

As part of its review of administrative changes, the staff verified that all CTS requirements were accounted for by the licensee and appropriately handled as relocated, less restrictive, more restrictive, or administrative. Most of the CTS technical requirements remaining in the improved TS are unchanged except for (1) presentation differences that are consistent with the STS format and wording and (2) omission of unnecessary detailed information.

2.1 Use and Application (Improved TS Section 1.0)

In addition to the listing of defined terms, as done in the beginning section of the CTS for both units, the improved TS define the logic rules governing the use of Required Action Completion Times and Surveillance Frequencies, consistent with the STS. These new sections on logic rules and changes to the defined terms are discussed below.

2.1.1 Definitions (Improved Section 1.1)

The definitions appearing in Section 1.1 of the HNP Units 1 and 2 improved TS are being reorganized from the existing HNP TS by deleting the letters associated with each definition (Unit 1 CTS only) and listing them in alphabetical order. Discussions of the changes to the definition section are grouped into the following categories for clarity:

- Current definitions being retained in the improved TS
- New definitions
- Current definitions being omitted from the improved TS

Although the definitions in current TS for Unit 1 are not typed in all upper case letters, they are so typed in this section of the safety evaluation for clarity. Changes corresponding to each of the four types of CTS changes are not addressed separately under each category in this section of the safety evaluation, but have been appropriately characterized.

2.1.1.a <u>Current Definitions Being Retained in the Improved TS</u>

The following definitions are being retained in HNP improved TS, with a few exceptions for Unit 1 as noted. Several definitions, presently included only in Unit 2 CTS, are being adopted in the improved TS for Unit 1;

however, two of these definitions are not being adopted for Unit 1, for reasons discussed below. Some editorial changes have been made so that these defined terms are consistent with the STS and with the HNP plant-specific terminology. The modifications have been accepted by the licensee and, based on our review, do not change the intent of the definitions as found in the STS. Therefore, these definitions are acceptable for HNP.

ACTIONS
* AVERAGE PLANAR LINEAR HEAT GENERATION RATE (APLHGR)
CHANNEL CALIBRATION
CHANNEL CHECK
CHANNEL FUNCTIONAL TEST
CORE ALTERATION
CORE OPERATING LIMIT REPORT (COLR)
DOSE EQUIVALENT I-131
** EMERGENCY CORE COOLING SYSTEM (ECCS) RESPONSE TIME
* END OF CYCLE-RECIRCULATION PUMP TRIP (EOC-RPT) SYSTEM RESPONSE TIME
** ISOLATION SYSTEM RESPONSE TIME
LOGIC SYSTEM FUNCTIONAL TEST
MINIMUM CRITICAL POWER RATIO (MCPR)
OPERABLE-OPERABILITY
* PHYSICS TEST
RATED THERMAL POWER (RTP)
* REACTOR PROTECTION SYSTEM (RPS) RESPONSE TIME
STAGGERED TEST BASIS
* SHUTDOWN MARGIN (SDM)
* THERMAL POWER

* Denotes Unit 2 CTS definition being adopted for Unit 1
** Denotes Unit 2 CTS definition not being adopted for Unit 1

Following are discussions of significant changes to these definitions.

(1) The definition of OPERABILITY is being modified to only require a normal (offsite) or emergency (onsite) power source. Currently, when one source is not available, the definition of OPERABILITY alone requires the supported features to be declared inoperable. However, current LCO 3.0.5 for Unit 2 allows the features to be considered OPERABLE provided at least one source of power is still available and their redundant features are OPERABLE. Although not explicitly specified, the licensee currently applies this provision to Unit 1 also. This less restrictive change, which is consistent with the STS, is acceptable because it is consistent with current licensing practices by the staff.

The Unit 2 CTS LCO 3.0.5 requirement to verify the OPERABILITY of redundant features when a diesel or offsite power source is inoperable is being incorporated into the ACTIONS of improved TS LCO 3.8.1. Thus, the new requirement, which is consistent with the STS, is equivalent to the current requirement. Relocating this provision within the TS is an administrative change, and is acceptable.

(2) The current Unit 2 definition of CRITICAL POWER RATIO is being combined with the current Unit 2 definition of MINIMUM CRITICAL POWER RATIO, which is being revised consistent with the STS in the improved TS for both units. This is an administrative change.

(3) The two definitions EMERGENCY CORE COOLING SYSTEM (ECCS) RESPONSE TIME and ISOLATION SYSTEM RESPONSE TIME, currently specified in Unit 2 CTS, are not being adopted in the improved TS for Unit 1 because response time test requirements are not currently contained in the Unit 1 CTS. For additional discussion, see paragraph 2.3.3.5(5) of this safety evaluation. This is a difference between the Unit 1 improved TS and the STS.

(4) The definition of CORE ALTERATION is being modified to allow control rod movement in a defueled cell to not be considered a CORE ALTERATION. This change, which is less restrictive on plant operation, is acceptable for the following reasons:

- In this configuration, the negative reactivity inserted by removing the four fuel assemblies adjacent to the control rod is significantly more than any minimal positive reactivity inserted during the removal of the control rod from the defueled cell.
- Appropriate TS controls are applied during the fuel movements preceding the control rod removal to protect from or mitigate a reactivity excursion event.

- After the fuel has been removed from a cell, sufficient margin and design features (the design of a control rod precludes its removal without all fuel assemblies in the cell removed) are in place to allow removal of the TS controls during the control rod removal.

As changed, this definition focuses on activities that can affect the core reactivity. Maintaining CORE ALTERATIONS as movement of only that which can affect core reactivity is consistent with the STS. The basis for this is evident in that the specifications that are applicable during CORE ALTERATIONS are those that protect from or mitigate a reactivity excursion event. Based on the preceding discussion, we find this less-restrictive change acceptable.

(5) The current definition of CHANNEL FUNCTIONAL TEST makes a technical distinction between analog and bistable channels by specifying a difference in the location of the injected signal. However, because the CHANNEL FUNCTIONAL TESTS for these two types of channels are otherwise essentially the same, this distinction is being omitted from the improved TS.

By the current definition of CHANNEL FUNCTIONAL TEST, the signal used to test instruments with analog channels is required to be injected "as close to the sensor as practicable." But the signal for instruments with bistable channels is required to be injected into the channel sensor itself. This definition is being revised so that the test signal

input requirement for bistable channels is the same as currently specified for analog channels.

Injecting a signal at the sensor is undesirable because measures must be taken to avoid initiating undesired circuits during the test when several logic channels are associated with a particular sensor. To address this concern, one can either--

- jumper the other logic channels to prevent their initiation during the test, or
- increase the scope of the test to include multiple tests of the other logic channels.

Either method significantly increases the difficulty of performing the surveillance. Allowing initiation of the signal close to the sensor still provides a complete test of the logic channel while reducing the chance of an unintended initiation.

Removing the test of the sensor from the CHANNEL FUNCTIONAL TEST for instruments with bistable channels is acceptable because the sensor is still required to be tested during a CHANNEL CALIBRATION.

An additional less restrictive change is being made to the definition of CHANNEL FUNCTIONAL TEST. The words "or actual" are being added to allow credit to be taken for injecting an actual signal during the test the same as for a simulated signal. This is acceptable because the channel itself cannot discriminate between an actual and simulated signal.

(6) Specific requirements for RTD or thermocouple sensors are being added to the definition of CHANNEL CALIBRATION. The intent of a CHANNEL CALIBRATION is to adjust the channel output so that the channel responds with known range and accuracy. Most instrument channels contain an adjustable transmitter (sensor) which is also subject to drift. Thus, for most channels, a CHANNEL CALIBRATION includes adjustments to the transmitter (sensor) to re-establish proper input/output relationships.

However, certain types of sensing elements, by their design, construction, and application, have an inherent resistance to drift. They are designed such that they have a fixed input/output response which cannot be adjusted or changed once installed. When a credible mechanism which can cause change or drift in this fixed response does not exist, it is unnecessary to test them in the same manner as the other remaining devices in the channel to demonstrate proper operation. RTDs and thermocouples are sensing elements that fall into such a category. Thus, for these types of sensors, the appropriate calibration at the SR Frequencies specified in the improved TS would consist of a verification of operability of the sensing element and a calibration of the remaining adjustable devices in the channel. Calibration of the adjustable devices in the channel is performed by applying the sensing elements (RTDs or thermocouples) fixed input/output relationships to the remainder of the channels and making the necessary adjustments to ensure range and accuracy.

Therefore, the following provision is being added to the definition of CHANNEL CALIBRATION:

> "Calibration of instrument channels with resistance temperature detector (RTD) or thermocouple sensors may consist of an inplace qualitative assessment of sensor behavior and normal calibration of the remaining adjustable devices in the channel."

Based upon the above, this less-restrictive change, which is consistent with the STS, is acceptable.

(7) The definitions of OFFSITE DOSE CALCULATION MANUAL and PROCESS CONTROL PROGRAM are being moved to improved TS Section 5.0, "Administrative Controls." This is an administrative change in the presentation of existing requirements.

(8) Current Unit 1 definitions of IMMEDIATE and LIMITING CONDITION FOR OPERATION (LCO) are being moved to improved TS Section 1.3, "Completion Time," as discussed in Section 2.1.3 of this safety evaluation. The current Unit 1 definitions of SURVEILLANCE FREQUENCY and SURVEILLANCE REQUIREMENTS are being moved to improved TS Sections 1.4 and 3.0, consistent with the STS. These are administrative changes in the presentation of existing requirements.

(9) The definition of LOGIC SYSTEM FUNCTIONAL TEST (LSFT) is being modified to not include the actuated device. The actuated device is to be tested as part of the system functional test. Two examples are:

- SR 3.5.1.10, which verifies each ECCS subsystem actuates on an initiation signal; and
- SRs 3.6.1.6.1 and 3.6.1.6.2, which together verify that each low-low set system valve actuates on an initiation signal.

Deleting the actuated device from the definition of LSFT eliminates the confusion as to whether a previously performed LSFT is rendered invalid if the final actuated device is discovered to be inoperable as a consequence of another surveillance (e.g., valve cycling). In instances where the existing TS do not contain a corresponding "system functional test" which would test the actuated device, the improved TS, consistent with the STS, add one. Therefore, this change presents the same technical requirement; however, part of the existing requirements will be moved to other Specifications. Thus, this change and associated changes reflected in the improved TS are considered administrative.

(10) The following current Unit 1 definitions and the corresponding definitions in Unit 2 CTS Table 1.2, "OPERATIONAL CONDITIONS," are being retained with modifications, as discussed below, in improved TS Table 1.1-1, "MODES," to clarify the Mode definitions, consistent with the STS.

Unit 1 CTS	Unit 2 CTS	Table 1.1-1
RUN MODE	POWER OPERATION	MODE 1, Power Operation
HOT STANDBY CONDITION	STARTUP	MODE 2, Startup
START & HOT STANDBY MODE	STARTUP	MODE 2, Startup
HOT SHUTDOWN	HOT SHUTDOWN	MODE 3, Hot Shutdown
COLD SHUTDOWN CONDITION	COLD SHUTDOWN	MODE 4, Cold Shutdown
REFUEL MODE	REFUELING	MODE 5, Refueling

MODE 1

Except for a change in terminology, the current definitions of RUN MODE for Unit 1 and POWER OPERATION for Unit 2 are being retained without modification.

MODE 2

The current Unit 1 definitions of HOT STANDBY CONDITION and START & HOT STANDBY MODE and the corresponding Unit 2 definition of STARTUP are being modified for clarity and completeness. These changes eliminate the potential to interpret certain plant conditions such that no MODE, or a less restrictive MODE, would exist. The corresponding improved TS definition, MODE 2, Startup, will now include the mode switch position of "refuel" when the head bolts are fully tensioned, as specified in footnote (a) of improved TS Table 1.1-1. This is currently a plant condition which has no corresponding MODE defined and could, therefore, be incorrectly interpreted as not requiring the application of the majority of technical specifications. By including this condition in the definition of MODE 2, Startup, sufficiently conservative restrictions will be applied by the applicable LCOs. Because this revised definition resolves a potential ambiguity of CTS, is considered more restrictive on plant operation, and is consistent with the STS, it is acceptable.

In addition, the improved TS definition of MODE 2 reflects the following changes to the corresponding existing Unit 1 definitions of HOT STANDBY CONDITION and START & HOT STANDBY MODE:

- Deletion of the reactor pressure limit. For all practical purposes, if pressure is > 1045 psig, the reactor will scram on high pressure (actual setpoint is approximately 1045 psig). Thus, this limit, which is specified because the current definition of HOT STANDBY CONDITION means the reactor is critical, is unnecessary.

- Deletion of the term "critical" from the current definition of STARTUP & HOT STANDBY MODE. This is acceptable because this definition currently encompasses both a critical and a subcritical reactor. As such, the improved TS term, MODE 2, also encompasses both a subcritical and a critical condition.

- Deletion of the phrase "coolant temperature greater than 212°F" from the current definition of HOT STANDBY CONDITION . This is

acceptable because the definition of START & HOT STANDBY MODE has no temperature limit. As such, the improved TS term, MODE 2, also has no temperature limit. The corresponding place in Table 1.1-1 for a MODE 2 temperature limit is marked as not applicable.

- Deletion of the description of the neutron monitoring system trips in the START & HOT STANDBY MODE definition. This is acceptable because this description is duplicative of the Applicability statement of improved TS LCO 3.3.1.1 "Reactor Protection System Instrumentation," which governs these scram functions. Note that the rod block functions, also currently described, are being relocated from the CTS. See Section 2.3.3.1 of this safety evaluation.

MODE 3 and MODE 4

The improved TS definitions of MODE 3 and MODE 4 reflect changes being made, consistent with the STS, to the corresponding current definitions of HOT SHUTDOWN CONDITION and COLD SHUTDOWN CONDITION for Unit 1 and HOT SHUTDOWN and COLD SHUTDOWN for Unit 2. The current phrase in the two Unit 1 definitions "no core alterations are permitted" is being replaced with a footnote stating, "All reactor vessel head closure bolts fully tensioned." This is acceptable because with head bolts fully tensioned, no core alterations can physically take place. This phrase is also an addition to the current Unit 2 definitions. This change is equivalent to existing requirements, and is, therefore, administrative.

MODE 5

The improved TS definition of MODE 5 reflects changes being made, consistent with the STS, to the corresponding current definitions of REFUEL MODE for Unit 1 and REFUELING for Unit 2.

- The phrase in the Unit 1 definition "when fuel is in the reactor vessel" is being moved to the new improved TS definition of MODE. Defined MODES in improved TS Table 1.1-1 only apply when fuel is in the reactor vessel.

- The phrase in the Unit 1 definition "or with the head removed" is being deleted because it is included in the condition "with the head closure bolts less than fully tensioned." The vessel head can only be removed if the head closure bolts are less than fully tensioned. Because the phrase serves no purpose, it is acceptable to omit it from the improved TS definition. The condition "with the head closure bolts less than fully tensioned" is not included in the current Unit 2 definition, but is being included in the improved TS definition for both units as Note (b) of improved TS Table 1.1-1: "(b) One or more reactor vessel head closure bolts less than fully tensioned."

- The temperature limit of $\leq$ 212°F in the Unit 2 definition is being omitted from the improved TS definition consistent with the STS and

the current Unit 1 definition. This is acceptable because the existing definition of REFUELING would cease to be applicable when average coolant temperature exceeded 212°F.

With the mode switch in the refuel position and temperature above 212°F, a plant condition which has no corresponding MODE exists. This could be incorrectly interpreted as not requiring the application of the majority of technical specifications. By defining MODE 5 to include plant conditions with no specific coolant temperature range, sufficiently conservative restrictions will be applied by the applicable LCOs during all fueled conditions with the vessel head closure bolts less than fully tensioned.

These changes enhance and simplify the MODE 5 definition to ensure that plant operational restrictions applicable in MODE 5 are specified during appropriate plant conditions. These changes are considered less restrictive on plant operation than the corresponding CTS definitions, but because the necessary restrictions are retained and more clearly presented, we find them acceptable.

2.1.1.b New Definitions

The new definitions listed below are being included in the improved TS for both units, in addition to those listed above for Unit 1. These new definitions are compatible with changes made throughout the CTS for both units to clarify the related requirements and to reduce the likelihood of misinterpreting requirements in the improved TS.

LEAKAGE
L_a
MODE
TURBINE BYPASS SYSTEM RESPONSE TIME

The current Unit 2 definitions of IDENTIFIED LEAKAGE, PRESSURE BOUNDARY LEAKAGE AND UNIDENTIFIED LEAKAGE are being combined into the a single definition, LEAKAGE, consistent with the STS. The defined term, LEAKAGE, is new for Unit 1.

The definition of TURBINE BYPASS SYSTEM RESPONSE TIME is being added to the definitions for both units because it is used in new Specification 3.7.7, "Main Turbine Bypass System," being included in the improved TS.

As discussed in paragraph 2.3.4.5(7) of this safety evaluation, the Reactor Coolant System Pressure and Temperature Limits Report (PTLR) of the STS is not being adopted. Existing requirements are being retained in improved TS 3.4.9. Consequently, the STS defined term PTLR is also not being adopted.

2.1.1.c Current Definitions Being Omitted From the Improved TS

The following current definitions are being omitted from the improved TS. Those marked with an asterisk are discussed in more detail below. The definitions not marked are being deleted because the requirements in the

improved TS, corresponding to the specifications where these definitions are presently used, no longer contain their use. Although considered a less-restrictive change, the change from existing restrictions on plant operations is brought about by TS changes discussed elsewhere in this safety evaluation, and omission of these definitions from improved TS does not, by itself, reduce existing restrictions on plant operation; these changes are, therefore, acceptable.

In CTS for both Units

*PRIMARY CONTAINMENT INTEGRITY
*SECONDARY CONTAINMENT INTEGRITY
*FRACTION OF LIMITING POWER DENSITY (LPD)
*CORE MAXIMUM FRACTION OF LPD (CMFLPD)
SOURCE CHECK
GASEOUS RADWASTE TREATMENT SYSTEM
MEMBER OF THE PUBLIC
SOLIDIFICATION
SITE BOUNDARY
UNRESTRICTED AREA
PURGE-PURGING
VENTING
MILK ANIMAL
REPORTABLE EVENT

In Unit 1 CTS only

DESIGN POWER
ENGINEERED SAFETY FEATURES
INSTRUMENT CALIBRATION
INSTRUMENT CHANNEL
INSTRUMENT CHECK
INSTRUMENT FUNCTIONAL TEST
LIMITING SAFETY SYSTEM SETTING
OPERATING
*OPERATING CYCLE
SIMULATED AUTOMATIC ACTUATION
*Table 1.1, "Frequency Notations"
PROTECTIVE ACTION
PROTECTIVE FUNCTION
*REACTOR MODE
REACTOR POWER OPERATION
REACTOR PRESSURE
*REFUELING OUTAGE
*SAFETY LIMIT
SHUTDOWN MODE
*TOTAL PEAKING FACTOR (TPF)
*TRANSITION BOILING
*TRIP SYSTEM

In Unit 2 CTS only

E-bar AVERAGE DISINTEGRATION ENERGY
*AVERAGE PLANAR EXPOSURE
LIMITING CONTROL ROD PATTERN
LINEAR HEAT GENERATION RATE
*FREQUENCY NOTATION
*OPERATIONAL CONDITION
*ROD DENSITY

(1) The definitions of PRIMARY CONTAINMENT INTEGRITY and SECONDARY CONTAINMENT INTEGRITY are being deleted to remove the confusion associated with these definitions compared to their use in their respective LCOs. See Sections 2.3.6.2.a and 2.3.6.2.p of this safety evaluation for additional discussion.

(2) The definitions of FRACTION OF LIMITING POWER DENSITY, CORE MAXIMUM FRACTION OF LIMITING POWER DENSITY, AVERAGE PLANAR EXPOSURE, TOTAL PEAKING FACTOR (TPF), TRANSITION BOILING, and ROD DENSITY are being deleted since they are not used in the CTS, nor are they used in the improved TS.

(3) The various definitions of SR Frequencies specified in Unit 1 CTS Table 1.1, "Frequency Notations," and the related defined terms OPERATING CYCLE and REFUELING OUTAGE are being deleted because all SR Frequencies in the improved TS are directly specified with each SR.

(4) The Unit 1 term REACTOR MODE and the Unit 2 term OPERATIONAL CONDITION are being deleted and replaced by the term MODE to be consistent with terminology used in the STS. Since their use is interchangeable, this change is considered to be editorial. An additional clarifying statement is being added to indicate that defined MODES in improved TS Table 1.1-1 apply only when fuel is in the reactor vessel. This is consistent with existing footnote "a" to Unit 2 CTS Table 1.2, "OPERATIONAL CONDITIONS."

(5) The Unit 1 definition of SAFETY LIMIT is being deleted since it is duplicative of the information and requirements provided in improved TS Section 2.0, "Safety Limits."

(6) The Unit 1 definition of TRIP SYSTEM is being deleted because it provides a generic description that is found in other plant-specific documents such as the FSAR, plant procedures, and TS Bases.

The definitions in improved TS Section 1.1 perform a supporting function for other sections of the improved TS. The staff has reviewed the proposed changes in the definition section of the CTS for both units for their effect on the Safety Limits (SLs) and SL violations, and the LCOs and associated ACTIONS and SRs. The staff finds no adverse effects that would result from the proposed changes and concludes that when the definitions, as modified, are applied in other sections of the improved TS, the restrictive level of the requirements are not changed and, therefore, the safety margins are not affected. The staff concludes that the changes being made, as described previously, clarify the definitions and would reduce the tendency for misinterpretation. Further, the staff finds that GPC has appropriately applied the guidance in the STS in the preparation of the improved TS definition section. In addition, the proposed less-restrictive changes to certain definitions, identified above, have been reviewed by the staff and have been found to be acceptable, because they do not present a significant safety question in the operation of the plant. The definitions that remain are consistent with current licensing practices, operating experience and plant accident and transient analyses, and provide reasonable assurance that the public health and safety will be protected. Therefore, we find the changes are acceptable.

2.1.2 Logical Connectors (Improved TS Section 1.2)

Improved TS Section 1.2 is new for HNP. This section explains the meaning and use of "Logical Connectors" through the use of examples so that the entire improved TS are clearer from a human factors standpoint. We consider this proposed addition and reformatting an enhancement to the improved TS. We find the addition is consistent with the STS and is acceptable.

2.1.3 Completion Times (Improved TS Section 1.3)

Improved TS Section 1.3 is new for HNP. This section does not change completion times, but provides guidance through the use of examples on the use of "Completion Times." "Completion Time" is the amount of time allowed to complete an action or the amount of time allowed for a structure, system or component to be inoperable. This section is administrative in nature and is provided as an aid to the licensee's staff. We find this section is consistent with the STS and is acceptable.

2.1.4 Frequency (Improved TS Section 1.4)

Improved TS Section 1.4 is new for HNP. This section defines the proper use and application of surveillance requirement (SR) "Frequencies" through the use of examples. A clear understanding of the correct application of a specified "Frequency" is necessary to ensure compliance with the associated SR. We find that Unit 1 CTS Table 1.1, "Frequency Notations," and Unit 2 CTS definition FREQUENCY NOTATION and Table 1.1, "Surveillance Frequency Notation," have been adequately incorporated into the descriptions and examples of improved TS Section 1.4. (Unit 1 CTS contain no equivalent definition.) We find that this section is consistent with the STS and is acceptable.

2.2 Safety Limits (SLs) (Improved TS Section 2.0)

2.2.0 SLs and SL Violations (Improved TS Sections 2.1 and 2.2)

This section is being renamed, consistent with Unit 1 CTS nomenclature, "Safety Limits (SLs)" instead of "Safety Limits and Limiting Safety System Settings" as currently specified in Unit 2 CTS Section 2.0. Unit 1 SL requirements are provided in CTSs 1.1, 1.2, and 6.7. Unit 2 SL requirements are provided in CTSs 2.1 and 6.7. Improved TS Section 2.0 groups these existing SL requirements together in a single section for each unit.

Unit 1 CTSs 2.1 and 2.2, and Unit 2 CTS 2.2 specify limiting safety system settings (LSSS), but these requirements are being moved to improved TSs 3.3.1.1, 3.3.5.1, 3.3.6.1, and 3.4.3 as described below.

2.2.0.1 <u>Relocated Requirements</u>

2.2.0.1.a <u>Existing Specifications Entirely Relocated</u>

There are no existing specifications within the scope of improved TS Section 2.0 being entirely relocated to licensee-controlled documents.

2.2.0.1.b <u>Existing Specifications Relocated in Part</u>

(1) The licensee has proposed to relocate part of Unit 2 CTS SL 2.1.4, "Reactor Vessel Water Level," to other licensee-controlled documents.

The associated ACTION of SL 2.1.4 is being made less prescriptive in corresponding improved TS 2.2.2 by omitting the explicit requirement to manually initiate the emergency core cooling system (ECCS) to restore reactor vessel water level, after depressurizing the reactor vessel, if required. This requirement is omitted in order to allow operator flexibility in determining the best method to restore the water level above the top of active irradiated fuel. Directions for the methods of restoring compliance depend on plant conditions and are included in the appropriate emergency operating procedures (EOPs). As such, this change is considered a relocation to the EOPs. The action requirement to restore level is retained with a Completion Time consistent with that allowed for correcting other SL violations. Because the existing ACTION does not specify a Completion Time, this is an enhancement to safety.

Relocating this operator instruction does not affect plant configuration or change existing plant operating practices. The improved TS still require the manual backup capability to the automatic plant features that provide ECCS injection. Therefore, this requirement may be relocated to the Unit 2 EOPs without affecting plant safety.

The above relocated procedural detail for restoring reactor vessel water level is not required to be in the TS under 10 CFR 50.36, and is not required to obviate the possibility of an abnormal situation or event giving rise to an immediate threat to the public health and safety. The SLs retained in the improved TS satisfy the requirements of 10 CFR 50.36(c)(1).

2.2.0.2 Less Restrictive Requirements

The licensee, in electing to implement STS Section 2.0 specifications, proposed a number of less restrictive conditions than are allowed by the CTS. These conditions are the following:

(1) Unit 1 CTS SL 1.1.C, "Power Transient," is being deleted. The intent of this SL was to ensure that other SLs are not exceeded. This SL is assumed to be exceeded when a scram is accomplished by means other than the expected scram signal. The scram setpoints are established in order to ensure margin to the SLs. Exceeding the scram setpoint, in and of itself, does not necessarily indicate that a SL has been exceeded.

Unit 1 CTS Sections 2.1.A and 2.2.A.1.a contain nine trip settings that initiate a reactor scram. As discussed in paragraph 2.2.4(3) below, these scram setpoints are being included in Table 3.3.1.1-1 of the improved TS. The SRs being specified for these scram setpoints listed in Table 3.3.1.1-1, "Reactor Protection System (RPS) Instrumentation," will help to ensure that the margin to a SL is preserved. The redundancy built into the RPS is being maintained by the ACTIONS associated with improved TS LCO 3.3.1.1. Therefore, because the intent of the existing "Power Transient" SL is being maintained by the provisions of improved TS Section 3.3.1.1, deletion of this Unit 1 CTS SL is acceptable.

(2) Unit 1 CTS SL 1.2.A.2, "When Operating the RHR System in the Shutdown Cooling Mode," is being incorporated into improved TS Section 3.3.6.1, "Primary Containment Isolation Instrumentation" (specifically, Table 3.3.6.1-1). The RHR shutdown cooling system is designed with an interlock in the logic for the system isolation valves, which are normally closed during power operation, to prevent opening of the valves above a preset pressure setpoint (Allowable Value) of ≤ 145 psig. This setpoint is selected to ensure that pressure integrity of the RHR system is maintained. Because the high pressure interlock is only provided for equipment protection to prevent an intersystem loss-of-coolant-accident (LOCA), it should not be considered a SL on plant operation.

Removing this setpoint's designation as a SL is considered less restrictive, but doing so does not reduce the operational restriction provided by this equipment protection interlock function on Unit 1. Therefore, this change is acceptable. See paragraph 2.3.3.3.k(2) of this safety evaluation for additional discussion of changes to the shutdown cooling isolation provision.

The above less restrictive requirements have been reviewed by the staff and have been found to be acceptable, because they do not present a significant safety question in the operation of the plant. The TS requirements that remain are consistent with current licensing practices, operating experience and plant accident and transient analyses, and provide reasonable assurance that the public health and safety will be protected.

2.2.0.3 <u>More Restrictive Requirements</u>

By electing to implement STS Section 2.0, "Safety Limits," the licensee has proposed a number of more restrictive conditions than are required by the CTS. These conditions are the following:

(1) The Applicability of each of the SLs is being extended to all Modes of operation. Although it is physically impossible to violate some SLs in some Modes, any SL violation will receive the same attention and response.

(2) Unit 1 CTS SLs 1.1.A and 1.1.B, and Unit 2 CTS SL 2.1.2, limits on steam dome pressure and core flow, are to be specified as "equal to or greater than". The current SLs do not address a pressure or flow which is equal to the limit. This proposed change will resolve an inconsistency between CTS SLs 1.1.A and 1.1.B for Unit 1 and within CTS SL 2.1.2 for Unit 2.

The staff has reviewed the above more restrictive generic requirements and believes that they strengthen the CTS. Therefore, the more restrictive requirements are acceptable.

2.2.0.4 Significant Administrative Changes

In accordance with the criteria in the Final Policy Statement, the licensee has proposed administrative changes to the CTS SLs to bring them into conformance with the STS. These changes are as follows:

(1) CTS SL requirements for both units are being reformatted and grouped together in improved TS Section 2.0 with the SLs in Section 2.1 and the SL violations in Section 2.2.

(2) Unit 2 CTS address a violation of each SL by name. The reference to the particular SL being violated is being deleted in improved TS, consistent with the STS. That is, improved TS 2.2, "SL Violations," only addresses violating a SL; it does not address a violation of each SL by name. This information is appropriately located in the improved TS Bases for the ACTIONS to be taken in the event of a SL violation. This information is not needed for restoring compliance with the SL. Therefore, because the ACTIONS specified in improved TS 2.2 for "any SL violation" are consistent with CTS requirements and applicable regulations, this change is considered administrative.

(3) The technical content of Unit 2 CTS 2.2 and associated Table 2.2-1 regarding limiting safety system settings (LSSS) for the reactor protection system (RPS) is being moved to improved TS Section 3.3.1.1, "RPS Instrumentation," consistent with the format of the STS.

Similarly, the following existing Unit 1 LSSS requirements are also being moved to Section 3.3.1.1. For clarity, all Unit 1 LSSS are listed as presented in Unit 1 CTS. However, LSSS that are in italics are not scram functions, and are being moved to other improved TS sections, as described below.

Unit 1 CTS

2.1. Fuel Cladding Integrity
- A. Scram Trip Settings
  - 1. Neutron Flux Trip Settings
    - a. IRM High High Flux
    - b. APRM Flux (Modes 2, 3, and 5)
    - c. APRM Flux (Mode 1)
      - (1) Flow Referenced Simulated Thermal Power Monitor
      - (2) Fixed High High Flux
  - 2. Reactor Vessel Water Low Level (Level 3)
  - 3. Turbine Stop Valve Closure
  - 4. Turbine Control Valve Fast Closure
  - 5. MSIV Closure
  - *6. MSIV Closure on Low Pressure*
  - *7. MSIV Closure on Low Condenser Vacuum*
- *B. Reactor Vessel Water Level Trip Settings Which Initiate ECCS*
  - *1. HPCI Actuation (Level 2)*
  - *2. Core Spray and LPCI Actuation (Level 1)*

2.2. Reactor Coolant System Integrity
A. Nuclear System Pressure
1. Modes 1, 2, 3, and 4
a. Reactor Steam Dome Pressure High
b. S/RV lift setpoints
2. Shutdown Cooling Isolation Valve Closure and Open Permissive

See Sections 2.3.3.1.b and 2.3.3.2.a of this safety evaluation for discussion of technical changes to these requirements for scram functions and paragraph 2.3.3.4(1) for additional discussion of why this change is administrative.

The non-scram LSSS of Unit 1 listed above in italics are being dispositioned as follows:

- The technical content of LSSS 2.1.A.6 and 2.1.A.7 is being moved with no changes to improved TS Section 3.3.6.1, "Primary Containment Isolation Instrumentation," in Table 3.3.6.1-1, Functions 1.b and 1.d, respectively.

- The technical content of LSSS 2.1.B.1 and 2.1.B.2, which initiate ECCS on low reactor vessel water level is being moved with no changes to improved TS Section 3.3.5.1, "ECCS Instrumentation," in Table 3.3.5.1-1, Functions 3.a and 2.a allowable values, respectively.

- LSSS 2.2.A.1.b includes setpoints and tolerances for safety/relief valves. The technical content of these requirements are being moved with no changes to improved TS Section 3.4.3, "Safety/Relief Valves," in improved TS SR 3.4.3.1. For additional discussion of this administrative presentation change of existing requirements, see paragraph 2.3.4.2.c(3) of this safety evaluation.

- As described in paragraph 2.2.2(2) above, Unit 1 CTS SL 1.2.A.2, "When Operating the RHR System in the Shutdown Cooling Mode," is being incorporated into improved TS Section 3.3.6.1, "Primary Containment Isolation Instrumentation," in Table 3.3.6.1-1. Therefore, the technical content of associated Unit 1 CTS LSSS 2.2.A.2 is also being incorporated in Table 3.3.6.1-1.

All of these changes involve relocations of CTS requirements within the TS. Any technical changes resulting from these LSSS being relabeled "Allowable Values" are discussed with the changes for the improved TS sections incorporating these LSSS requirements.

The above changes result in the same limits as the current requirements, or they more clearly present the intent of the CTS. Accordingly, these changes are purely administrative and are acceptable.

2.2.0.5 Significant Differences Between the Improved TS and the STS

There are no significant differences in the presentation of SLs between the improved TS and the STS.

2.3 Limiting Conditions for Operation (LCOs) and Associated Applicability, Action Requirements (ACTIONS), and Surveillance Requirements (SRs) (Improved TS Sections 3.0 through 3.10)

2.3.0 LCO and SR Applicability (Improved TS Section 3.0)

This section, which is new for Unit 1, is being renamed from the existing Unit 2 CTS Section 3/4.0 "Limiting Conditions for Operation and Surveillance Requirements" to the improved TS Section 3.0, "Applicability." This section is presented in two parts entitled "Limiting Condition for Operation (LCO) Applicability," and "Surveillance Requirement (SR) Applicability." The following material describes significant changes being made to current LCO and SR applicability requirements. The changes to these general provisions are reflected throughout the LCOs and associated SRs of the improved TS.

2.3.0.1 Relocated Requirements

2.3.0.1.a Existing Specifications Entirely Relocated

There are no existing specifications within the scope of improved TS Section 3.0 being entirely relocated to other licensee-controlled documents.

2.3.0.1.b Existing Specifications Relocated in Part

In accordance with the guidance in the STS, the licensee has proposed to relocate part of the following CTS requirements to other licensee-controlled documents:

(1) Unit 2 CTS SR 4.0.5 specifies the applicability of SRs for inservice inspection (ISI) and testing of ASME (American Society of Mechanical Engineers) Code Class 1, 2, and 3 components, in accordance with Section XI of the ASME Boiler and Pressure Vessel (BPV) Code. Unit 1 CTS SR 4.6.K, "Structural Integrity," specifies essentially the same requirements. The licensee has proposed to relocate to the HNP ISI program the portions of these existing requirements related to ISI. These requirements are the following:

Unit 1 CTS	Unit 2 CTS	Description
4.6.K.1	4.0.5.a	ISI Performance Required by §50.55a(g)
	4.0.5.b	ISI Frequency Definitions
4.6.K.2	4.0.5.d	ISI Additional to Other SRs
4.6.K.4	4.0.5.f	ISI Guidance (Generic Letter 88-01)

The CTS requirements state that inspections shall be performed in accordance with Section XI of the ASME BPV Code and applicable addenda. The same requirements are specified in 10 CFR 50.55a(g) unless specific written relief has been granted by the Commission pursuant to 10 CFR 50.55a(g)(6)(i). The staff concludes that control of this commitment under 10 CFR 50.55a is acceptable and that the regulatory requirements need not be restated in the improved TS.

These relocated requirements relating to ISI are not required to be in the TS under 10 CFR 50.36, and are not required to obviate the possibility of an abnormal situation or event giving rise to an immediate threat to the public health and safety. In addition, the staff finds that sufficient regulatory controls exist under 10 CFR 50.55a. Accordingly, these requirements may be relocated from the TS to the licensee's ISI Program.

2.3.0.2 Less Restrictive Requirements

The licensee, in electing to implement STS Section 3.0 specifications, proposed a number of less restrictive conditions than are allowed by the CTS. These conditions are the following:

(1) Improved TS SR 3.0.3 is a new provision that establishes a 24-hour allowance to meet SRs discovered to have not been met within the specified Frequency. This provision is based on Generic Letter 87-09 and is consistent with the STS. Therefore, it is acceptable.

(2) Improved TS LCO 3.0.5 is a new provision, consistent with the STS, that permits inoperable equipment to be returned to service under administrative controls to perform testing to determine operability. It does this by allowing an exception to improved TS LCO 3.0.2 for instances in which inoperable equipment could not be restored to an operable status while continuing to comply with ACTIONS associated with the LCO.

Many action requirements (ACTIONS) in the CTS require an inoperable component to be removed from service, such as: maintaining an isolation valve closed, disarming a control rod, or tripping an inoperable instrument channel. An exception to these ACTIONS is necessary to allow the performance of SRs to demonstrate the operability of the equipment being returned to service. This exception is also needed in order to restore other equipment to operable status, if performance of the SR necessary for demonstrating that operability requires returning the inoperable equipment to service.

LCO 3.0.5 is necessary to establish an allowance that, although informally utilized in restoration of inoperable equipment, is not formally recognized in the CTS. It is considered a less restrictive change because it specifies an exception to LCO 3.0.2. Because this provision is restricted to activities deemed necessary to restore equipment operability and is consistent with existing practice, it is acceptable.

These less restrictive requirements have been reviewed by the staff and have been found to be acceptable because they do not present a significant safety question in the operation of the plant. The TS requirements that remain are consistent with current licensing practices, operating experience, and plant accident and transient analyses, and provide reasonable assurance that the public health and safety will be protected.

2.3.0.3 More Restrictive Requirements

By electing to implement the STS Section 3.0 specifications, the licensee has adopted a number of more restrictive conditions than are required by the existing TS. These conditions are the following:

(1) Because Section 3.0 is a new specification for Unit 1, it is considered more restrictive on Unit 1 operation than CTS.

(2) Unit 2 CTS SR 4.0.2 is being changed in corresponding improved TS SR 3.0.2 by adding the sentence "For Frequencies specified as 'once,' the above interval extension does not apply." This is because the interval extension concept is based on scheduling flexibility for repetitive performances, and these SRs are not repetitive in nature and essentially have no interval as measured from the previous performance. This precludes the ability to extend these performances, and is, therefore, an additional restriction. The existing specification can be seen to allow the extension to apply to all SRs.

The staff has reviewed these more restrictive requirements and believes they strengthen the CTS. Therefore, these more restrictive requirements are acceptable.

2.3.0.4 Significant Administrative Changes

In accordance with the guidance in the Final Policy Statement, the licensee has proposed administrative changes to the CTS to bring them into conformance with the STS. These changes are the following:

(1) Unit 2 CTS SRs 4.0.1, 4.0.2, 4.0.3, and 4.0.4 are being revised consistent with the STS presentation. These Unit 2 CTS SRs correspond to improved TS SRs as follows:

Unit 2 CTS SR	Improved TS SR
4.0.1 and 4.0.3	3.0.1
4.0.2	3.0.2
4.0.4	3.0.4

The combination of SRs 4.0.1 and 4.0.3 into SR 3.0.1 clarifies these two related requirements and is an administrative improvement with no change in intent or meaning. SR 3.0.2 contains a clarification to provide a Completion Time extension for each performance of a periodic SR. SR 3.0.4 contains a clarification of the limitations on Mode Applicability changes during shutdown conditions, consistent with the same

clarification given in LCO 3.0.4. These clarifications remove ambiguities from the current requirements and the potential for conflicting interpretations. They are considered administrative changes and are acceptable.

(2) Unit 2 CTS SR 4.0.5 specifies the applicability of SRs for inservice inspection and testing (ISI and IST) of ASME Code Class 1, 2, and 3 components. Unit 1 CTS SR 4.6.K, "Structural Integrity," specifies essentially the same requirements. As previously described in Section 2.3.0.1, the licensee has proposed to relocate the ISI provisions of this specification to the HNP ISI program. In addition, the licensee has proposed to relocate the inservice testing (IST) provisions of this specification to improved TS Section 5.5.6, "Inservice Testing Program." These provisions are contained in the following specifications:

Unit 1 CTS	Unit 2 CTS	Description
4.6.K.1	4.0.5.a	IST Performance Required by §50.55a(g)
	4.0.5.b	IST Frequency Definitions
	4.0.5.c	IST Interval Extension Allowance
4.6.K.2	4.0.5.d	IST Additional to Other SRs
4.6.K.3	4.0.5.e	Precedence of TS Over ASME BPV Code

This change, which is consistent with the STS, is considered an administrative change in the location and presentation of existing requirements within TS, and is acceptable.

(3) The provisions of Unit 2 CTS LCO 3.0.5, regarding appropriate actions in response to inoperable emergency electrical power sources, are being moved to the ACTIONS of improved TS LCO 3.8.1, "AC Sources - Operating." The change in presentation of this action requirement is considered administrative and is acceptable. For additional discussion of technical changes to this specification, see paragraph 2.3.8.2.a(11) of this safety evaluation.

(4) The following new LCOs are being placed in the improved TS, consistent with the STS:

- LCO 3.0.6 is being added to permit an exception to LCO 3.0.2.
- LCO 3.0.7 is being added to permit performance of special tests and operations.

These new allowances are consistent with CTS usage and interpretation. They clarify the intent of existing requirements. Therefore, they are considered administrative enhancements and are acceptable.

The above changes result in the same limits as the current requirements, or they more clearly present the intent of the CTS. Accordingly, these changes are purely administrative changes and are acceptable.

2.3.0.5 Significant Differences Between the Improved TS and the STS

There are no significant differences in the presentation or technical content of improved TS Section 3.0 from that of the STS.

2.3.1 Reactivity Control Systems (Improved TS Section 3.1)

2.3.1.1 Relocated Requirements

2.3.1.1.a Existing Specifications Entirely Relocated

In accordance with the criteria in the Final Policy Statement, the licensee has proposed to entirely relocate the following current specifications to licensee-controlled documents.

(1) Unit 1 CTS 3/4.3.C.3 and Unit 2 CTS 3/4.1.3.8 require the control rod driving (CRD) housing support to be in place. This explicit requirement is not needed in TS because it is included in the operability requirements for control rods. Plant configuration management provides adequate controls to ensure the CRD housing support is in place. In addition, these existing specifications require inspections of the CRD housing support prior to startup following reassembly. This requirement verifies that the CRD housing support is in place for reactor operation in Modes 1, 2, and 3. Post-maintenance inspections conducted through plant configuration management control procedures have the same function as the requirement of the existing specifications. Since work is not normally performed on the CRD housing support at power, and checks on its installation are not made at power, there is no current requirement to verify CRD housing support installation during power operating conditions. Any changes to the procedures governing these relocated inspection and configuration control requirements will be adequately controlled by the provisions of 10 CFR 50.59. Therefore, the relocation of these existing specifications is acceptable based on use of plant configuration management control to ensure proper CRD housing support installation.

These current specifications for the CRD housing support system are not required to be in the TS under 10 CFR 50.36, and are not required to obviate the possibility of an abnormal situation or event giving rise to an immediate threat to the public health and safety. Further, they do not fall within any of the four criteria in the Final Policy Statement (discussed in Part 1 of this safety evaluation). In addition, the staff finds that sufficient regulatory controls exist under 10 CFR 50.59. Accordingly, these requirements may be removed from the CTS and placed in the licensee's configuration control procedures.

2.3.1.1.b Existing Specifications Relocated in Part

In accordance with the criteria in the Final Policy Statement, the licensee has proposed to relocate parts of the following CTS requirements for reactivity control systems to licensee-controlled documents; the

corresponding improved TS location(s) of the remaining part of each CTS requirement is also noted:

Unit 1 CTS	Improved TS	Description of Relocated Requirements
4.3.A	SR 3.1.1.1	Shutdown Margin Evaluation
4.3.E	SR 3.1.2.1	Rod Worth Inventory
3.3.C.1	3.1.3, ACTION A	Disarming a Control Rod Drive (CRD)
4.3.C.1.a	SR 3.1.3.5	Control Rod (CR) Coupling Verification
4.3.C.2.b	SR 3.1.4.2	CR Scram Time Test Sample Size
4.4.A.2.a	5.5.6	(Standby Liquid Control (SLC) Relief Valve Inservice Test
4.4.A.1 and 4.4.A.2.c	SR 3.1.7.8	SLC Flow Test Into Reactor Vessel
3/4.4.C.1, 2, and 3	SRs 3.1.7.2, 3, and 5	Sodium Pentaborate Solution

Unit 2 CTS	Improved TS	Description of Relocated Requirements
3.1.2, ACTION a	3.1.2, ACTION A	Reactivity Anomaly
3.1.3.1, ACTION b.2	3.1.3, ACTION A	Disarming Control Rod Drive
3.1.3.6, ACTION a.1	3.1.3, ACTION A	Re-coupling a Control Rod (CR)
3.1.3.6, ACTION a.2	SRs 3.0.1 and 3.1.3.5	Declare Uncoupled CR Inoperable
3.1.3.7, ACTIONS a.1 and a.2	SR 3.1.3.1	Alternate CR Position Determination
4.1.3.2.c	SR 3.1.4.2	CR Scram Time Test Sample Size
3.1.3.5, ACTION c	3.1.5, ACTIONS	CR Scram Accumulator Instrumentation
4.1.3.5	SR 3.1.5.1	Accumulator Instrument Test & Calibration
4.1.5.c.3	5.5.6	SLC Relief Valve Inservice Test
4.1.5.c.1	SR 3.1.7.8	SLC Flow Test Into Reactor Vessel
3.1.5 and 4.1.5.a.3	3.1.7, and SR 3.1.7.3	SLC System Design Information
4.1.5.c.4 & 5	SRs 3.1.7.9 & 10	SLC SR Procedural Details

(1) Unit 1 CTS 4.3.A contains details of the method for verifying the shutdown margin (SDM). These details are being relocated to plant procedures, consistent with the STS. Any changes to these procedures will be adequately controlled under the provisions of 10 CFR 50.59. The requirement to verify that the SDM is within the specified limits is retained in improved TS SR 3.1.1.1.

(2) Unit 1 CTS 4.3.E contains details of the methods of performing the rod worth inventory to detect a reactivity anomaly. These procedural details are being relocated to the Bases of improved TS 3.1.2 and appropriate plant procedures. Any changes to these details will be adequately controlled under the provisions of 10 CFR 50.59 and improved TS 5.5.11, "Bases Control Program." The requirement to verify that the

reactivity anomaly is within the specified limit is retained in improved TS SR 3.1.2.1.

(3) In the event of a reactivity anomaly, ACTION a of Unit 2 CTS 3.1.2 includes details of the process used to re-evaluate predicted core reactivity conditions in an effort to explain and correct differences in the predicted versus actual values. The specifics of this process are being relocated to the Bases of improved TS 3.1.2 and appropriate plant procedures, consistent with the STS. Any changes to these details will be adequately controlled under the provisions of 10 CFR 50.59 and improved TS 5.5.11. The requirement to restore the reactivity difference to within limit is retained as ACTION A of improved TS 3.1.2.

(4) Unit 1 CTS 3.3.C.1 and ACTION b.2 of Unit 2 CTS 3.1.3.1 provide details of the methods of disarming control rod drives (CRDs). This detailed information is being relocated to the Bases of improved TS Section 3.1.3 and appropriate plant procedures. Any changes to these details will be adequately controlled under the provisions of 10 CFR 50.59 and improved TS 5.5.11. The requirement to disarm the CRDs of stuck control rods is being retained in the ACTIONs of improved TS 3.1.3.

(5) Unit 1 CTS 4.3.C.1.a contains details of methods for verifying control rod coupling. This detailed procedural information is being relocated to the Bases of improved TS SR 3.1.3.5 and appropriate plant procedures. Any changes to this information will be adequately controlled under the provisions of 10 CFR 50.59 and improved TS 5.5.11. The requirement to verify control rod coupling is being retained in improved TS SR 3.1.3.5.

(6) ACTION a.1 of Unit 2 CTS 3.1.3.6 contains detailed methods of restoring coupling integrity to an uncoupled control rod. This procedural information is being relocated to appropriate plant procedures. Although the revised presentation of ACTIONS in improved TS 3.1.3 does not explicitly detail options to "restore...to operable status," the requirement to restore inoperable required equipment to operable status is understood to be included in the ACTIONS whether or not it is explicitly stated.

Furthermore, ACTION a.2 of Unit 2 CTS 3.1.3.6 details the conditions that require declaring the uncoupled control rod inoperable. This procedural information is similarly being relocated to plant procedures. The requirement to declare an uncoupled control rod inoperable is being retained in improved TS by the requirement of SR 3.0.1 as it applies to SR 3.1.3.5. SR 3.0.1 requires that "failure to meet a Surveillance ...shall be failure to meet the LCO." In the identified changes, failure to meet the LCO ("LCO 3.1.3 Each control rod shall be OPERABLE."), results in the control rod being considered inoperable.

Any changes to the procedural information being relocated will be adequately controlled under the provisions of 10 CFR 50.59.

(7) ACTIONS a.1 and a.2 of Unit 2 CTS 3.1.3.7 specify two ways to determine the position of the control rod when a reed switch position indicator is

inoperable: "by the alternate control rod position indicator" and "move the control rod to a position with an operable position indicator." These details of the methods for determining the position of the control rod are being relocated to the Bases for improved TS SR 3.1.3.1 and associated plant procedures. The safety significant requirement to keep track of control rod position is retained in improved TS SR 3.1.3.1.

(8) Unit 1 CTS 4.3.C.2.b and Unit 2 CTS 4.1.3.2.c require verification of scram times for 10% of the control rods at an interval of 16 weeks and 120 days of operation, respectively. Corresponding improved TS SR 3.1.4.2 only requires verification of a "representative sample" of control rods to be tested each 120 days of power operation instead. Details regarding the sample size are being relocated to the Bases and plant procedures, consistent with the STS. Any changes to this information will be adequately controlled under the provisions of 10 CFR 50.59 and improved TS 5.5.11.

(9) Unit 2 CTS 3/4.1.3.5 specifies operability, Action, and testing requirements for scram accumulator leak detectors, pressure detectors, and the associated alarm even though they do not relate directly to accumulator operability. Specifications for such indication-only or test equipment to be operable to support operability of a system or component need not be in TS. Therefore, the control rod accumulator leak detectors, pressure detectors, and alarm SRs and ACTIONS are being omitted from the improved TS, consistent with the STS. Any changes to plant procedures related to these requirements will be adequately controlled by the provisions of 10 CFR 50.59. The existing LCO, ACTIONS, and SRs not related to those being relocated for the control rod scram accumulators are being retained in improved TS 3.1.5.

(10) Unit 1 CTS 4.4.A.2.a and Unit 2 CTS 4.1.5.c.3 require verifying the proper operation and correct setpoint of the relief valve on the standby liquid control (SLC) system. This test requirement is being relocated to the inservice test (IST) program procedures. The existing TS requirements regarding IST are being retained in improved TS 5.5.6 "IST Program". Any changes to this testing provision will be adequately controlled by 10 CFR 50.55a and 10 CFR 50.59.

(11) Unit 1 CTSs 4.4.A.1 and 4.4.A.2.c and Unit 2 CTS 4.1.5.c.1, corresponding to improved TS SR 3.1.7.8, for verifying flow from the SLC system into the reactor vessel, contain details of the methods of their performance. These procedural details are being relocated to plant procedures and will be adequately controlled by the provision of 10 CFR 50.59.

(12) Unit 1 CTS 4.4.A.2.c and Unit 2 CTS 4.1.5.c.1 include design and procurement information regarding the replacement charges for the SLC system explosive valves. This information is being relocated to the Bases for improved TS SR 3.1.7.8 and plant procedures. The requirement to test these valves is retained in the flow test of the SLC system into the reactor vessel, SR 3.1.7.8. This relocated information will be

adequately controlled by the provisions of 10 CFR 50.59 and improved TS 5.5.11.

(13) Unit 1 CTSs 3.4.C.1 and 2 and Unit 2 CTS 3.1.5 and associated SR 4.1.5.a.3 include details relating to the design of the SLC system and what features constitute operability. In particular, details related to the sodium pentaborate solution are provided. These details are being relocated to the Bases and appropriate plant procedures. In addition, the design of the system is described in the FSAR. SLC system test and operability requirements containing these details that are being relocated, including those regarding the sodium pentaborate solution, are retained in improved TS LCO 3.1.7 and SRs 3.1.7.2, 3, and 5. This relocated information will be adequately controlled by the provisions of 10 CFR 50.59 and improved TS 5.5.11.

(14) Unit 2 CTSs 4.1.5.c.4 and 5 include details of the method for verifying that the standby liquid control system heat traced piping is unblocked and that the sodium pentaborate solution has the correct concentration. These procedural details for performing these SRs are being relocated to plant procedures. The existing SLC system test requirements containing these details are being retained as improved TS SRs 3.1.7.9 and 3.1.7.10. Any changes to these procedural details will be adequately controlled by the provisions of 10 CFR 50.59.

The types of detailed information and requirements described above are not required to be in the TS under 10 CFR 50.36 and are not required to obviate the possibility of an abnormal situation or event giving rise to an immediate threat to the public health and safety. Further, they do not fall within any of the four criteria in the Final Policy Statement (discussed in the Part 1 of this safety evaluation). In addition, the staff finds that sufficient regulatory controls exist under 10 CFR 50.59, 10 CFR 50.55a, and improved TS 5.5.11. Accordingly, the staff has concluded that these requirements may be removed from the CTS and placed in plant procedures, the IST program, and the Bases for improved TS Section 3.1, as appropriate.

2.3.1.2 Less Restrictive Requirements

The licensee, in electing to implement STS Section 3.1 specifications, proposed a number of requirements that are less restrictive than requirements given in the CTS. These less restrictive requirements are described below for each of the eight specifications in improved TS Section 3.1.

2.3.1.2.a Shutdown Margin (SDM) (Improved TS 3.1.1)

(1) With the shutdown margin less than specified when in Mode 5, Unit 2 CTS 3.1.1, ACTION c, requires suspension of all CORE ALTERATIONS which precludes off-loading fuel and inserting control rods. This ACTION is being modified in corresponding Required Action E.1 of improved TS 3.1.1 by adding "except for control rod insertion and fuel assembly removal." This allowance enhances safety because removal of fuel assemblies and insertion of control rods can only increase the SDM. This exception,

which is consistent with the STS, allows continuation of activities that have a potential to correct the problem and restore a margin of safety to an inadvertent or uncontrolled core criticality. The corrective actions would only be pursued in accordance with approved procedures. On this basis, this change is acceptable.

With the shutdown margin less than specified when in Mode 5, Unit 2 CTS 3.1.1, ACTION c also requires inserting all insertable control rods. This ACTION is being modified in corresponding Required Action E.2 of improved TS 3.1.1 to only require those control rods in core cells containing one or more fuel assemblies to be fully inserted. If all fuel assemblies are removed from a core cell, inserting the associated control rod has a negligible impact on core reactivity. During Mode 5, refueling procedures could have cells emptied and the control rod withdrawn, but "insertable." However, due to a variety of considerations (i.e., location of blade guides, ongoing instrumentation maintenance, water chemistry), insertion of these control rods may not be desirable. Since there is negligible impact on SDM should the control rod be inserted with no fuel in the cell, it is considered acceptable to provide this flexibility. Therefore, this change, which is consistent with the STS, is acceptable.

2.3.1.2.b <u>Reactivity Anomalies (Improved TS 3.1.2)</u>

(1) Unit 1 CTS 3.3.E specifies a time limit of 24 hours to allow the core reactivity difference (or anomaly) to be restored to within limits. A reactivity anomaly normally indicates incorrect analysis inputs or assumptions of fuel reactivity used in the analysis. Contacting an offsite fuel analysis department and the fuel vendor and obtaining the necessary input may require a time period much longer than one day. Since SDM is demonstrated by a test before reaching the conditions for conducting this surveillance, the safety impact of the extended time for evaluation is negligible. Thus, the time is being extended to 72 hours in improved TS 3.1.2 ACTION A, consistent with the STS. The 72-hour Completion Time is also acceptable based on the low probability of a design basis accident (DBA) occurring during this period. Therefore, this change is acceptable. Note that Unit 2 CTS do not specify a time limit.

(2) As previously stated, Unit 1 CTS 3.3.E requires that the reactor be placed in a cold shutdown condition (Mode 4) within 24 hours in the event the difference between the actual control rod inventory and normalized computed prediction exceeds 1% $\Delta k/k$. Since reactivity anomaly is a measure of rod density, placing the unit in Mode 3 ensures all insertable control rods are fully inserted. Cooling down the unit does not provide any additional margin. Therefore the requirement to place the unit in Mode 4 within 24 hours is being changed to only require the unit to be in Mode 3 within 12 hours, consistent with the STS. In addition, since SDM has typically been demonstrated by testing prior to reaching the conditions at which the reactivity anomaly surveillance is performed, the safety impact of this change is considered negligible. Therefore, this change is acceptable.

(3) Unit 1 CTS 4.3.E and Unit 2 CTS 4.1.2.b specify that the rod density shall be predicted and compared with the actual rod density at least once per full power month during power operation. Because this SR Frequency considers the relatively slow change in core reactivity with exposure and operating experience related to variations in core reactivity, this Frequency is being replaced in improved TS SR 3.1.2.1 for both units with "1000 MWD/T during operations in Mode 1" which is considered equivalent. The proposed change is acceptable because it provides an equivalent level of monitoring of the rod density and is consistent with the STS.

(4) Unit 2 CTS 4.1.2.a specifies in part that the rod density prediction shall be compared to the actual value following CORE ALTERATIONS. The Frequency of improved TS SR 3.1.2.1 replaces "CORE ALTERATIONS" with "fuel movement within the reactor pressure vessel or control rod replacement," consistent with the STS. The intent of this surveillance is to verify the core reactivity after in-vessel operations which could have significantly altered the core reactivity. Certain core alterations have a known effect which is reversible and are consistent with the activities assumed to occur during routine operations. Normal control rod movement is such an activity. Since this activity does not require reverification of core reactivity during normal operations with the reactor vessel head on (i.e., not defined as a CORE ALTERATION), it should also be allowed without a requirement to reverify core reactivity, with the reactor vessel head removed (i.e., defined as a CORE ALTERATION). Therefore, this change is acceptable.

2.3.1.2.c <u>Control Rod Operability (Improved TS 3.1.3)</u>

(1) Unit 2 CTSs 4.1.3.7.1.b and 4.1.3.7.1.c require verifying control rod reed switch position indicators are operable when performing two other Unit 2 CTS SRs, the control rod movement tests specified in SR 4.1.3.1.a and the coupling verification specified in SR 4.1.3.6.b. In order to accomplish these SRs, rod position indication must be available. If position indication is not available, these tests cannot be satisfied and appropriate actions will be taken for inoperable control rods. If the position of a control rod is unknown, the control rod is considered inoperable, and appropriate conservative actions taken.

Therefore, the existing Unit 2 CTS 3.1.3.7 for control rod position indication is being omitted from improved TS. Its requirements are implied by improved TS SR 3.1.3.1, which requires determining the position of each control rod every 24 hours. This SR must be satisfied in order for the control rod to be considered operable, and requires operable position indication to be performed. As previously discussed in paragraph 2.3.1.1.b(7), details which are provided in the Unit 2 CTS SRs noted above, for verifying the operability of rod position indication, are also found within existing procedures for the performance of these SRs. Therefore, these details are being omitted from improved TS SR 3.1.3.1. Because appropriate actions will still be taken in the event of an inoperable rod position indication, this change is acceptable.

(2) The SR Frequency of Unit 1 CTS 4.3.B for verifying control rods to be non-stuck is being decreased from 7 days to 31 days in improved TS SR 3.1.3.3 for control rods that are not fully withdrawn, consistent with the STS. Partially withdrawn control rods have a significantly greater effect on core flux distribution than do fully withdrawn control rods. Historically, power reductions are required each week to perform this test on these partially withdrawn control rods. This impact on plant capacity is excessive given the following considerations:

- At full power, a large percentage of control rods (typically 80 to 90%) are fully withdrawn and would continue to be exercised each week. This represents a significant sample size when looking for an unexpected random event (i.e., a stuck control rod.)

- Operating experience has shown "stuck" control rods to be an extremely rare event while operating.

- Should a stuck rod be discovered, 100% of the remaining control rods (even partially withdrawn) must be tested within 24 hours (improved TS 3.1.3 Required Action A.2).

Based on the preceding information, the proposed changes are acceptable.

(3) Unit 1 CTS 4.3.B and ACTION a of Unit 2 CTS 3.1.3.1 specify requirements for confirming control rod operability, but do not allow continued operation with a stuck control rod. This allowance is being included in improved TS 3.1.3. This is acceptable because, with a single withdrawn control rod stuck, the remaining operable control rods are capable of providing the required scram and shutdown reactivity. The assumptions utilized in establishing the proposed scram time limits take into account a single stuck control rod in addition to an assumed single failure during a transient. Shutdown margin must still be met, accounting for the loss of negative reactivity due to the stuck control rod. This allowance is permitted by ACTION A of improved TS 3.1.3 provided that improved TS SRs 3.1.3.2 and 3.1.3.3, for verifying the operability of all other control rods, and SR 3.1.1.1, for determining shutdown margin, are completed. The Completion Time of 72 hours for determining shutdown margin is consistent with the STS.

Also, the existing limitation of Unit 1 CTS 3.3.B.1 on reactor startup based on the reason for the failure (e.g., failed collet housing) is being omitted from improved TS. The particular failure mechanism is not significant, provided all other rods are tested to ensure a similar failure has not occurred. Improved TS 3.1.3 Required Action A.2, performs this check to confirm no additional stuck control rods exist. Therefore, because continued operation with one stuck control rod will be compensated by appropriate remedial measures ensuring that shutdown margin is within limits, this addition of this allowance is acceptable.

(4) Unit 1 CTS 3.3.B.1 requires that the reactor be placed in cold shutdown (Mode 4) within 24 hours in the event of a stuck control rod. This requirement is being changed in improved TS 3.1.3, ACTION E, to only

require the unit to be in Mode 3 within 12 hours (if the remedial measures of ACTION A are not met, or more than one rod is stuck). Placing the unit in Mode 3 effectively ensures all control rods are fully inserted. Given that the only difference between Modes 3 and 4 is the temperature requirement, the safety impact of this change as it relates to control rods and the safety analysis they affect, is considered to be negligible. Therefore, the proposed change is acceptable.

(5) Unit 1 CTS 3.3.B.4 and ACTION b.3 of Unit 2 CTS 3.1.3.1, which deal with the separation requirements associated with inoperable control rods, apply during power operation. The Applicability of these restrictions is being changed in improved TS. The revised control rod separation requirement is being specified in the Note for ACTION D of improved TS 3.1.3. This Note limits the requirement to $\leq$ 10% Rated Thermal Power (RTP) in order to ensure the rod pattern is in compliance with the banked position withdrawal sequence (BPWS). Analysis has shown that inoperable control rod distribution is not a problem when > 10% RTP. The analysis also showed that this inoperable control rod distribution requirement is needed when $\leq$ 1% RTP. Therefore, any decrease in safety by eliminating the distribution requirement > 10% RTP, is considered to be offset by the added safety of requiring inoperable control rod distribution at lower power when a rod drop accident can impact fuel design limits.

In addition, improved TS 3.1.3, ACTION D, allows 4 hours to correct the situation prior to commencing a required shutdown, while Unit 2 CTS 3.1.3.1, ACTION b.3, allows 2 hours. This increased time, which is consistent with the STS, is being made in recognition of the actual operational steps involved following discovery of inoperable control rods. Because of the low probability of a control rod drop accident (CRDA) during this brief time extension, this change does not represent a significant safety concern. Therefore, because the revised Applicability and Completion Times are more appropriate given the power levels at which a CRDA is of concern and the low probability of this accident occurring, these changes are acceptable.

(6) The Applicability of the Unit 1 CTS 3.3.C.1 and the Unit 2 CTS 3.1.3.6.b control rod coupling requirements have been changed to only include Modes 1 and 2 (Modes 4 and 5 for Unit 1, and Mode 5 for Unit 2 are being deleted). The CTS imply that coupling is required at all times. Coupling requirements during hot shutdown, cold shutdown, and refueling are not necessary since, at most, only one control rod can be withdrawn from core cells containing fuel assemblies. The probability and consequences of a single control rod dropping from its fully inserted position are considered negligible (i.e., reactor will remain subcritical). However, coupling requirements are being retained in improved TS 3.10.8, "SDM Test - Refueling," for special operations when more than one control rod can be withdrawn. Because the appropriate Applicability for these requirements is being retained, this change is acceptable.

(7) Unit 1 CTS SR 4.3.B and Unit 2 CTS SR 4.1.3.1.b require a daily notch test in the event power operation is continuing with three or more inoperable control rods and the plant is operating at > 30% RTP. Corresponding improved TS 3.1.3, ACTION A, only requires the control rod notch test (improved TS SR 3.1.3.2) in the case of a single stuck control rod, and only once within 24 hours. The purpose of the control rod notch test on each withdrawn operable control rod is to ensure that a generic problem does not exist and that control rod insertion capability remains. The single performance of the control rod notch test satisfies the same objective as the daily notch test of the CTS without requiring the additional testing. Therefore, the revised requirement is acceptable.

(8) Unit 1 CTS 3.3.B.4 requires that no more than one control rod in any five-by-five array be inoperable (at least four operable control rods must separate any two inoperable ones). Improved TS 3.1.3, ACTION D, allows inoperable control rods to be separated by two operable control rods. This is consistent with the safety analyses associated with this limitation. (NEDO-21231, "Banked Position Withdrawal Sequence (BPWS)," Section 7.2, January 1977.)

ACTION D addresses the condition of the reactor being ≤ 10% RTP with two or more inoperable control rods not in compliance with the BPWS. ACTION D requires restoring compliance with the BPWS or restoring the control rod to operable status within 4 hours. Inoperable control rod separation requirements are required at < 10% RTP because of Control Rod Drop Accident (CRDA) concerns related to control rod worth. Above 10% RTP, control rod worth values that are of concern for the CRDA are not possible. The separation criterion of two operable control rods in ACTION D is considered acceptable for the BPWS analysis. Therefore, this change is acceptable.

2.3.1.2.d <u>Control Rod Scram Times (Improved TS 3.1.4)</u>

(1) Unit 1 CTS 3.3.H requires the unit to be placed in cold shutdown (Mode 4) within 24 hours if the scram insertion times specified in Unit 1 CTS 3.3.C.2 are not met. Corresponding ACTION A of improved TS 3.1.4 requires only that the unit be in Mode 3 within 12 hours, consistent with the STS. Since the Mode 3 definition means the mode switch is in the shutdown position (which inserts a scram signal), placing the unit in Mode 3 ensures all insertable control rods are fully inserted. Given that the only difference between Modes 3 and 4 is the reactor coolant temperature requirement, the safety impact of this change is considered to be negligible. Therefore, this change is acceptable.

2.3.1.2.e <u>Control Rod Scram Accumulators (Improved TS 3.1.5)</u>

(1) Unit 1 CTS 3.3.B.3 and ACTION a.2 of Unit 2 CTS 3.1.3.5 require declaring a control rod inoperable when its associated accumulator is inoperable. Unit 1 CTS do not specify a time for completing this action, but Unit 2 CTS specify 8 hours. This requirement is being relaxed in the ACTIONS of corresponding improved TS 3.1.5 as follows:

- In addition to declaring the control rod inoperable, ACTION A allows the option to declare within 8 hours a control rod with an inoperable accumulator "slow" when reactor pressure is ≥ 900 psig. This is acceptable because at or above this pressure the control rod will scram even without the associated accumulator, although probably not within the required scram time. The accumulator only provides a portion of the scram force at this pressure.

  Since the existing action to declare the control rod inoperable allows the control rod to remain withdrawn and not disarmed, the proposed action to declare the control rod "slow" is essentially equivalent. The proposed limits and allowances for numbers and distribution of inoperable and slow control rods (found in improved TS LCOs 3.1.3 and 3.1.4, respectively) are appropriately applied to control rods with inoperable accumulators whether declared inoperable or slow.

  Therefore, we find ACTION A acceptable.

- With more than one accumulator inoperable and reactor steam dome pressure ≥ 900 psig, Action B allows 1 hour to declare control rods slow or inoperable similar to Action A. This provides a reasonable time to attempt investigation and restoration of the inoperable accumulator.

  In addition, ACTION B addresses the situation where additional accumulators may be rapidly becoming inoperable due to loss of charging pressure. It requires restoring charging water header pressure to ≥ 940 psig within 20 minutes if that pressure is low.

- With one or more accumulators inoperable with reactor steam dome pressure < 900 psig, Action C requires declaring associated control rods inoperable within 1 hour. In addition, these rods must be verified to be fully inserted immediately if charging water header pressure is low. This is necessary because with reactor pressure < 900 psig, there may not be sufficient pressure to scram the rods within the required times. The option to declare the control rod "slow" is not provided because with reactor pressure below 900 psig, the scram time limits would likely not be met.

- If the charging water header pressure is low or not restored within the time specified, Action D requires immediately scramming the reactor if any inoperable accumulators are associated with a withdrawn control rod. This ensures that if a condition related to scram accumulators jeopardizes scram capability, the 1 hour time allowance of ACTIONS B and C will not be used and an immediate scram will be initiated.

The 1 hour Completion Time of ACTIONS B and C is acceptable because it is contingent upon restoring or verifying, respectively, adequate charging header pressure which ensures the scram function of the control rods is maintained, while providing a reasonable time to restore the

accumulator to operability. Otherwise, ACTION D requires immediately scramming the reactor.

In addition, the option for declaring a control rod with an inoperable accumulator "slow" is restricted (by a Note to Required Actions A.1 and B.2.1) to control rods not previously known to be slow. This restriction limits the flexibility to control rods not otherwise known to have an impaired scram capability.

Because each accumulator supports the operability of only one control rod, separate Condition entry for each accumulator is permitted by a Note preceding the ACTIONS.

On the preceding basis, we find the ACTIONS of improved TS LCO 3.1.5, which are consistent with the STS, acceptable.

2.3.1.2.f Rod Pattern Control (Improved TS 3.1.6)

Improved TS 3.1.6 is a new specification for both units. See Section 2.3.1.3.f of this safety evaluation for additional discussion of this more restrictive requirement.

2.3.1.2.g Standby Liquid Control (SLC) System (Improved TS 3.1.7)

(1) The Unit 1 CTS 3.4.A and Unit 2 CTS 3.1.5 requirements that the SLC system be operable during hot and cold shutdown (Modes 3 and 4) are being removed since no control rods can be withdrawn and adequate SDM prevents criticality under these conditions. As such, any ACTION requiring the units to be placed in cold shutdown is also been changed to only require entry into Mode 3 (hot shutdown), since this exits the Applicability of this LCO in improved TS (Modes 1 and 2). In addition, the requirement that the SLC system be operable during refueling (Mode 5) is being removed since only a single control rod can be withdrawn at a time during Mode 5 and adequate SDM prevents criticality under these conditions. Based on the preceding considerations, we find that restricting the Applicability to Modes 1 and 2 is acceptable.

(2) The limits defined by Region A of Figures 3.1.7-1 and 3.1.7-2 of improved TS Section 3.1.7, and also defined in CTS, on the concentration of the sodium pentaborate (boron) in solution in the SLC tank, conform to the requirements of 10 CFR 50.62, "Requirements for reduction of risk from anticipated transients without scram (ATWS) events for light-water-cooled nuclear power plants," for boiling water reactors (BWRs). In the event that the boron concentration is not within the specified limits (i.e., outside the limits required in 10 CFR 50.62), Unit 1 CTS 3.5.C.4 and the ACTIONS of Unit 2 CTS LCO 3.1.5 allow no time and 8 hours, respectively, to restore the SLC tank boron concentration to within limits. These Completion Times are being relaxed in the improved TS.

In ACTION A of improved TS LCO 3.1.7, a 72-hour Completion Time is specified for restoring the boron concentration of the SLC tank to within Region A limits, provided the concentration is still within the

limits defined by Region B of improved TS Figures 3.1.7-1 and 3.1.7-2. This is acceptable because, with boron concentration within the limits of Region B, the unit can still be shut down, using the SLC system alone, within the required time period of 125 minutes, even assuming a single failure of one SLC pump and/or flow path. (The limits of Region B were previously a part of the original licensing basis for both units.) Since the probability of an ATWS event is very low and shutdown capability is still maintained when the boron concentration is within the limits of Region B, the extension of the Completion Time to 72 hours has a negligible impact on safety. Therefore, ACTION A, which is consistent with the STS, is acceptable.

The CTS do not address the need to limit the time an LCO is not met in the event multiple ACTIONS Conditions apply. The improved TS contain such limits and explains how they apply in improved TS Section 1.3, "Completion Times." The ACTIONS of improved TS 3.1.7 contain such a time limit because of the 72-hour Completion Time of ACTION A, and the 7-day Completion Time of ACTION B (LCO not met for reasons other than boron concentration being within the limits of Region B). An additional restriction is being specified in the ACTIONS to limit the maximum time the requirements of improved TS LCO 3.1.7 are not met (the second Completion Time of Required Actions A.1 and B.1). The Completion Times in ACTIONS A and B contain a provision that allows plant operation to continue for a maximum of 10 days from discovery of failure to meet the LCO. This provision, which is consistent with the STS, is acceptable because it provides a reasonable time to restore the SLC system to operable status without affecting safety.

ACTION C, which is a new allowance for Unit 1, but which is consistent with the Unit 2 CTS and the STS, allows 8 hours to restore a SLC subsystem to operable status when both subsystems are inoperable. This is acceptable because of the low probability of an ATWS event during this short time period.

2.3.1.2.h <u>Scram Discharge Volume (SDV) Vent and Drain Valves (Improved TS 3.1.8)</u>

(1) Unit 1 CTS 3.3.1 and the ACTION of Unit 2 CTS 3.1.6.1 do not allow time to restore inoperable SDV vent and drain lines to operable status before requiring a shutdown. The primary safety function of the SDV vent and drain valves is to isolate the SDV during a scram to contain the reactor coolant discharge. The isolation function can still be satisfied if at least one valve is operable in each line or the line is isolated. Therefore, the ACTIONS of corresponding improved TS 3.1.8 contain the following changes:

- ACTION A allows 7 days to restore inoperable SDV vent or drain valves, provided at least one valve in each line is operable, or when the line is isolated while concurrently in ACTION B.

- ACTION B allows 8 hours to either restore a valve to operable status or to isolate the line when both valves in a line are inoperable.

Recognizing that the SDV vent and drain valves are normally open to prevent accumulation of water in the SDV, a Note is being added to Required Action B.1 (which requires isolation of the line). This Note allows periodic opening of the affected line for draining and venting of the SDV. This draining will be necessary to avoid automatic reactor scrams on high level in the SDV.

- A Note, "Separate Condition entry is allowed for each SDV vent and drain line," preceding the ACTIONS, is being been added to give more explicit instructions for proper application of the ACTIONS. This is acceptable because a SDV vent and drain line only supports the operability of the associated SDV. Each SDV line is allowed a specified period of time to confirm that it is isolated or capable of isolation, and to restore the complete function of the line.

These extended Completion Times and the option to administratively open a SDV line isolated in compliance with a Required Action, are consistent with the STS. These increased allowances will not significantly increase the risk of a scram with an additional failure that could allow the SDV to remain unisolated; nor to substantially increase the risk of the SDV failing to accept the control rod drive water displaced during a scram. Therefore, the described changes are acceptable.

The above less restrictive requirements have been reviewed by the staff and have been found to be acceptable, because they do not present a significant safety question in the operation of the plant. The requirements that remain in the improved TS are consistent with current licensing practices, operating experience, and plant accident and transient analyses, and provide reasonable assurance that the public health and safety will be protected.

2.3.1.3 <u>More Restrictive Requirements</u>

By electing to implement STS Section 3.1 specifications, the licensee has adopted a number of requirements that are more restrictive than requirements given in the CTS. These more restrictive requirements are described below for each of the eight specifications in improved TS Section 3.1.

2.3.1.3.a <u>Shutdown Margin (SDM) (Improved TS 3.1.1)</u>

(1) If SDM is not met, Unit 1 CTS 3.3.H requires placing the unit in cold shutdown (Mode 4) within 24 hours. Corresponding ACTION B of improved TS 3.1.1 only requires placing the unit in Mode 3 within 12 hours, consistent with the Unit 2 CTS and the STS. While this change appears to be operationally less restrictive, it is more conservative with respect to providing proper reactivity controls in that (a) Mode 3 is required to be reached sooner than currently allowed, and (b) cooling down to Mode 4 adds positive reactivity. In addition, Unit 1 CTS specify no
ACTIONS if SDM is not met while in Modes 4 and 5. Therefore, the following additional restrictions are being included in improved TS 3.1.1:

- ACTIONS A and B require SDM to be restored within 6 hours or to be in Mode 3 within the following 12 hours, consistent with the Unit 2 CTS and the STS, if SDM is not met while the unit is in Mode 1 or 2. In addition, once in Mode 3, ACTION C requires initiating action to fully insert all insertable control rods. This action further reduces core reactivity.

- If SDM is not met in Modes 4 or 5, ACTIONS D and E require initiating action to (a) insert all insertable control rods (in Mode 5 for core cells containing fuel), (b) suspend core alterations, except for control rod insertion and fuel assembly removal (if in Mode 5), and (c) within 1 hour restore to operable status secondary containment, the SGT subsystems required to be operable (by LCO 3.6.4.3) and isolation capability in each required secondary containment penetration flow path which is not isolated.

The first two actions ensure SDM is not further reduced, while the last three actions provide some protection from radioactive release if an inadvertent criticality is experienced.

(2) An additional Frequency for the CTS SDM verification SR for both units is being included in improved TS SR 3.1.1.1 to clarify the requirements necessary for assuring SDM during the refueling process. This requirement is added because SDM is assumed in several refueling mode (Mode 5) analyses in the FSAR, and assurance that intermediate fuel loading patterns during refueling have adequate SDM is, therefore, necessary.

2.3.1.3.b <u>Reactivity Anomalies (Improved TS 3.1.2)</u>

(1) Unit 1 CTS SR 4.3.E does not require the reactivity margin surveillance to be performed if control rods have been replaced. This requirement is being included in improved TS 3.1.2.1 to perform this SR if control rods have been replaced, regardless of whether or not the unit has performed a refueling. This ensures that any core change that could affect reactivity is properly evaluated.

(2) Unit 2 CTS 3.1.2, ACTION a, does not specify a time limit for restoring the core reactivity difference to within limits. ACTION A of improved TS 3.1.2 specifies a 72-hour Completion Time for this action, consistent with the STS.

2.3.1.3.c <u>Control Rod Operability (Improved TS 3.1.3)</u>

(1) Improved TS 3.1.3, Required Action C.1, requires fully inserting an inoperable control rod within three hours (unless it is stuck). This is more restrictive than Unit 1 CTS 3.3.B.1 which allows the rod to remain withdrawn when inoperable.

(2) Improved TS 3.1.3, Required Action C.2, allows 4 hours to disarm the CRD associated with an inoperable control rod. Unit 1 CTS 3.3.B.1 does not specify a time limit for this action.

(3) Unit 1 CTS 4.3.B and Unit 2 CTS 4.1.3.1 require that control rods be exercised. This SR can be satisfied by control rod withdrawal. However, it is possible for a control rod binding mechanism to exist that only prevents control rod insertion. In such a case, a withdrawal test will not detect the problem. Therefore, corresponding improved TS SRs 3.1.3.2 and 3.1.3.3 require control rods to be inserted in lieu of the CTS requirement for "exercising," consistent with the STS. Since the purpose of the test is to ensure scram insertion capability, restricting the test to only allow control rod insertion increases the sensitivity of this test for detecting a problem that impacts this capability.

(4) Unit 1 CTS 4.3.B and Unit 2 CTS 4.1.3.1.a require conducting the CTS SR for verifying control rod operability in the event of continued power operation with three or more inoperable control rods. Improved TS 3.1.3 retains this SR as Required Action A.2. In addition, this Required Action A.2 applies when as few as one control rod is immovable.

(5) Unit 1 CTS 3.3.B.1 is being changed, consistent with the STS, to require disarming a control rod that is "stuck". This additional requirement, in ACTIONS A and B of improved TS 3.1.3, helps protect the control rod drive against further damage were a scram signal to occur. If mechanically bound, the stuck control rod could cause further damage if not disarmed. Disarming normally would preclude control rod insertion on a scram signal; however, for a control rod that is stuck, disarming has no effect; the control rod would not insert in either case.

(6) Unit 1 CTS 3.3.B.1 allows an inoperable control rod to remain withdrawn. This provision is being changed in Required Actions C.1 and C.2 of corresponding improved TS 3.1.3. Under these new Required Actions, if a control rod is considered inoperable, it must be fully inserted within 3 hours (unless it is stuck) and disarmed within 4 hours.

(7) Unit 1 CTS 3.3.B.2 does not specify a SR Frequency for verification of each control rod position. Improved TS SR 3.1.3.1 requires that the position of each control rod be verified every 24 hours.

(8) Unit 1 CTS 3.3.B.4 specifies that, if the LCO for the allowed number of inoperable control rods can not be met, the reactor must be placed in a shutdown condition within 24 hours. ACTION D of improved TS 3.1.3 allows 4 hours to restore compliance with the LCO (i.e., restore control rods to operable status or restore compliance with BPWS) before requiring a shutdown. However, this change is considered more restrictive because the CTS Completion Time to reach a shutdown condition (Mode 3) is being reduced from 24 hours to 12 hours in improved TS 3.1.3, ACTION E. Therefore, the total time to reach a shutdown condition has been reduced from 24 hours to 16 hours (4 to restore and 12 to reach Mode 3). ACTIONS D and E are consistent with the STS.

(9) Unit 1 CTS 3.3.B.4 allows nine control rods to be inoperable without requiring a shutdown. ACTION E of improved TS 3.1.3 requires placing

the plant in Mode 3 within 12 hours if 9 or more control rods are inoperable, consistent with the STS.

(10) Unit 1 CTS 3.3.C.1 specifies no time limit for inserting an inoperable control rod and disarming the associated CRD in the event the integrity of the control rod coupling can not be verified. ACTION a of Unit 2 CTS 3.1.3.6 does not specify a Completion Time for recoupling an uncoupled control rod. ACTION C of improved TS 3.1.3 corresponds to these Conditions and allows 3 hours to insert the rod and 4 hours to disarm the CRD.

(11) Unit 1 CTS 4.3.C.1.b requires verifying that the CRD does not go to the over travel position the first time the control rod is withdrawn to the full-out position following each refueling outage. The Frequency of corresponding improved TS SR 3.1.3.5 requires this verification each time the rod is withdrawn to the full-out position and prior to declaring the control rod operable after work on the control rod or CRD system that could affect the rod-CRD coupling, not just after the first time following each refueling outage, consistent with the STS.

(12) ACTION A of improved TS 3.1.3 requires disarming the associated CRD of a stuck control rod to prevent damage to the rod and surrounding fuel, consistent with the STS. This is a new requirement for Unit 2.

(13) The ACTIONS of Unit 2 CTS 3.1.3.1 do not specify an ACTION for the condition of more than one stuck control rod. Therefore, in this condition, the Unit 2 CTS require entry into LCO 3.0.3. ACTION B of improved TS LCO 3.1.3 contains a shutdown requirement equivalent to LCO 3.0.3, but also requires disarming control rods that are stuck. This additional requirement protects the CRD against further damage were a scram signal to occur. If mechanically bound, the stuck control rod could cause further damage if not disarmed. Disarming normally would preclude control rod insertion on a scram signal; however, for a control rod that is stuck, disarming has no effect.

(14) ACTION b.2 of Unit 2 CTS 3.1.3.1, to disarm the stuck control rods within 2 hours, applies for the condition of up to 8 withdrawn inoperable control rods. Corresponding ACTION C of improved TS 3.1.3 applies to all inoperable control rods whether inserted or withdrawn, and is, therefore, considered more restrictive.

(15) ACTION b.2 of Unit 2 CTS 3.1.3.1 requires demonstrating the insertion capability of each inoperable withdrawn control rod. The ACTIONS of improved TS 3.1.3 for non-stuck inoperable control rods eliminates the check of insertion capability and replaces it with a more restrictive requirement to fully insert and disarm inoperable control rods.

2.3.1.3.d <u>Control Rod Scram Times (Improved TS 3.1.4)</u>

(1) Unit 1 CTS 3.3.C.2 and Unit 2 CTS 4.1.3.2 specify a value of 950 psig reactor dome pressure during the testing of control rod scram insertion times. Improved TS SR 3.1.4.1 specifies a pressure of $\geq$ 800 psig for

this test, consistent with the STS. This pressure corresponds to the limiting pressure for CRD scram testing for the both units. "Limiting" refers to the maximum scram times experienced at or below this pressure because of the competing effects of the reactor vessel pressure and the accumulator pressure scram forces. The scram time requirements are related to transients analyzed at rated reactor pressure (assumed to be > 950 psig); however, if the scram times are demonstrated at pressures at or above 800 psig, the measured times are conservative with respect to the conditions assumed in the design basis transient and accident analyses. In addition, a Note is being included with the improved TS SR table requiring that, during the control rod scram time surveillance for a single control rod, the CRD pumps be isolated from the associated accumulator. This ensures that accumulator pressure alone is scramming the rod, not the CRD pump pressure (which can improve the scram times.)

(2) The purpose of the control rod scram time LCO is to ensure the negative scram reactivity corresponding to that used in licensing basis calculations is supported by individual control rod drive scram performance distributions allowed by the CTS. CTS 3.3.C.2 for Unit 1 and CTS 4.1.3.2.b for Unit 2 accomplish this purpose by placing requirements on maximum individual control rod drive scram times (7.0 second requirement), average scram times, and local scram times (four control-rod groups.)

Because of the methodology used in the design basis transient analysis (one dimensional neutronics), all control rods are assumed to scram at the same speed, which is the analytical scram time requirement. Performing an evaluation assuming all control rods scram at the analytical limit results in the generation of a scram reactivity versus time curve, which is the analytical scram reactivity curve. The purpose of the scram time LCO is to ensure that, under allowed plant conditions, this analytical scram reactivity will be met. Since scram reactivity cannot be readily measured at the plant, the safety analyses use appropriate conservative scram reactivity versus insertion fraction curves to account for the variation in scram reactivity during a cycle. Therefore, the TS must only ensure the scram times are satisfied.

If all control rods scram at least as fast as the analytical limit, the analytical scram reactivity curve will be met. However, a distribution of scram times around the analytical limit can also provide adequate scram reactivity. A situation in which all control rods do not satisfy the analytical scram time limits would be acceptable if the resulting scram reactivity meets or exceeds the analytical scram reactivity curve. This can be evaluated using models which allow for a distribution of scram speeds. It follows that the more control rods that scram slower than the analytical limit, the faster the remaining control rods must scram to compensate. Improved TS LCO 3.1.4 incorporates this philosophy by specifying scram time limits for each individual control rod instead of limits on the average of all control rods and the average of three fastest rods in all four-control-rod groups. This philosophy is similar to that currently being used for the BWR/6 plants from the previous version of standard technical specifications, NUREG-0123, "Standard

Technical Specifications, General Electric Plants, BWR/6." The LCO scram time limits have margin to the analytical scram time limits to allow for a specified number and distribution of slow control rods, a single stuck control rod and an assumed single failure.

Therefore, if all control rods meet the proposed LCO time limit found in improved TS Table 3.1.4-1, the analytical scram reactivity assumptions are satisfied. If any control rods do not meet the LCO time limit, the LCO specifies the number and distribution of these "slow" control rods to ensure the analytical scram reactivity assumptions are still satisfied.

If the number of slow rods is more than 10, or the rods do not meet the distribution requirements, the unit must be shut down. This change is considered more restrictive on plant operation since the proposed individual times are more restrictive than the average times. That is, currently, the "average time" of all rods or a group can be improved by a few fast scramming rods, even when there may be more than 10 slow rods (as defined in improved TS Table 3.1.4-1). Therefore, improved TS LCO 3.1.4 limits the number of slow rods to 10 and ensures no more than 2 slow rods occupy adjacent locations.

The current maximum scram time requirements, CTS 3.3.B.2 for Unit 1, and CTS 3.1.3.2 for Unit 2, are being retained in improved TS LCO 3.1.3 for the purpose of defining the threshold between a slow control rod and an inoperable control rod even though the analyses, to determine the LCO scram time limits, assumed slow control rods did not scram. Note 2 to improved TS Table 3.1.4-1 ensures that a control rod is not inadvertently considered slow when the scram time exceeds 7 seconds; rather such rods are considered inoperable.

Based on the above considerations, improved TS LCO 3.1.4 and Table 3.1.4-1, which are consistent with the STS, are acceptable.

(3) Unit 1 CTS 4.3.C.2 specifies that scram insertion time testing must be completed prior to exceeding 40% RTP after fuel movement in the reactor pressure vessel. Corresponding improved TS SR 3.1.4.1 includes an additional Frequency, consistent with the STS, to perform scram time tests on all control rods prior to exceeding 40% RTP after each reactor shutdown lasting ≥ 120 days.

(4) Unit 1 CTS 4.3.C.2.b requires scram time testing on 10% of the control rods at an interval of 16 weeks. Unit 2 CTS 4.1.3.2.b specifies that control rod maximum scram insertion times shall be demonstrated with reactor coolant system (RCS) pressure ≥ 950 psig for specifically affected individual control rods following maintenance or modification which could affect the scram insertion time.

Improved TS SRs 3.1.4.3 and 3.1.4.4 require scram time testing after work on a control rod or CRD that could affect the scram time.

- SR 3.1.4.3, which is new for both units, requires a scram time test, which may be done at any pressure, prior to declaring a control rod operable. This SR does not allow the flexibility of the existing Unit 2 SR to delay post maintenance testing until reactor pressure is ≥ 950 psig. This will ensure adequate testing is performed prior to declaring the control rod operable and entering Mode 2.

- SR 3.1.4.4, which is new for Unit 1, requires a scram time test after reactor pressure has reached ≥ 800 psig and prior to exceeding 40% RTP.

To allow testing at less than normal reactor operating pressures, scram time limits at 0 psig are being provided in Note (b) of improved TS Table 3.1.4-1. These limits appear to be less restrictive than the operating limits; however, due to lower RCS pressures not being available to assist the scram speed, the limits are reasonable for application as a test of operability at these conditions and do not really constitute a less restrictive condition. Since these tests are not applied in the CTS for both units, this is an added restriction. Furthermore, the existing scram time test (performed at normal RCS operating pressure) is additionally required to be performed prior to exceeding 40% RTP.

It is noted that if the control rod remains inoperable (i.e., the test was not performed at lower RCS pressures) until normal reactor operating pressures are reached, a single scram time test will satisfy both new SRs.

Based on the above considerations, improved TS SRs 3.1.4.3 and 3.1.4.4, which are consistent with the STS, are acceptable.

2.3.1.3.e <u>Control Rod Scram Accumulators (Improved TS 3.1.5)</u>

(1) Unit 1 CTS 3.3.H requires an orderly shutdown to be initiated and the reactor to be placed in cold shutdown within 24 hours if the provisions of Unit 1 CTS 3.3.B.3 are not met for control rod accumulators. ACTION D of improved TS 3.1.5 is more restrictive and provides the proper action if CRD system verification is not satisfactory. If charging water header pressure is not adequate and cannot be restored within the times specified in ACTIONS B and C, ACTION D requires an immediate scram.

(2) ACTION a.1 of Unit 2 CTS 3.1.3.5 allows 8 hours to restore an accumulator to operable status or to declare the associated control rod inoperable, regardless of reactor pressure. At reduced reactor pressures, control rods may not insert on a scram signal unless the associated accumulator is operable. Therefore, ACTION A of improved TS 3.1.4, for an inoperable control rod accumulator, gives an 8-hour allowance only if reactor pressure is sufficiently high to support control rod insertion. (ACTION C of improved TS 3.1.5 applies to one inoperable accumulator at lower reactor pressures below the minimum pressure necessary to ensure control rod insertion on a scram signal.)

2.3.1.3.f Rod Pattern Control (Improved 3.1.6)

(1) The CTS for Units 1 and 2 do not contain a specification requiring the control rod pattern to be in compliance with the BPWS. Improved TS 3.1.6 is being added to specify this requirement along with appropriate ACTIONS and SRs consistent with the STS.

2.3.1.3.g Standby Liquid Control (SLC) System (Improved TS 3.1.7)

(1) Unit 1 CTS 4.4.A.2.e and Unit 2 CTS 4.1.5.c.5 specify a sample and analysis frequency of "prior to startup" for verifying the sodium pentaborate enrichment. This Frequency is being changed in corresponding improved TS SR 3.1.7.5 to "once within 24 hours after water or sodium pentaborate addition to SLC tank." This new Frequency is considered more restrictive, since a sample may be required more often.

(2) Improved TS SRs 3.1.7.4, 3.1.7.6, and 3.1.7.9 are being added to Unit 1 CTS requirements. These SRs verify that (a) the explosive charges have continuity; (b) each manual and power operated valve in the SLC flow path, that is not locked, sealed, or otherwise secured in position is in the correct position or can be aligned to the correct position; and (c) all heat traced piping between the storage tank and pump suction is unblocked.

(3) Unit 1 CTS 3.4.C.4 requires placing the reactor in cold shutdown (Mode 4) within 24 hours if the conditions of Unit 1 CTSs 3.4.C.1 through 3.4.C.3 have been exceeded and cannot be corrected immediately. Corresponding ACTION D of improved TS 3.1.7 requires entry into Mode 3 within 12 hours if a shutdown is required, which is potentially a shorter time to reach Mode 3 than would be achieved by the existing ACTION.

(4) Unit 1 CTS 3.4.C and Unit 2 CTS 4.1.5.b.3 specify a minimum boron concentration of 6.2%. The minimum boron concentration limit is being raised to 6.9% in corresponding improved TS SR 3.1.7.5 and Figure 3.1.7-1.

2.3.1.3.h Scram Discharge Volume (SDV) Vent and Drain Valves (Improved TS 3.1.8)

(1) Unit 1 CTS 3.3.I specifies that all scram discharge volume vent valves shall be operable during reactor power operation. The Applicability of this specification is being changed in corresponding improved TS 3.1.8 from "reactor power operation," which is ≥ 1% RTP, to Modes 1 and 2.

The staff has reviewed these more restrictive requirements and believes they result in an enhancement to the existing TS. Therefore, these more restrictive requirements are acceptable.

2.3.1.4 Significant Administrative Changes

In accordance with the guidance in the Final Policy Statement, the licensee has proposed administrative changes to the CTS to bring them into conformance with the STS. The more significant of these changes are the following:

(1) Unit 1 CTS 3/4.B and 3/4.C, and Unit 2 CTS 3/4.1.3.1, 3/4.3.1.2, 3/4.1.3.6, and 3/4.1.3.7 all address aspects of control rod operability. The organization of the improved TS control rod operability specification is proposed to include all conditions that can affect the ability of the control rods to provide the necessary reactivity insertion. The proposed specification is also simplified as follows:

- A control rod is considered "inoperable" only when it is degraded to the point that it cannot provide its scram functions. All inoperable control rods (except stuck rods) are required to be fully inserted and disarmed.

- A control rod is considered "inoperable" and "stuck" if it is incapable of being inserted. Requirements are retained to preserve SHUTDOWN MARGIN for this situation.

- A control rod is considered "slow" when it is capable of providing the scram function but may not be able to meet the assumed time limits. The scram reactivity used in the safety analysis allows for a specified number of slow scramming rods.

- Special considerations are provided for nonconformance to the banked position withdrawal sequence (BPWS), due to inoperable control rods, at < 10% RTP.

These administrative changes result in a more effective and simplified presentation of CTS requirements for control rod operability.

(2) The technical content of the following specifications is being moved to improved TS Section 3.3 "Instrumentation."

Unit 1	Unit 2	Description
3/4.3.D		Minimum Count Rate for Rod Withdrawal
3/4.3.F and G	3/4.1.4.1	Rod Block Monitor and Rod Worth Minimizer
	3/4.1.4.3	Rod Block Monitor

These administrative changes in presentation of CTS requirements are consistent with the STS.

(3) The technical content of Unit 1 CTS 3/4.3.G.2, "Special Test Exceptions," is being moved to improved TS Section 3.10, "Special Operations." This administrative change in presentation of CTS requirements is consistent with the STS.

(4) The requirement of Unit 1 CTS 4.3.B and Unit 2 CTS 3.1.3.2, that maximum control rod scram insertion time be ≤ 7 seconds, is being relocated to improved TS SR 3.1.3.4, making it a requirement that must be complied with in order to consider a control rod operable. Eliminating the separate specification for excessive scram time by moving the requirement to a SR does not eliminate any of the requirements, or impose a new or different treatment of the requirements. Therefore, this change is purely administrative.

(5) The technical content of the Mode 5 LCO requirements of Unit 2 CTS 3.1.3.5 is being moved to improved TS 3.9.5, "Control Rod Operability - Refueling." This administrative change in the presentation of existing requirements is consistent with the STS.

(6) Unit 1 CTS 4.4.A.2.b, SLC System pump flow test, specifies a SR Frequency of each operating cycle, and Unit 2 CTS 4.1.5.c.2 specifies a SR Frequency of 18 months. Corresponding improved TS SR 3.1.7.7 specifies a Frequency of "In accordance with the plant Inservice Testing Program." Because the IST program requires the test every 18 months, this change is administrative.

The above changes result in the same limits as the current requirements, or they more clearly present the intent of the CTS. Accordingly, these changes are purely administrative changes and are acceptable.

2.3.1.5 Significant Difference Between the Improved TS and the STS

In electing to adopt STS Section 3.1, the licensee proposed the following difference between the improved TS and the STS:

(1) ACTION D of improved TS 3.1.3 differs from corresponding STS 3.1.3, ACTION D, by omitting the words "and not separated by two or more operable control rods." These words are being deleted because the BPWS evaluation currently applicable to HNP (NEDO-21231, "BPWS," Section 7.2, January 1977) requires meeting the same separation criterion. This criterion and the BPWS evaluation are also described in the Bases. Omitting these words permits the flexibility of using a less restrictive criterion, provided a previously prepared plant-specific analysis supports the less restrictive criterion. Given the 4-hour Completion Time for ACTION D, it is not considered possible that such an analysis can be completed after entry into Condition D before the 4-hour Completion Time expires.

Because the improved TS presentation is consistent with the current requirements of the BPWS evaluation that is applicable to HNP, this difference from the STS is acceptable.

2.3.2 Power Distribution Limits (Improved TS Section 3.2)

2.3.2.1 Relocated Requirements

2.3.2.1.a Existing Specifications Entirely Relocated

Within the scope of improved TS Section 3.2, no current specifications are being entirely relocated to licensee-controlled documents.

2.3.2.1.b Existing Specifications Relocated in Part

In accordance with the criteria in the Final Policy Statement, the licensee has proposed to relocate parts of the following CTS power distribution requirements to licensee-controlled documents.

Unit 1 CTS	Unit 2 CTS	Description of Relocated Requirement
3.11.A	3.2.1	Method to Restore APLHGR Within Limit
3.11.C	3.2.3, ACTIONS	Method to Restore MCPR Within Limits
4.11.C.2.a	4.2.3.1.a and b	Method of determining τ

(1) Unit 1 CTS 3.11.A and the ACTIONS of Unit 2 CTS 3.2.1 contain the requirement to "initiate corrective action within 15 minutes" if the average planar linear heat generation rate (APLHGR) is exceeded. This requirement is being relocated to the Bases in the form of a discussion that "prompt action" should be taken to restore APLHGR to within the limits. Corresponding ACTION A of improved TS 3.2.1 requires the restoration of the APLHGR to within limits in 2 hours, which is the same time currently allowed. Immediate action may not always be the conservative method to ensure safety. The 2-hour Completion Time allows appropriate actions to be evaluated by the operator and completed in a timely manner. Any changes to the Bases discussion for ACTION A will be adequately controlled by improved TS Section 5.5.11, "Bases Control Program." Improved TS ACTION A together with the Bases discussion are consistent with the STS and are equivalent to the existing requirements.

(2) Unit 1 CTS 3.11.C and the ACTION of Unit 2 CTS 3.2.3 contain the requirement to "initiate corrective action within 15 minutes" if the minimum critical power ratio (MCPR) is exceeded. This requirement is being relocated to the Bases in the form of a discussion that "prompt action" should be taken to restore the parameter to within the limits. ACTION A of corresponding improved TS 3.2.2 requires the restoration of the MCPR to within limits within 2 hours, the same as existing requirements. Immediate action may not always be the conservative method to ensure safety. The 2-hour completion time allows appropriate actions to be evaluated by the operator and completed in a timely manner. Any changes to the Bases discussion for ACTION A will be adequately controlled by improved TS 5.5.11. Improved TS ACTION A together with the Bases discussion are consistent with the STS and are equivalent to the existing requirements.

(3) Unit 1 CTS 4.11.C.2.a and Unit 2 CTS 4.2.3.1.a and b contain details of the method used to determine τ (a measure of actual scram speed distribution compared with the assumed distribution among the control rods). These details are being relocated to the Bases for improved TS 3.2.2 in the form of a discussion (describing how to compute τ). The actual calculation steps for τ are located in plant procedures. Any changes to these details will be adequately controlled by the provisions of 10 CFR 50.59 and improved TS 5.5.11. In addition, the requirement to determine τ is being retained in improved TS SR 3.2.2.2.

These CTS requirements relating to power distribution limits are not required to be in the TS under 10 CFR 50.36, and are not required to obviate the possibility of an abnormal situation or event giving rise to an immediate threat to the public health and safety. Further, they do not fall within any of the four criteria in the Final Policy Statement, (discussed in the Part 1 of this safety evaluation). In addition, the staff finds that sufficient regulatory controls exist under 10 CFR 50.59 and improved TS 5.5.11. Accordingly, these requirements may be removed from the CTS and placed in the improved TS Bases and the licensee's plant procedures.

2.3.2.2 Less Restrictive Requirements

The licensee, in electing to implement STS Section 3.2 specifications, proposed a number of requirements that are less restrictive than requirements given in the CTS. These conditions, described below for each of the two specifications in Section 3.2, are the following:

2.3.2.2.a Average Planar Linear Heat Generation Rate (APLHGR) (Improved TS 3.2.1)

(1) Unit 2 CTS 4.2.1.c requires that all APLHGRs are verified to be within applicable limits "initially and at least once per 12 hours when the reactor is operating with a limiting control rod pattern for APLHGR." This SR Frequency is being omitted from improved TS, consistent with the STS. Since a limiting control rod pattern is currently defined as operating on a power distribution limit such as APLHGR, the Frequency condition for this SR is extremely unlikely and the surveillance would seldom be required for this reason. Additionally, the initial surveillance is superfluous as it would not be evident that a limiting control rod pattern has been achieved until the surveillance is performed. Improved TS SR 3.2.1.1 for both units requires that all APLHGRs are verified as less than or equal to the limits specified in the core operating limits report (COLR), once within 12 hours after reaching 25% RTP and 24 hours thereafter. On the basis of the preceding discussion, we find that the omission of SR Frequency specified by Unit 2 CTS 4.2.1.c from the improved TS is acceptable.

2.3.2.2.b Minimum Critical Power Ratio (MCPR) (Improved TS 3.2.2)

(1) Unit 1 CTS 4.11.C.1 and Unit 2 CTS 4.2.3.1 require verifying that all MCPRs are within applicable limits at a Frequency of "initially and at

least once per 12 hours when the reactor is operating with a limiting control rod pattern for MCPR." This SR Frequency is being omitted from the improved TS, consistent with the STS. Since a limiting control rod pattern is currently defined as operating on a power distribution limit such as MCPR, the condition is extremely unlikely and the surveillance would seldom be required for this reason. Additionally, the initial surveillance is superfluous as it would not be evident that a limiting control rod pattern has been achieved until the surveillance is performed. Improved TS SR 3.2.1.1 requires verifying that all MCPRs are less than or equal to the limits specified in the core operating limits report (COLR), once within 12 hours after reaching 25% RTP and 24 hours thereafter, consistent with current requirements and the STS. On the basis of the preceding considerations, it is acceptable to omit the described Frequency from the improved TS.

(2) Unit 1 CTS 3.11.B, "Linear Heat Generation Rate," is being omitted from the improved TS because it is adequately addressed by improved TS 3.2.1, "Average Planar Linear Heat Generation Rate (APLHGR)." This is consistent with a letter from A.C. Thadani (NRC) to J.S. Charnley (GE), entitled, "Acceptance for Referencing of Amendment 19 to General Electric Licensing Topical Report NEDE-24011-P-A (GESTAR-II), General Electric Standard Application for Reactor Fuel," dated April 7, 1987. Therefore, this omission is acceptable.

The above less restrictive requirements have been reviewed by the staff and have been found to be acceptable, because they do not present a significant safety question in the operation of the plant. The requirements that remain in the improved TS are consistent with current licensing practices, operating experience and plant accident and transient analyses, and provide reasonable assurance that the public health and safety will be protected.

2.3.2.3 <u>More Restrictive Requirements</u>

By electing to implement STS Section 3.2 specifications, the licensee has adopted a number of requirements that are more restrictive than requirements given in the CTS. These conditions, described below for each of the two specifications in improved TS Section 3.2, follow:

2.3.2.3.a <u>Average Planar Linear Heat Generation Rate (APLHGR) (Improved TS 3.2.1)</u>

(1) Unit 1 CTS 4.11.A and Unit 2 CTS 4.2.1.b require verifying the APLHGR whenever thermal power has been increased by at least 25% or 15% of RTP, respectively, and steady-state operating conditions have been established. Corresponding improved TS SR 3.2.1.1 requires verifying that the APLHGR is within limits within 12 hours of reaching or exceeding 25% RTP. This within-12-hours Frequency will likely cause the surveillance to be performed sooner than the CTS SR Frequency.

2.3.2.3.b Minimum Critical Power Ratio (MCPR) (Improved TS 3.2.2)

(1) Unit 1 CTS 4.11.C.1 and Unit 2 CTS 4.2.3.b require verifying the MCPR whenever thermal power has been increased by at least 25% or 15% of RTP, respectively, and steady-state operating conditions have been established. Corresponding improved TS SR 3.2.2.1 requires verifying that the MCPR is within limits within 12 hours of reaching or exceeding 25% RTP. This within-12-hours Frequency will likely cause the surveillance to be performed sooner than the CTS SR Frequency.

The staff has reviewed these more restrictive requirements and believes they will improve the CTS. Therefore, they are acceptable.

2.3.2.4 Significant Administrative Changes

There are no significant administrative changes to current requirements falling within the scope of the requirements of improved TS Section 3.2.

2.3.2.5 Significant Differences Between the Improved TS and the STS

In electing to adopt STS Section 3.2, the licensee proposed the following differences in the improved TS presentation from that of the STS:

(1) Optional STS 3.2.3, "Linear Heat Generation Rate (LHGR)," is not being adopted in the improved TS because it is adequately addressed by improved TS 3.2.1. Therefore, this difference is acceptable.

(2) Optional STS 3.2.4, "Average Power Range Monitor (APRM) Gain and Setpoints," is not being adopted in the improved TS because previous TS amendments for both units deleted the requirements of this specification. Therefore, this difference is acceptable.

Since these requirements are optional in the STS and are either unnecessary or not part of existing requirements for HNP, these differences from the STS are acceptable.

2.3.3 Instrumentation (Improved TS Section 3.3)

2.3.3.1 Relocated Requirements

2.3.3.1.a Existing Specifications Entirely Relocated

In accordance with the criteria in the Final Policy Statement, the licensee has proposed to entirely relocate the following current instrumentation specifications to other licensee-controlled documents:

Unit 1 CTS	Title or Description
3/4.2.A.4	Main Steam Line (MSL) Radiation - High
3/4.2.B.3	High Pressure Core Injection (HPCI) Turbine Overspeed - Mechanical
3/4.2.B.4	HPCI Turbine Exhaust Pressure - High
3/4.2.B.5	HPCI Pump Suction Pressure - Low
3/4.2.C.2	Reactor Core Isolation Cooling (RCIC) Turbine Overspeed - Electrical and Mechanical
3/4.2.C.3	RCIC Turbine Exhaust Pressure - High
3/4.2.C.4	RCIC Pump Suction Pressure - Low
3/4.2.C.6	RCIC Pump Discharge Flow - High and Low
3/4.2.E.5	Low Pressure Core Injection (LPCI) Cross Connect Valve Open Annunciator
3/4.2.E.8	LPCI Valve Selection Timers
3/4.2.G.1	Source Range Monitor (SRM) Control Rod Block (CRB)
3/4.2.G.2	Intermediate Range Monitor (IRM) CRB
3/4.2.G.3	Average Power Range Monitors (APRM) CRB
3/4.2.G.5	Scram Discharge Volume (SDV) CRB
3/4.2.H.1	Off-gas Post Treatment Radiation Monitors
3/4.2.H.5	MSL Radiation
3/4.2.K.6	Suppression Chamber Air Temperature
3/4.2.K.9	Suppression Chamber Pressure
3/4.2.K.10	Rod Position Information System (RPIS)
3/4.2.K.12	Post Loss-of-Coolant-Accident (LOCA) Radiation Monitoring System
3/4.2.K.13.a	Safety/Relief Valve (S/RV) Position Primary Indicator
3/4.2.K.13.b	S/RV Position Secondary Indicator
3/4.2.K.16	Main Stack Post-Accident Effluent Monitor
3/4.2.K.17	Reactor Building Vent Plenum Post-Accident Effluent Monitor
3/4.14.2	Main Condenser Offgas Treatment System Explosive Gas Monitoring System, Hydrogen Monitor

Unit 2 CTS	Title or Description
3/4.3.2.1.c.1	MSL Radiation - High
3/4.3.5.1	APRM CRB
3/4.3.5.3	SRM CRB
3/4.3.5.4	IRM CRB
3/4.3.5.5	SDV CRB
3/4.3.6.1.1	Off-gas Post Treatment Radiation Monitors
3/4.3.6.2	Seismic Monitoring Instrumentation

3/4.3.6.4.5	Suppression Chamber Pressure
3/4.3.6.4.8	Post-LOCA Gamma Radiation
3/4.3.6.4.10.a	S/RV Position Primary Indicator
3/4.3.6.4.10.b	S/RV Position Secondary Indicator
3/4.3.6.4.13	Main Stack Post-Accident Effluent Monitor
3/4.3.6.4.14	Reactor Building Vent Plenum Post-Accident Effluent Monitor
3/4.3.6.6	Traversing Incore Probe System
3/4.3.6.7.1	Reactor Vessel Water Level - Low Low (Level 1)
3/4.3.6.7.2	Drywell Pressure - High
3/4.3.6.7.4	Main Steam Line (MSL) Flow - High
3/4.3.6.7.5	Refueling Floor (RF) Area Radiation - High
3/4.3.6.10	Main Condenser Offgas Treatment System Explosive Gas Monitoring System, Hydrogen Monitor
3/4.3.7	Turbine Overspeed Protection System
4.7.2.e.3.a)	Functional Test of Main Control Room Environmental Control (MCREC) Actuation on Level 1
4.7.2.e.3.b)	Functional Test of MCREC Actuation on Drywell Pressure
4.7.2.e.3.c)	Functional Test of MCREC Actuation on MSL Flow
4.7.2.e.3.e)	Functional Test of MCREC Actuation RF Area Radiation

(1) <u>Main Steam Line (MSL) Radiation - High</u>

Unit 1 CTS 3/4 2.A and 3/4 2.H.5, and Unit 2 CTS 3/4 3.2.1.c.1 contain the following MSL radiation monitor (MSLRM) isolation functions:

- main condenser mechanical vacuum pump for both units
- reactor water sample valves for both units
- main turbine gland seal exhauster for Unit 1
- Group 12 valves (drywell-to-torus differential pressure system isolation valves 2T48-F209, F210, F211, F212) for Unit 2.

Also contained is the MSLRM function to trip the mechanical vacuum pump for both units.

Two other MSLRM functions, reactor scram and MSIV isolation, were previously removed from TS by Unit 1 Amendment 188 and Unit 2 Amendment 127 based on the guidelines in General Electric (GE) Report NEDO-31400, "Safety Evaluation for Eliminating the Boiling Water Reactor Main Steam Line Isolation Valve Closure and Scram Function of the Main Steam Line Radiation Monitor". This technical report gave the results of generic evaluations which indicated the MSLRMs are unnecessary to ensure compliance with the radiation dose guidelines of 10 CFR Part 100. At the time this change was approved for HNP, the operability, action, and surveillance requirements of the isolation and trip signals listed above were retained in the CTS. Because the STS do not contain these isolation and trip functions, the licensee has proposed to relocate the remaining associated existing requirements to the Technical Requirements Manual (TRM). Any significant increases in the levels of radioactivity in the main steam lines will continue to be automatically controlled to

limit both occupational doses and environmental releases in accordance with 10 CFR Part 20. Any changes to these automatic functions, such as revisions to setpoints, action and surveillance requirements, will be controlled outside the improved TS by the provisions of 10 CFR 50.59.

(2) Control Rod Block (CRB) Initiation Instrumentation

The CTS requirements for the SRM, IRM, APRM and SDV CRBs are being relocated to the TRM. The SRM and IRM CRBs function to prevent a control rod withdrawal error during reactor startup utilizing SRM and IRM signals to create the rod block signal. SRM and IRM signals are used to monitor core neutron flux levels during refueling, shutdown and startup conditions. The APRM CRB functions to prevent a control rod withdrawal error during power range operations utilizing local power range monitor (LPRM) signals to create the APRM rod block signal. APRM signals are used to monitor average core power levels during power operation. The SDV CRB functions to prevent control rod withdrawals during power range operations. It utilizes SDV instrument-volume water level signals to create the rod block signal if water is accumulating in the SDV. However, no design basis accident or transient analysis takes credit for CRB signals initiated by the SRM, IRM, APRM or the SDV instrumentation.

Improved TS 3.3.2.1, "Control Rod Block Instrumentation," retains sufficient requirements to ensure the other existing CRB initiation instrumentation will perform the CRB functions supporting the assumptions of the HNP safety analyses. During high power operation, the rod block monitor (RBM) instrumentation provides CRBs to protect against control rod withdrawal error events. During low power operations, CRBs from the rod worth minimizer (RWM) enforce specific control rod sequences designed to mitigate the consequences of the control rod drop accident (CRDA). During shutdown conditions, the CRB function of the shutdown position of the reactor mode switch ensures that all control rods remain inserted to prevent inadvertent criticalities. Therefore, the SRM, IRM, APRM, and SDV CRBs provide redundant capability to the TS required RBM, RWM and reactor mode switch functions for preventing control rod withdrawal errors at power transients.

As stated previously, the SDV CRB signal provides an indication to the operator that water is accumulating in the SDV and prevents further rod withdrawals. However, with continued water accumulation, a reactor protection system initiated scram signal will occur (Function 7, SDV Water Level - High, of Table 3.3.1.1-1 of improved TS 3.3.1.1, "RPS Instrumentation"). Thus, the SDV water level rod block signal provides an opportunity for the operator to take action to avoid a subsequent scram. But, it is the scram function that automatically ensures all control rods are inserted before the SDV has insufficient volume to accept a full scram. Therefore, the SDV CRB function is not necessary for maintaining the operability of the RPS scram function or the capability of the control rods to fully insert. Accordingly, the CTS requirements for these CRB functions may be relocated to the TRM.

(3) Accident Monitoring Instrumentation

The existing TS requirements for the following accident monitoring instruments are being relocated to the TRM:

Unit 1

- suppression chamber pressure and air temperature
- rod position indication system (RPIS)
- post-LOCA radiation monitoring system
- safety/relief valve (S/RV) position indication
- main stack and reactor building vent plenum post-accident effluent monitors

Unit 2

- suppression chamber pressure
- post-LOCA gamma radiation
- S/RV position indication
- main stack and reactor building vent plenum post-accident effluent monitors

The general purpose of accident monitoring instrumentation is to provide sufficient information to confirm an accident and plant response thereto is proceeding as predicted, i.e. automatic safety systems are performing properly, and deviations from the expected accident course are minimal. The licensee has applied previous NRC staff guidance[2] on application of the deterministic screening criteria to accident monitoring instrumentation. The NRC staff's position was that the TS should contain:

- all instruments specified as Type A in the plant's Safety Evaluation Report[3] (SER) on Regulatory Guide 1.97, "Instrumentation for Light Water Cooled Nuclear Power Plants to Assess Plant and Environs Conditions During and Following an Accident," Revision 2, December 1980, and

- all instruments identified as Category 1 non-Type A in Regulatory Guide 1.97.

Accordingly, those instruments identified as Type A and Category 1 non-Type A for HNP are being retained in improved TS 3.3.3.1, "Post Accident Monitoring Instrumentation." The instruments listed above were not identified as Type A or Category 1 non-Type A. They are not important to safety because they are not needed by the operator to perform

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[2] Letter dated May 7, 1988 from T.E. Murley (NRC) to R.F. Janecek (BWROG).

[3] NRC SER, "Edwin I. Hatch Nuclear Plant, Unit Nos. 1 and 2, Conformance to Regulatory Guide 1.97," dated July 30, 1985.

necessary manual actions or to monitor the course of an accident. Therefore, the requirements for these instruments may be relocated to the TRM.

(4) Equipment Protection Instrumentation for the HPCI and RCIC Steam-Turbine-Driven Pumps (Unit 1 Only)

The existing TS requirements for the following instrumentation provided for protection of the Unit 1 high pressure core injection (HPCI) and reactor core isolation cooling (RCIC) steam-turbine-driven pumps are being relocated to the TRM:

HPCI: turbine overspeed - mechanical
turbine exhaust pressure - high
pump suction pressure - low

RCIC: turbine overspeed - mechanical and electrical
turbine exhaust pressure - high
pump suction pressure - low
pump discharge flow - high and low

The three HPCI instruments provide a close signal to the HPCI pump turbine stop valve. In turn, the HPCI injection and minimum flow valves will close, all of which will prevent the system from operating. Signals from any of these three HPCI instruments will result in these three valves receiving a signal to close (directly or indirectly). Similarly, the first three RCIC instruments listed above provide a close signal to the RCIC pump turbine trip throttle valve. In turn, the RCIC injection and minimum flow valves will close, all of which will prevent the system from operating. Signals from any of these three RCIC instruments will result in these three valves receiving a signal to close (directly or indirectly).

The turbine overspeed mechanical (and electrical) trip protects the physical integrity of the turbine. The turbine exhaust pressure - high trip protects the physical integrity of the exhaust line. The pump suction pressure - low trip prevents damage to the pump from cavitation. Therefore, these instruments actuate only to preclude turbine or pump damage and possible breach of the HPCI and RCIC systems. However, the HPCI and RCIC valves actuated by these instruments are not credited with providing primary or secondary containment isolation on these signals, nor are they credited with closing to isolate a primary coolant leak on these signals. In the event of a primary coolant leak in either of these systems, the primary containment isolation valves (PCIVs) in the steam supply lines to the HPCI or RCIC pump turbines and in the system flow paths would close on a variety of diverse PCIS signals specified by improved TS 3.3.6.1, "Primary Containment Isolation Instrumentation." (For example, HPCI steam line flow - high.) Similarly, secondary containment isolation valves (SCIVs) in these systems' flow paths would close on a variety of secondary containment isolation system (SCIS) signals specified by improved TS 3.3.6.2, "Secondary Containment Isolation Instrumentation" (for example, reactor building exhaust

radiation - high). In addition, the standby gas treatment (SGT) system (required by improved TS 3.6.4.3) would be actuated to filter any radioactivity released to secondary containment.

The fourth RCIC instrument listed above controls the RCIC minimum flow valve which is provided to prevent RCIC pump damage from overheating in case both discharge flow paths (either to the reactor vessel or the condensate storage tank) are isolated or flow is otherwise restricted when the pump is operating. An RCIC pump discharge flow - high signal causes this valve to close. A pump discharge flow - low signal causes this valve to open (provided the RCIC pump is operating). If this valve will not open when needed, the RCIC pump must be stopped in order to prevent damaging the pump.

These instruments are provided only for equipment protection, and are not credited by any of the HNP design basis accident or transient analyses. If the HPCI or the RCIC system suffer a breach of system integrity, the PCIS, the SCIS, and the SGT system requirements of the improved TS will ensure the leak path is promptly isolated and that any resulting gaseous and particulate radioactivity releases to the environment are bounded by the offsite consequences predicted by the DBA safety analyses. Therefore, the CTS requirements for these instruments may be relocated to the TRM.

(5) <u>LPCI Cross Connect Valve Open Annunciator (Unit 1 Only)</u>

The LPCI cross connect valve open annunciator instrument provides annunciation in the control room when this valve is not closed. During normal operation, in order to ensure the independence (and thus the operability) of the two LPCI subsystems, the LPCI cross connect valve is required, by Unit 1 CTS 3.5.B.1.d, to be closed and the associated control circuit breaker locked in the off position. Thus, this annunciator instrument is not the primary method for ensuring the valve remains closed, nor is it credited by any HNP DBA analysis. Although Unit 1 CTS 3.5.B.1.d is not explicitly retained in the improved TS, the improved TS require this valve to be "closed with its power removed" (according to the Bases of improved TS 3.5.1, "ECCS - Operating") in order to satisfy the operability requirements of the LPCI mode of the RHR system. Therefore, the existing specification for this annunciator may be relocated to the TRM.

(6) <u>LPCI Valve Selection Timers (Unit 1 Only)</u>

The LPCI valve selection timer instruments electrically lock open the RHR outboard isolation valves for ten minutes on receipt of a LOCA signal in order to ensure maximum LPCI flow to the reactor vessel. This ensures that a loss of LPCI flow will not occur due to an operator inadvertently closing these valves during this period of time. (The outboard isolation valves are normally open and are used by the operator to throttle flow once adequate core cooling is established.) The inboard isolation valves are normally closed and are the only LPCI valves required to open to complete the LPCI flow path to the reactor

vessel. The valve selection timers do not affect the LOCA signal to the inboard isolation valves which remain electrically locked open as long as the LOCA signal exists.

While this interlock feature may provide added assurance of LPCI flow under certain circumstances, it is not assumed in any HNP DBA analysis. In addition, failure of a timer would not, by itself, affect the associated LPCI flow path because the outboard isolation valve is normally open. Therefore, the existing specification for this interlock feature may be relocated to the TRM.

(7) Main Control Room Environmental Control (MCREC) System Anticipatory Initiation Instrumentation (Unit 2 Only)

Existing requirements for the following MCREC system initiation instrumentation functions are being relocated to the TRM:

- reactor vessel water level - low low low (Level 1)
- drywell pressure - high
- main steam line flow - high
- refueling floor area radiation - high

These instrumentation functions initiate the MCREC system in the pressurization mode of operation in anticipation of airborne radiation reaching the control room air inlet. Low reactor vessel water level indicates that the capability of cooling the fuel may be threatened. High pressure in the drywell could indicate a break in the reactor coolant pressure boundary. High main steam line (MSL) flow could indicate a break in the MSL. High radiation in the refueling floor area could be the result of a fuel handling accident. However, initiation of the MCREC system on one of these functions is not credited as an initial condition of any HNP design basis accident (DBA) or transient analysis that assumes the failure of or presents a challenge to a fission product barrier. Nor are these actuation signals credited as part of the primary success path for mitigating such DBAs or transients, including protecting plant operators from such events. Thus, these instruments do not meet the criteria which would require that they be contained in TS. Rather, the control room air inlet radiation monitors provide the only MCREC system initiation function credited by the HNP DBA and transient analyses. These monitors measure radiation levels exterior to the inlet ducting of the main control room. Upon sensing a high radiation level, these instruments automatically initiate action to route makeup air to the main control room through emergency filter units to minimize the consequences of radioactive material in the control room. The ability of the MCREC system to maintain the habitability of the main control room ensures that the radiation exposure of control room personnel, through the duration of the postulated accidents explicitly assumed in the FSAR, does not exceed the limits set by GDC 19 of 10 CFR Part 50, Appendix A. The existing requirements for these essential MCREC system radiation monitors are being retained and enhanced (as described in Sections 2.3.3.2.n and 2.3.3.3.n of this safety evaluation) in improved TS 3.3.7.1, "MCREC System Instrumentation." Therefore, the requirements

for the MCREC system anticipatory initiation instrumentation functions may be relocated to the TRM.

(8) Offgas Post Treatment Radiation Monitoring Instrumentation

The CTS requirements for the offgas post treatment radiation monitors are being relocated to the TRM. As described in Unit 2 FSAR Section 11.3, noncondensible radioactive gases are continuously removed from the main condenser by the air ejector during normal plant operation. The main condenser offgas treatment system is contained in the plant design to limit this routine emission of gaseous radioactivity to significantly less than the discharge limits specified in 10 CFR Part 20. The offgas post treatment radiation monitors are used to show conformance with the discharge limits of 10 CFR 20 by monitoring the activity levels of the gaseous effluent after it has been treated by the offgas treatment system. These monitors also automatically isolate the offgas treatment system (upstream of the air ejector) if the release rate exceeds the setpoint. Elevated release rates detected by these monitors could indicate degradation in the effectiveness of the offgas treatment system. However, the functions of the offgas post treatment radiation monitors are not credited as part of the primary success path for mitigating any HNP design basis accident (DBA) or transient analysis that assumes the failure of or presents a challenge to a fission product barrier. The CTS limits on the main condenser offgas gross gamma activity prior to filtration are being retained in improved TS 3.7.6, "Main Condenser Offgas."

(9) Main Condenser Offgas Treatment System Explosive Gas Monitoring System, Hydrogen Monitor

The CTS requirements for the main condenser offgas treatment system explosive gas monitoring system are being relocated to the TRM. This instrumentation is used to detect hydrogen in the main condenser offgas treatment system to ensure that hydrogen concentrations are maintained below the flammability limit. The offgas system, located in the turbine building, is designed to confine detonations without affecting safety-related equipment. The concentration of hydrogen in the offgas stream does not constitute a threat to the public health and safety. The relocation of the main condenser offgas treatment system explosive gas monitoring system instrumentation is consistent with the presentation in STS.

(10) Seismic Monitoring Instrumentation (Unit 2 Only)

The CTS requirements for seismic monitoring instrumentation are being relocated to the TRM. The seismic monitoring instrumentation is not relied upon by operators to take immediate action in the event of an earthquake; rather it provides monitoring capability by recording information regarding the severity of an earthquake to permit comparison of the measured response to that used in the design basis of the facility to determine if the plant can continue to be operated safely

and to permit such timely action as may be appropriate pursuant to 10 CFR Part 100, Appendix A.

(11) Traversing Incore Probe (TIP) System (Unit 2 Only)

The CTS requirements for the TIP system are being relocated to the TRM. This system provides information only and is not considered in any design basis accident or transient. The TIP system is used to calibrate the local power range monitor (LPRM) detectors by positioning the TIP axially and radially throughout the core. Thus, the TIP system supports the operability of the LPRM detectors which are used by the average power range monitor (APRM) instrumentation to generate average core power indication and reactor protection system trip signals. Improved TS 3.3.1.1, "RPS Instrumentation," contains appropriate operability requirements for the APRM functions.

(12) Turbine Overspeed Protection System (Unit 2 Only)

The CTS requirements for the turbine overspeed protection system are being relocated to the TRM. These requirements are provided to ensure that the turbine overspeed protection instrumentation and the turbine speed control valves are operable and will protect the turbine from excessive overspeed. Excessive turbine overspeed is considered in Section 10.2.3 of the Unit 2 FSAR to assess (a) the potential for the generation of missiles, and (b) the potential for damage to safety related components, equipment or structures from such a missile. The assessment concluded that the impact of a missile on a safety related component was considered an incredible event. It states that "protection against the consequences of these events is not required and therefore not provided." In the event of a turbine overspeed, the response of the turbine control system will be to trip the turbine resulting in a load rejection followed either by a reactor scram (due to the reactor protection system) or actuation of the turbine bypass system (improved TS 3.7.6, "Main Turbine Bypass System") to automatically control the reactor pressure transient (if the load rejected is within the capacity of the turbine bypass system). The overspeed protection system does not perform a subsequent function to mitigate the effects of the transient. Therefore, relocation of the existing requirements for this system does not jeopardize the ability of other TS systems to fulfill their intended safety functions in the event of a DBA or transient. Therefore, the turbine overspeed protection requirements in the Unit 2 CTS may be relocated to the TRM.

The above current specifications relating to instrumentation are not required to be in the TS under 10 CFR 50.36, and are not required to obviate the possibility of an abnormal situation or event giving rise to an immediate threat to the public health and safety. Further, they do not fall within any of the four criteria in the Final Policy Statement (discussed in the Part 1 of this safety evaluation). In addition, the staff finds that sufficient regulatory controls exist under 10 CFR 50.59. Accordingly, these specifications may be removed from the CTS and placed in the TRM.

2.3.3.1.b Existing Specifications Relocated in Part

In accordance with the guidance in the Final Policy Statement, the licensee has proposed to partially relocate the following CTS requirements to licensee-controlled documents. These requirements are listed under their improved TS location for future reference. Some details are provided in CTS tables. (Tables may be recognized by a "dash" and are, in some cases, followed by a colon and the instrument function number(s).)

Reactor Protection System[4] (RPS) (Improved TS 3.3.1.1)

Unit 1 CTS	Description of Relocated Requirements
2.1.A.1.b	Trip Setting APRM Flux (Modes 2, 3, and 5)
2.1.A.1.c.(1)	Trip Setting APRM Flux (Mode 1) Flow Referenced Simulated Thermal Power Monitor
2.1.A.2	Trip Setting Reactor Vessel Water Level 3
2.1.A.4	Trip Setting Turbine Control Valve Fast Closure
3.1.A.11	Trip Setting Turbine Control Valve Fast Closure
3.1.A.8	Trip Setting APRM Downscale and 15% Flux
3/4.1-1	RPS Design and Operational Details
3.1.C	RPS Response Time Definition and Value

Unit 2 CTS	Description of Relocated Requirements
3.3.1-2	RPS Response Times
3.3.1 and 2.2.1	RPS Design and Operation Details
3.3.1-1 and 2.2.1-1	RPS Master Parts List (MPL) Numbers
3.3.1-1	Turbine Trip System Design Detail, and RPS Shorting Links Removal Procedure

Source Range Monitor (SRM) (Improved TS 3.3.1.2)

Unit 1 CTS	Description of Relocated Requirements
3.10.C	SRM Position During Core Alterations

Unit 2 CTS	Description of Relocated Requirements
4.3.6.5.c	SRM Count Rate
3.9.2.a and b	SRM Operability Conditions
4.9.2.a.2	SRM Position in Mode 5
3.9.2.d	SRM Operability/RPS Shorting Links

[4] The improved TS specify Allowable Values which constitute the Limiting Safety System Setting (LSSS) values (as done in Unit 1 CTS). All scram trip setpoints which differ from the Allowable Values are being relocated to licensee-controlled documents. See Section 2.3.3.4 of this safety evaluation for additional discussion.

Rod Block Monitor (RBM) (Improved TS 3.3.2.1)

Unit 1 CTS	Description of Relocated Requirements
3.2-7	RBM Design and Operation Details
4.2-7, Note c	RBM Functional Test Method Details
4.3.G.1.a(1) and (2)	Rod Worth Minimizer (RWM) Functional Test Method Details

Unit 2 CTS	Description of Relocated Requirements
3.3.5-2	RBM Trip Setpoints and Design
4.1.4.1.a.1 and 2	RWM Functional Test Method Details
3.3.5-1	RBM MPL Numbers

Post Accident Monitoring (PAM) (Improved TS 3.3.3.1)

Unit 1 CTS	Description of Relocated Requirements
3.2-11, Notes d and e	PAM Design and Operational Details
3.2-11, Notes c.1, g.1	Alternate PAM Methods

Unit 2 CTS	Description of Relocated Requirements
3.3.6.4-1	PAM MPL Numbers
3.3.6.4-1, Note b	Alternate PAM Methods
3.3.6.4-1, Note *	PAM Drywell H_2O_2 Analyzers Design

Remote Shutdown System (RSS) (Improved TS 3.3.3.2)

Unit 2 CTS (only)	Description of Relocated Requirements
3/4.3.6.3-1	Remote Shutdown System Design and Operation

End of Cycle - Recirculation Pump Trip (EOC-RPT) (Improved TS 3.3.4.1)

Unit 1 CTS	Description of Relocated Requirements
4.2-5, Note (c)	EOC-RPT Response Time Testing

Unit 2 CTS	Description of Relocated Requirements
3.3.9.2-3, Note (a)	EOC-RPT Response Times and Testing

Emergency Core Cooling System (ECCS) (Improved TS 3.3.5.1)

Unit 1 CTS	Description of Relocated Requirements
3.2-2	HPCI Instrumentation - Details
3/4.2-2	HPCI Logic Power Monitor
3/4.2-4	ADS Control Power Failure Monitor
3.2-5	LPCI Instrumentation - Details
3/4.2-5	RHR Relay Logic Power Monitor
3.2-6	CS Instrumentation - Details
3/4.2-6	CS Sparger Dp, Logic Power Monitor
4.2-2, 4, 5, 6, Notes	LSFT Method for Actuation Instrumentation for HPCI, ADS, LPCI, and CS

Unit 2 CTS	Description of Relocated Requirements
3.3.3	ECCS Response Time Requirement

3.3.3-1	ECCS Actuation Instrumentation MPL Numbers
3.3.3-1, Note (b)	HPCI Suction Valve Design Detail
3/4.3.3-1	CS, LPCI, and HPCI Logic Power Monitors; ADS Control Power Monitor
3.3.3-1, Note (a)	LPCI and HPCI Logic Power Monitor Alarms
3.3.3-2	ECCS Actuation Trip Setpoints
4.3.3.2	ECCS Actuation Instrumentation LSFT Method
3.3.3-3	ECCS Response Times

Reactor Core Isolation Cooling (RCIC) (Improved TS 3.3.5.2)

Unit 1 CTS	Description of Relocated Requirements
4.2-3, Notes	RCIC Instrumentation LSFT Method
3/4.2-3	RCIC Logic Power Monitor
3.2-3	RCIC Instrumentation Design, Operation and Trip Setpoints

Unit 2 CTS	Description of Relocated Requirements
3.3.4-1	RCIC Instrumentation MPL Numbers
4.3.4.2	RCIC Instrumentation LSFT Method
3.3.4	References RCIC Trip Setpoints
3.3.4-1	RCIC Instrument. Design and Operational Details
3.3.4-2	RCIC Trip Setpoints

Primary Containment Isolation System[5] (PCIS) (Improved TS 3.3.6.1)

Unit 1 CTS	Description of Relocated Requirements
3.2-1 and 3.2-8	PCIS and Radiation Monitor Trip Setpoints
3.2-1 and 3.2-8	PCIS and Radiation Monitor Design Details
4.2-1, Note e	PCIS Response Time Testing Methods
4.2-1, Note	PCIS Instrumentation LSFT Method
4.2-8, Note f, Note	Radiation Monitor LSFT Method Details

Unit 2 CTS	Description of Relocated Requirements
3.3.2, ACTION a	References PCIS Trip Setpoints
3.3.2-1, Notes a,g,i,j	PCIS Instrument. Design Details, Valve Groups
3.3.2-1	PCIS Instrumentation MPL Numbers
3.3.2-1 and 2	HPCI and RCIC PCIS Logic Power Monitor
3.3.2-2	PCIS Instrumentation Setpoints
3.3.2, ACTION a	References PCIS Response Times
4.3.2.2	PCIS Instrumentation LSFT Method Details
3.3.2-3: 1.c.3; 1.c.4	MSL High Flow and Level 1 Response Times
3.3.2-3, Notes * and #	PCIS Response Time Test Method
4.3.2-1	HPCI and RCIC PCIS Logic Power Monitors
4.3.2-1: 1.c.1 Note (a)	PCIS Main Steam Line Radiation - High Instrument Alignment Method

[5] The primary containment isolation system (PCIS) instrumentation includes main steam line (MSL) isolation, HPCI isolation, RCIC isolation, reactor water cleanup (RWCU) isolation, and RHR shutdown cooling isolation.

Secondary Containment Isolation System (SCIS) (Improved TS 3.3.6.2)

Unit 1 CTS	Description of Relocated Requirements
3.2-1	SCIS Trip Settings and Design Details of Level 2 and Drywell High Pressure Instruments
3.2-8	SCIS Trip Settings and Design Details of Exhaust Radiation Monitors for Reactor Building and Refueling Floor

Unit 2 CTS	Description of Relocated Requirements
LCO 3.3.2, ACTION a	Reference to SCIS Trip Setpoints
3.3.2-1 and Note*	SCIS Instrumentation Design Details, Associated Valve Groups, SGTS Design Detail
3.3.2-2	SCIS Instrumentation Trip Setpoints
4.3.2.2	SCIS Instrumentation LSFT Method
4.3.2-1: 2.a Note (a)	Reactor Building Exhaust Radiation - High Instrument Alignment Method

Low Low Set (LLS) (Improved TS 3.3.6.3)

Unit 1 CTS	Description of Relocated Requirements
3.2-14	LLS Instrumentation Trip Settings
3.6.H.1.d	Inoperable S/RV Tailpipe Pressure Switch, ACTION Details
3.6.H.2, Note *	Details of Conditions for Setting the LLS Lift Setting Pressure Allowable Values

Unit 2 CTS	Description of Relocated Requirements
4.3.3.2	LLS Instrumentation LSFT Method Details
3.3.3	References Trip Setpoints
3.3.3-1	Reactor Pressure LLS Instrument MPL Nos.
3.3.3-2	LLS Trip Settings (Reactor Pressure)
3.4.2.1, ACTION d	Inoperable S/RV Tailpipe Pressure Switch, ACTION Details
3.4.2.2, Note *	Details of Conditions for Setting the LLS Lift Setting Pressure Allowable Values

Main Control Room Environmental Control (MCREC) (Improved TS 3.3.7.1)

Unit 2 CTS	Description of Relocated Requirements
3.3.6.1-1: 2	Main Control Room Environmental Control (MCREC) System Control Room Intake Radiation Monitor MPL Numbers

These partial relocations fall into several categories of instrumentation-related information or detail that are being relocated from CTS requirements to licensee-controlled documents. Evaluation of these relocations for each category follows.

(1) Response Times and Response Time Testing Method

The licensee has proposed to relocate details of the methods for performing response time testing, as well as the actual response times, for the following CTS requirements, to the Bases and licensee-controlled procedures. For each requirement, the instrumentation system and the improved TS SR (and the table function number after a colon in a couple of cases) for verifying system response time are listed. (Tables may be recognized by noticing that they are written with a "dash.")

Unit 1 CTS	System	Improved TS Location
3.1.C	RPS	1.1; SR 3.3.1.1.16
4.2-1, Note e	PCIS	SR 3.3.6.1.7
4.2-2, Notes	HPCI	SR 3.3.5.1.6
4.2-4, Notes	ADS	SR 3.3.5.1.6
4.2-5, Note (c)	EOC-RPT	SR 3.3.4.1.5
4.2-5, Notes	LPCI	SR 3.3.5.1.6
4.2-6, Notes	CS	SR 3.3.5.1.6

Unit 2 CTS	System	Improved TS Location
3.3.2, ACTION A	PCIS	SR 3.3.6.1.7
3.3.2-3: 1.c.3	PCIS (MSL)	3.3.6.1-1: 1.c; SR 3.3.6.1.7
3.3.2-3: 1.c.4	PCIS (MSL)	3.3.6.1-1: 1.a; SR 3.3.6.1.7
3.3.2-3, Notes * and #	PCIS	SR 3.3.6.1.7
3.3.9.2-3, Note (a)	EOC-RPT	SR 3.3.4.1.5
3.3.3	ECCS	SR 3.3.5.1.6
3.3.3-3	ECCS	SR 3.3.5.1.6
3.3.1-2	RPS	SR 3.3.1.1.16

Testing of the RPS, ECCS, PCIS, or EOC-RPT response time, as appropriate, is required by the improved TS SRs noted above and is an integral part of the operability of these instrumentation channels. In addition, a definition of response time for each of these systems is specified in improved TS Section 1.1, "Definitions." Therefore, details of the methods for performing this surveillance as well as the actual response times, are being relocated to the improved TS Bases and plant procedures. The operation and design of the system, which dictate the methods, are also described in the FSAR. Any changes to the response time values or methods of performing response time testing will be adequately controlled by the provisions of 10 CFR 50.59 and improved TS 5.5.11, "Bases Control Program," as appropriate.

(2) Design and Operational Details

The licensee has proposed to relocate details related to instrumentation system design and operation from the following CTS requirements. For each requirement specification, the instrumentation system and the improved TS location (with the table function number listed after a colon in several cases) of the associated retained requirements are listed.

Unit 1 CTS	System	Improved TS Location
3/4.1-1	RPS	3.3.1.1
3.2-1	PCIS	3.3.6.1
3.2.1	SCIS	3.3.6.2
3.2-2	HPCI	3.3.5.1
3.2-3	RCIC	3.3.5.2
3.2-5	LPCI	3.3.5.1
3.2-6	CS	3.3.5.1
3.2-7	RBM	3.3.2.1
3.2-8: 2 and 3	PCIS[6]	3.3.6.1-1: 2.e and 2.d
3.2-8: 2 and 3	SCIS	3.3.6.2-1: 3 and 4
3.2-11, Notes d and e	PAM	3.3.3.1-1: 7 and 8

Unit 2 CTS	System	Improved TS Location
2.2.1	RPS	3.3.1.1
3.3.1	RPS	3.3.1.1
3.3.1-1: 9 and 10	RPS	3.3.1.1-1: 8 and 9[7]
3.3.2-1, Note a	PCIS	3.3.6.1
3.3.2-1: 3.d, Note g	PCIS (RWCU)	3.3.6.1-1: 5.c[8]; SR 3.3.6.1.6
3.3.2-1: 4.g, Note i	PCIS (HPCI)	3.3.6.1-1: 3.f
3.3.2-1: 1.g, Note j	PCIS	3.3.6.1-1: 2.c
3.3.2-1	SCIS	3.3.6.2
3.3.3-1, Note (b)	ECCS	3.3.5.1
3.3.4-1	RCIC	3.3.5.2
3.3.5-2	RBM	3.3.2.1
3/4.3.6.3-1	RSS	3.3.3.2
3.3.6.4-1, Note *	PAM	3.3.3.1-1: 7 and 8

Details of design and operation (e.g., bypasses, commonality with RPS, specific valves, or valve groups affected, which trip system to trip, when not to trip channels) are unnecessary in TS. Such details are being relocated from these CTS requirements to the associated Bases of the improved TS and tables noted above, plant procedures, and the FSAR. Note that the Applicability of the turbine trip system (turbine stop valve closure and the turbine control valve fast closure) instrumentation functions is specified in improved TS Table 3.3.3-1, functions 9 and 10, as ≥ 30% RTP which is consistent with Note i of Unit 2 CTS Table 3.3.1-1 and HNP design.

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[6] ventilation exhaust radiation monitors for reactor building and refueling floor generate isolation signals to both primary and secondary containments.

[7] turbine trip system

[8] standby liquid control system (SLC) initiation signal to isolate the reactor water cleanup (RWCU) system.

In addition to the above relocations, Unit 2 CTS Table 3.3.6.3-1 and Table 4.3.6.3-1, which list remote shutdown system (RSS) instrumentation and controls and contain details related to system design and operation, are being relocated to the TRM. Corresponding STS Table 3.3.3.2-1 is not contained in the improved TS. The requirement for the RSS to be operable and tested is being retained for Unit 2 and added to Unit 1 as improved TS 3.3.3.2. Any changes to these design and operational details will be adequately controlled by the provisions of 10 CFR 50.59 and improved TS 5.5.11, "Bases Control Program," as appropriate.

(3) Master Parts List (MPL) Instrument Identification Numbers (Unit 2 Only)

Unit 2 CTS provides MPL numbers for each channel of the specified instruments in the following CTS tables (in some cases, the individual function number in the table is noted following a colon).

Unit 2 CTS Table	System	Improved TS Location
2.2.1-1	RPS	3.3.1.1
3.3.1-1	RPS	3.3.1.1
3.3.2-1	PCIS	3.3.6.1
3.3.3-1	ECCS	3.3.5.1
3.3.3-1	LLS	3.3.6.3-1
3.3.4-1	RCIC	3.3.5.2
3.3.5-1: 2	RBM	3.3.2.1: 1.a, 1.d, and 1.e
3.3.6.1-1: 2	MCREC	3.3.7.1
3.3.6.4-1	PAM	3.3.3.1

Because MPL numbers are design details, the licensee has proposed to relocate them to plant procedures. These numbers will continue to be controlled as part of the equipment location index and on plant drawings. The existing requirements for the associated channels are being retained in the improved TS locations noted above (unless otherwise modified as discussed in Section 2.3.3.2 of this safety evaluation). Any changes to the MPL numbers will be adequately controlled by the provisions of 10 CFR 50.59.

(4) Trip Setting or Setpoint Values

The licensee has proposed to relocate the trip setpoint values from the following CTS instrumentation requirements. The improved TS will only specify the Allowable Values, which are generally either the same as or more conservative than the trip setpoints. See paragraph 2.3.3.4(1) of this safety evaluation for additional discussion. For each CTS requirement, the instrumentation system and the improved TS location of the associated retained requirements are listed (including tables followed by the table function number after a colon).

Unit 1 CTS	System	Improved TS Location
2.1.A.1.b	RPS	3.3.1.1-1: 2.a
2.1.A.1.c.(1)	RPS	3.3.1.1-1: 2.b

2.1.A.2	RPS	3.3.1.1-1: 4
2.1.A.4	RPS	3.3.1.1-1: 9
3.1.A.8	RPS	3.3.1.1-1: 2.d
3.1.A.11	RPS	3.3.1.1-1: 9
3.2-1	PCIS	3.3.6.1-1
3.2-1	SCIS	3.3.6.2-1
3.2-3	RCIC	3.3.5.2-1
3.2-8	PCIS	3.3.6.1-1
3.2-8	SCIS	3.3.6.2-1
3.2-14	LLS	3.3.6.3-1

Unit 2 CTS	System	Improved TS Location
3.3.5-2	RBM	3.3.2.1
3.3.3-2	ECCS	3.3.5.1-1
3.3.4	RCIC	3.3.5.2
3.3.4-2	RCIC	3.3.5.2-1
3.3.2, ACTION a	PCIS	3.3.6.1
3.3.2, ACTION a	SCIS	3.3.6.2
3.3.2-2	PCIS	3.3.6.1-1
3.3.2-2	SCIS	3.3.6.1-1
3.3.3	LLS	3.3.6.3
3.3.3-2: 5.a	LLS	3.3.6.3-1

Trip setpoints are operational details that are not directly related to the operability of the instrumentation. The Allowable Value is the required limitation for the parameter and this value is being retained in the corresponding improved TS table for each of the instrumentation systems listed above. The trip setpoints will continue to be specified in plant procedures. Any changes to these setpoints will be adequately controlled by the provisions of 10 CFR 50.59.

(5) Procedural Details for Performing ACTIONS and SRs

The licensee has proposed to relocate procedural details related to the performance of ACTIONS and SRs from the following CTS instrumentation system requirements. For each CTS requirement, the instrumentation system and the improved TS location of the associated retained requirements are listed (including tables followed by the table function number after a colon).

Unit 1 CTS	System	Improved TS Location
3.2-11, Notes c.1, g.1	PAM	3.3.3.1, ACTIONS
4.2-1, Note	PCIS	SR 3.3.6.1.6
4.2-2, Notes	ECCS (HPCI)	SR 3.3.5.1.5
4.2-3, Notes	RCIC	SR 3.3.5.2.5
4.2-4, Notes	ECCS (ADS)	SR 3.3.5.1.5
4.2-5, Notes	ECCS (LPCI)	SR 3.3.5.1.5
4.2-6, Notes	ECCS (CS)	SR 3.3.5.1.5
4.2-7, Note c	RBM	3.3.2.1 (SRs)
4.2-8, Note f, Note	PCIS	SR 3.3.6.1.6

4.3.G.1.a(1) and (2)	RBM (RWM)	3.3.2.1-1: 2
3.6.H.1.d	LLS	3.3.6.3, ACTIONS
3.6.H.2, Note *	LLS	3.3.6.3-1: 2; SR 3.3.6.3.6
3.10.C	SRM	SR 3.3.1.2.2

Unit 2 CTS	System	Improved TS Location
4.1.4.1.a.1 and 2	RBM (RWM)	3.3.2.1-1: 2
4.3.3.2	ECCS	SR 3.3.5.1.5
4.3.4.2	RCIC	SR 3.3.5.2.5
4.3.6.5.c	SRM	SR 3.3.1.2.4
3.3.6.4-1, Note b	PAM	3.3.3.1, ACTIONS
4.3.2-1, Note (a)	PCIS	3.3.6.1-1: 7
4.3.2.2	SCIS	SR 3.3.6.2.5
4.3.3.2	LLS	SR 3.3.6.3.6
3.4.2.1, ACTION d	LLS	3.3.6.3, ACTIONS
3.4.2.2, Note *	LLS	3.3.6.3-1: 2
3.9.2.a and b	SRM	3.3.1.2; 3.3.1.2-1
4.9.2.a.2	SRM	SR 3.3.1.2.2

These details regarding the performance of action requirements (e.g., alternate methods of PAM and restoration of inoperable S/RV LLS function) and surveillance requirements (e.g., methods for performing logic system functional tests (LSFTs), and SRM operability conditions) are being relocated to appropriate plant procedures, Bases for the improved TS requirements listed above, and the FSAR. The CTS requirements from which these details are taken are being retained, as noted above (unless modified as described in Section 2.3.3.2 of this safety evaluation). Any changes to these action and surveillance requirement procedural details will be adequately controlled by the provisions of 10 CFR 50.59 and improved TS 5.5.11, as appropriate.

(6) Operability, Action, and Surveillance Requirements for Indication-Only Instrumentation and Alarms

The licensee has proposed to relocate requirements for indication-only instrumentation and alarms from the following instrumentation current specifications. Types of such instruments are monitors and alarms for logic power failure, control power failure, and the CS sparger differential pressure. For each specification, the improved TS location of the associated retained requirements for the supported instrumentation system are listed (including tables followed by the table function number(s) after a colon).

Unit 1 CTS	System	Improved TS Location
3/4.2-2: 16	ECCS(HPCI)	3.3.5.1-1: 3
3/4.2-3: 13	RCIC	3.3.5.2-1
3/4.2-4: 7	ECCS(ADS)	3.3.5.1-1: 4 and 5
3/4.2-5: 9	ECCS(RHR)	3.3.5.1-1: 2
3/4.2-6: 4 and 6	ECCS(CS)	3.3.5.1-1: 1

Unit 2 CTS	System	Improved TS Location
3/4.3.2-1: 4.j	ECCS(HPCI)	3.3.5.1-1: 3
3/4.3.2-1: 5.i	RCIC	3.3.5.2-1
3.3.2-2: 4.j	HPCI	3.3.5.1-1: 3
3.3.2-2: 5.i	RCIC	3.3.5.2-1
3.3.3-1: 2.g, Note (a)	ECCS(LPCI)	3.3.5.1-1: 2
3.3.3-1: 3.e, Note (a)	ECCS(HPCI)	3.3.5.1-1: 3
3/4.3.3-1: 1.d	ECCS(CS)	3.3.5.1-1: 1
3/4.3.3-1: 2.g	ECCS(LPCI)	3.3.5.1-1: 2
3/4.3.3-1: 3.e	ECCS(HPCI)	3.3.5.1-1: 3
3/4.3.3-1: 4.h	ECCS(ADS)	3.3.5.1-1: 4 and 5
3.3.3-2	ECCS	3.3.5.1-1: 1, 2, 3, 4, and 5

The logic and control power failure monitors (and alarms for Unit 2 LPCI and HPCI) and the Unit 1 CS sparger differential pressure monitor do not relate directly to the respective system operability. The STS do not specify indication-only equipment to be operable to support operability of a system or component. Control of the availability of, and necessary compensatory activities if not available, for such indication instruments, monitoring instruments, and alarms are presently addressed by plant operational procedures and policies. Therefore, specifications for this instrumentation, including the associated LCO, ACTIONS, and SRs, are being relocated to plant procedures. Any changes to these requirements will be adequately controlled by the provisions of 10 CFR 50.59.

(7) RPS Shorting Links (Unit 2 only)

The licensee has proposed to relocate CTS requirements for Unit 2 related to RPS shorting links to plant procedures. Requirements for the RPS shorting links are found in Unit 2 CTS Table 3.3.1-1, functional unit 1.a and Note b (removal procedural details), and also Unit 2 CTS LCO 3.9.2.d (SRM operability requires their removal). The shorting links are required to be removed with any control rod withdrawn from a core cell containing one or more fuel assemblies when shutdown margin (SDM) has not been demonstrated. The primary reactivity control functions during refueling are the refueling interlocks and the SDM. The refueling interlocks are required to be operable by improved TS LCOs 3.9.1 and 3.9.2. Although SDM may not have yet been demonstrated in Mode 5, SDM calculations would have been performed and, along with procedural compliance for any CORE ALTERATIONS, would provide indication that adequate SDM is available. In addition to SRM operability with shorting links removed, IRM operability will continue to provide backup for the credited functions for any significant reactivity excursions. Since the SRM channel high flux scram (with shorting links removed) provides only an uncredited backup in Mode 5, the relocation of the shorting link removal requirement does not significantly affect safety. Shorting link removal will be controlled by plant procedures. Because the functions affected by these requirements are adequately addressed by other specifications, improved TS 3.9.1 and 3.9.2 for the refueling interlocks and the IRM capability, and because the SRM high flux scram

function is not credited in the Unit 2 safety analyses, we conclude that the existing requirements for the SRM shorting links do not meet the Final Policy Statement criteria for inclusion in TS. In addition, any changes to these requirements will be adequately controlled by the provisions of 10 CFR 50.59.

The types of detailed information and requirements that are described above are not required to be in the TS under 10 CFR 50.36. Such detailed information and requirements are not required to obviate the possibility of an abnormal situation or event giving rise to an immediate threat to the public health and safety. Further, they do not fall within any of the four criteria in the Final Policy Statement (discussed in Part 1 of this safety evaluation). In addition, the staff finds that sufficient regulatory controls exist in 10 CFR 50.59 and improved TS 5.5.11, "Bases Control Program." Accordingly, the detailed information and requirements described above may be removed from the CTS and placed in plant procedures, the FSAR, the TRM, or the improved TS Bases, as appropriate.

2.3.3.2 Less Restrictive Requirements

The licensee, in electing to implement STS Section 3.3 specifications, proposed a number of requirements that are less restrictive than requirements given in CTS. These less restrictive requirements, described below for each of the 16 specifications in improved TS 3.3, are the following:

2.3.3.2.a Reactor Protection System (RPS) Instrumentation (Improved TS 3.3.1.1)

(1) Unit 1 CTS Table 3.1-1, Note b.2, and Unit 2 CTS 3.3.1, ACTION c, regarding the condition that must be met when making a channel inoperable to perform a SR, are being clarified in Note 2 preceding the SR Table of improved TS 3.3.1.1 to make explicit the intent of the current wording. The current wording, "provided at least one operable channel in the same trip system is monitoring that parameter," is intended to ensure that the trip capability of that function is maintained. However, it does not provide this assurance for all logic system designs. The Note in the improved TS will ensure trip function capability for all designs. Therefore, this change is acceptable.

(2) The licensee has proposed to extend the time allowed for placing the channel or RPS trip system in trip as specified in Unit 1 CTS Table 3.1-1, Note b.1 and Unit 2 CTS 3.3.1, ACTION b. The allowed time for placing the channel or trip system in trip is being extended in improved TS 3.3.1.1 to 1 hour if RPS trip capability is not maintained (improved TS ACTION C), 6 hours if channels in both trip systems are inoperable but trip system capability is maintained (improved TS ACTION B), and 12 hours if channels in one trip system are inoperable but trip system capability is maintained (improved TS ACTION A). If these new ACTIONS are not met, improved TS ACTION D will direct the operator to improved TS Table 3.3.1.1-1 to determine the follow-on actions. These Completion Times have been shown to maintain an acceptable risk in accordance with previously conducted reliability analyses NEDC-30851-P-A, "Technical

Specification Improvement Analyses for BWR Reactor Protection System," March 1988. Therefore, these changes are acceptable.

(3) The channel calibration Frequency for the Unit 1 APRM 15% Flux as specified in Unit 1 CTS Table 4.1-1 (Scram Number 8) and the Unit 2 Neutron Flux - Upscale, 15%, as specified in Unit 2 CTS Table 4.3.1-1 (function 2.a), is being decreased from weekly to every 184 days. This is acceptable because it is consistent with the Frequency provided in NEDC-30851-P-A, and the Frequency for other APRM functions. GPC performed a plant specific evaluation of the RPS which was submitted to the NRC by letter dated March 27, 1986. This evaluation concluded that the HNP RPS is consistent with the GE analysis performed in NEDC-30851-P-A. This plant-specific analysis justifies the extension from weekly to once every 184 days for the APRM Neutron Flux - Upscale, 15%, channel calibration. Therefore, this decrease in channel calibration Frequency is acceptable.

(4) In improved TS Table 3.3.1.1-1, the licensee has proposed to require the following RPS scram functions of Unit 1 CTS Table 3.1-1 to be operable in Mode 5 only when any control rod is withdrawn from a core cell containing one or more fuel assemblies:

No. 1	Mode Switch in Shutdown
No. 3	IRM High Flux and IRM Inoperative
No. 7	Scram Discharge Volume (SDV) Level Switches

The licensee has also proposed this change for Unit 2 CTS Mode 5 requirements specified in CTS Table 3.3.1-1 for the following RPS functional units:

1.a	IRM Neutron Flux - High (ACTION 1)
1.b	IRM Inoperative (ACTION 1)
8	SDV Level High (ACTION 4 and Note h)
11	Mode Switch in Shutdown Position (ACTION 8)
12	Manual Scram (ACTION 9)

This revised Applicability, which is consistent with the STS, is acceptable because control rods withdrawn from a core cell containing no fuel assemblies have a negligible impact on the reactivity of the core, and therefore, are not required to be operable with the capability to scram. Provided all rods otherwise remain inserted, the RPS functions serve no purpose and are not required. In this condition, the required shutdown margin (specified by improved TS 3.1.1) and the required one-rod-out interlock (improved TS 3.9.2) ensure that no event requiring RPS will occur.

The ACTIONS of improved TS 3.3.1.1 for inoperable equipment in Mode 5 are also being revised to be consistent with the improved TS Applicability of the one-rod-out interlock LCO. ACTION H requires fully inserting all insertable control rods in core cells containing one or more fuel assemblies. Since improved TS LCO 3.9.1 requires all control rods to be fully inserted during fuel movement, the proposed applicable

conditions cannot be entered while moving fuel. The only possible action is control rod withdrawal, which is adequately addressed by ACTION H. Therefore, this change in Applicability, and associated ACTIONS for the RPS scram functions listed above are acceptable.

(5) The licensee has proposed to delete the requirement for the following RPS functions of Unit 1 CTS Table 3.1-1 and the corresponding RPS functional units of Unit 2 CTS Table 3.3.1-1 to be operable in Modes 3 and 4:

<u>Unit 1 RPS Scram Function No.</u>

2. Manual Scram
3. IRM High Flux, IRM Inoperative
4. RPV Dome Pressure - High
5. Drywell Pressure - High
6. RPV Water Level - Low
8. APRM Flow Biased, APRM 120% Fixed High Flux, APRM Inoperative
9. 15% Flux

<u>Unit 2 RPS Functional Unit No.</u>

1.a. IRM Flux - High
1.b. IRM Inoperative
11. Mode Switch in Shutdown
12. Manual Scram

The licensee also proposed a similar change to the Applicability of the following ACTIONS specified in Unit 2 CTS Table 3.3.1-1:

ACTION 2
ACTION 8, Item 2
ACTION 9, Item 2

During normal operation in Modes 3 and 4, all control rods are fully inserted and the reactor mode switch shutdown position control rod withdrawal block (improved TS 3.3.2.1) does not allow any control rod to be withdrawn. Under these conditions, the RPS function is not required to be operable. The ACTIONS associated with these functions for Modes 3 and 4 are also removed. Improved TS LCOs 3.10.3 and 3.10.4, regarding special operations, will allow a single control rod to be withdrawn in Mode 3 or 4 by allowing the reactor mode switch to be in the refuel position. Therefore, these Mode 3 and 4 RPS requirements have been contained in improved TS 3.10.3 and 3.10.4. Therefore, on this basis, this change in applicability is acceptable.

(6) The licensee has proposed to delete the requirement for RPS scram function No. 8 (APRM flow biased scram and APRM 120% fixed scram) of Unit 1 CTS Table 3.1-1 to be operable in Mode 2. During normal operation in Mode 2, the APRM 15% scram is in effect and provides proper protection. The APRM fixed scram at 120% and the flow biased scram

would not trip the reactor before the 15% scram. In addition, the APRM 15% scram is actually the backup to the IRM scram; thus, there is no need to have two backup scrams to a backup scram. On this basis, the Mode 2 requirements for the APRM fixed scram at 120% and the flow biased scram are being deleted. Therefore, this change is acceptable.

(7) The licensee has proposed to change the Frequency for LPRM calibrations, as specified in Unit 1 CTS Table 4.1-1, RPS scram function No. 8 (LPRM) and Unit 2 CTS Table 4.3.1-1, RPS functional unit 2.f and Note g (LPRM calibrations), from 1000 effective full power hours (EFPH) to 2000 EFPH. In support of this change, the licensee provided the following discussion in the submittal dated February 25, 1994:

> BWR power operation relies upon readings from fixed in-core neutron detectors known as Local Power Range Monitors (LPRMs). LPRMs are small fission chambers with an approximately linear response to the local neutron flux and, thus, local thermal power. The current Surveillance Requirement to calibrate the LPRMs every 1000 EFPH employs a second set of movable detectors known as the Traversing In-core Probe (TIP) system. The required LPRM calibration relates the power distribution, measured by the TIP system, to the then existing LPRM readings. When the LPRMs are normalized to one another, to the TIP readings, and to a plant heat balance calculation, these LPRMs allow determination of the local power for each (approximately) 6 inch fueled region of the core (node).
>
> Outputs from the calibrated LPRMs are used in the Reactor Protection System (Average Power Range Monitor), the Rod Worth Minimizer, the Rod Block Monitor, as well as daily surveillance of Power Distribution Limits (reactor thermal limits monitoring). Accuracy requirements on the power distribution are defined by GESTAR-II, (NEDE-24011-P-A-10, "GE Standard Application for Reactor Fuel," Section 4.3.1.1.1) and NEDE-31152P, "GE Fuel Bundle Designs," December 1988, which are part of the [HNP] fuel licensing basis. In particular, Table 3-3 of NEDE-31152P requires calculated nodal powers to have a root mean square (RMS) uncertainty of no more than 8.7% for reload cores. The attending Table 3-3 comment states that this uncertainty also applies to the power distribution as determined by the LPRM system. Thus, the accuracy in power distribution is determined by the LPRM system between TIP sets and must also meet the 8.7% rms uncertainty.
>
> Advances in process computer monitoring contain the development of new mathematical techniques and algorithms combining reactor physics theory with on-line core data, (e.g., LPRM readings). One such methodology presently employs an adaptive learning algorithm using on-line as well as historical core data inputs to improve power calculations within the reactor physics model by effectively modifying the neutron leakage terms (adaptive coefficients) to force the calculated power distribution to

match the measured power distribution as determined by the TIP system. An adequate number of LPRM calibrations are performed upon startup and initial operation to establish a base set of adaptive coefficients. Subsequent calculations use the adaptive coefficients and LPRM readings during monitoring between LPRM calibrations. The set of adaptive coefficients is updated at each LPRM calibration throughout the cycle.

Corrections made within the monitoring process account for decay of LPRM sensitivity due to depletion of the fissile coating within each LPRM. The 1000 EFPH calibration interval was based upon the older monitoring methodology and older LPRM designs in use at the time. Part of the study discussed below investigated the sensitivity decay characteristics of the present generation of LPRM detectors in use at HNP. Calibration current and exposure data demonstrate a significant reduction in the uncertainty associated with LPRM sensitivity as a function of exposure. This reduced uncertainty, combined with improved monitoring methods, allows lengthening of the LPRM calibration interval as discussed below.

This reactor physics methodology was used off-line to model 4 continuous months of rated operation at HNP during a recent cycle to study the effect of lengthening the LPRM calibration interval to 2000 EFPH. This period contained a control rod pattern sequence exchange. Actual plant LPRM readings were modified using TIP set (OD1) calibration currents to unfold the plant LPRM calibrations. These new LPRM readings were combined with other reactor setpoint data for a self-consistent set of conditions and this period of operation reburned. Comparisons of 2D bundle and 3D nodal power distributions were made and percent rms deviations calculated at the LPRM calibration points between the power distributions with and without the TIP sets. Results of this analysis show that the licensing basis nodal power uncertainty of 8.7% was satisfied for up to approximately 3000 EFPH between LPRM calibrations. Additionally, peak power limits (core thermal limits) for the burn omitting LPRM calibrations were either in excellent agreement with or were conservative to the power distribution which contained all LPRM calibrations.

Based on its review of the preceding information, the staff was unable to conclude that the proposed increase in the LPRM calibration interval is justified without further analysis. Therefore, this proposed change has not been incorporated in corresponding improved TS SR 3.3.1.1.8. The current Frequency of 1000 EFPH for the LPRM calibration is being retained.

(8) The first Note on page 3.1-6a of Unit 1 CTS Table 3.1-1 requires placing the plant in Mode 3 within 4 hours if the number of operable channels is not met for both RPS trip systems for RPS scram function Nos. 1 through 7 and 8 (APRM 15% flux). The licensee has proposed to extend this time to 12 hours in corresponding ACTIONS D and G of improved TS 3.3.1.1,

consistent with the STS. This additional time allows for more orderly corrective actions, reduces the potential for unit upset conditions that could challenge safety systems, and provides a sufficient restriction, based on operating experience and the low likelihood of an event during this period, to avoid an undue risk to public health and safety. Therefore, this change is acceptable.

This Unit 1 CTS Note also requires inserting all insertable control rods when in Mode 5. The licensee has proposed to modify this requirement by only requiring those control rods in core cells containing one or more fuel assemblies to be fully inserted, in corresponding ACTION H of improved TS 3.3.1.1, consistent with the STS. If all fuel assemblies are removed from a core cell, inserting the associated control rod has a negligible impact on core reactivity. Furthermore, during Mode 5, refueling procedures could have cells emptied and the control rod withdrawn, but "insertable." However, due to a variety of considerations (i.e., location of blade guides, ongoing instrumentation maintenance, water chemistry, etc.), it may not be desirable to insert these control rods. Since there is negligible impact on the shutdown margin (SDM) should the control rod be inserted with no fuel in the cell, it is acceptable to provide this flexibility. Therefore, this change is acceptable.

(9) The licensee has proposed to delete the Mode 5 requirements, other than during SDM demonstrations, for the APRM 15% Flux trip (RPS functional unit 2.a) and the APRM inoperative trip (RPS functional unit 2.d), as specified in Unit 2 CTS Tables 3.3.1-1 and 4.3.1-1. These trip functions will continue to be required by improved TS LCO 3.10.8 during SDM demonstrations.

Amendments 41 and 7 to Limerick Generating Station Units 1 and 2 (NPF-39 and NPF-85), respectively, issued July 30, 1990, eliminated APRM RPS trip operability requirements during Mode 5, other than during SDM demonstrations. The NRC safety evaluation for these amendments outlined various levels of control to prevent inadvertent reactor criticality and fuel damage during refueling operations. These are equally applicable to BWRs in general, and include the following:

- Licensed plant operators are trained to operate equipment and follow approved procedures.

- Plant approved refueling and maintenance procedures specify core alteration steps.

- SRMs indicate the potential for reactor criticality and generate a control rod block signal on high neutron flux levels. If shutdown margin has not been demonstrated, and control rods are withdrawn, procedures require the removal of the shorting links so the SRMs will operate in the non-coincident scram mode to cause a reactor scram as necessary.

- Refueling interlocks prevent the removal of more than one control rod and prevent the insertion of fuel bundles into the core unless all control rods are fully inserted.

- IRMs provide an indication of local power. IRMs will provide control rod blocks and scram signals on high neutron flux levels.

The NRC staff agreed in the safety evaluation with the conclusion presented in the amendment request for Limerick, which is equally applicable to BWRs in general, that the APRMs are not necessary for safe operation of the plant while operating in Mode 5 with the mode switch in the refuel position for the following reasons:

- The IRMs are a safety-related subsystem of the neutron monitoring system (NMS) and are required by TS to be operable in Mode 5 (with a control rod withdrawn). The IRMs will generate an RPS scram or control rod block if neutron flux increased to the applicable setpoint.

- The IRMs and SRMs are designed and calibrated to be more sensitive to neutron flux than the APRMS.

- The IRMs are designed to monitor local core events while the APRMs provide a measure of core average power conditions. The IRMs can monitor and react to the most probable reactivity events expected during refueling, i.e., control rod withdrawal or fuel insertion.

- The IRMs would detect and respond (control rod block or reactor scram) to an inadvertent criticality event before the APRMS would provide a trip function.

- The withdrawal of only one control rod in Mode 5 is permitted by the "one-rod-out" interlock with the mode switch in the refuel position. The core is designed to be subcritical with one rod out.

- The withdrawal of a second control rod or inadvertent addition of a fuel bundle in Mode 5 is precluded by refueling interlocks, refueling procedures, and administrative controls.

- The APRMs will still be required to be operable during a SDM demonstration performed in Mode 5 (presented in improved TS 3.10.8).

- The SRMs are required to be operable in Mode 5.

- The transient analysis discussed in the FSAR does not require the APRMs to be operational in Mode 5 to mitigate an undesirable operational or transient condition.

Should assumed operator errors occur, followed by postulated equipment malfunctions, there will be adequate systems and interlocks without the

APRMs to preclude inadvertent criticality or violation of a safety limit. Therefore, this change is acceptable.

(10) The licensee is proposing to extend the times, as specified in Unit 2 CTS Table 3.3.1-1, ACTIONS 1, 3, 4, 5, 7, 8, and 9, to reach ≤ 30% RTP from 2 hours to 4 hours, the time to reach Mode 2 (startup) from 2 hours to 6 hours, and the time to reach Mode 3 (hot shutdown) from 6 hours to 12 hours, in corresponding ACTIONS E, F, and G of improved TS 3.3.1.1, consistent with the STS. This additional time allows for more orderly corrective actions, reduces the potential for unit upset conditions that could challenge safety systems, and provides a sufficient restriction, based on operating experience and the low likelihood of an event during this period, to avoid an undue risk to public health and safety. Therefore, these changes are acceptable.

(11) The licensee is proposing to allow 12 hours after entering the applicable Mode, to perform channel calibration surveillances of RPS scram function No. 3 (IRM high high flux and inoperative trips) and No. 8 (APRM fixed flux high-high and flow biased trips), currently specified in Unit 1 CTS Table 4.1-1. Note m of this table already provides this allowance when entering Mode 2 from Mode 1 for the functional test and channel calibration of RPS scram function No. 8, APRM 15% flux.

The current exception provided by Note m is being added to the IRMs and the other APRM scram function channel calibration surveillances. These SRs cannot be performed in Mode 1 (prior to entry in the applicable Mode 2) without utilizing jumpers or lifted leads. Use of these devices is not recommended since minor errors in their use may significantly increase the probability of a reactor transient or event which is a precursor to a previously analyzed accident. Therefore, corresponding improved TS SR 3.3.1.1.10 contains a Note that allows 12 hours to conduct the SR after entering Mode 2 from Mode 1. This allowance is consistent with the frequency for the weekly channel functional test of the APRM neutron flux - high, setdown trip function and IRM trip functions specified in improved TS SR 3.3.1.1.4. Therefore, the 12-hour allowance for the channel calibration of the RPS trip functions described is acceptable.

The licensee has proposed a similar allowance for the performance of channel calibrations for Unit 2 RPS functional unit 1.a, IRM neutron flux - high, and unit 1.b, IRM inoperative, as specified in Unit 2 CTS Table 4.3.1-1, Note d. For the reasons previously given, this allowance is acceptable.

(12) The licensee has proposed to decrease the channel functional test Frequency for the scram discharge volume (SDV) float switches from quarterly, as currently specified in Unit 1 CTS Table 4.1-1 (scram function No. 7.a) and Unit 2 CTS Table 4.3.1-1 (functional unit No. 8), to once per 18 months. This new Frequency will reduce radiation exposure to plant personnel performing this SR. The NRC issued this change as Amendment 193 to the Unit 1 TS by letter dated March 15, 1994.

Analysis has also been performed (GENE-770-25-1092 "Plant Hatch Units 1 and 2, Analysis to Support Surveillance Test Interval Extension for Scram Discharge Volume Level Switches," September 1993, that shows a negligible impact on safety with the SR being performed every 18 months instead of the current 3 months. Since the channel functional test is part of a channel calibration (per the improved TS definition), and a channel calibration requirement is specified every 18 months (improved TS SR 3.3.1.1.13), a separate channel functional test SR is not performed.

(13) The licensee has proposed to delete the Unit 2 CTS requirement to perform an additional channel functional test prior to a reactor startup for RPS functional units 2.b, APRM flow bias scram, and 2.c, APRM fixed neutron flux scram - upscale, as specified in Table 4.3.1-1, Note b.

These SRs are required to be performed quarterly while in the applicable Modes. The required periodic frequency has been determined to be sufficient verification that the APRMs are properly functioning. Performing a reactor startup does not affect the ability of the monitors to perform their required function. Thus, an additional surveillance required to be performed "prior to a reactor startup" is an extraneous and unnecessary performance of a surveillance. Therefore, because the existing quarterly Frequency is adequate and because improved TS SR 3.0.4 requires satisfying SRs prior to entry into applicable Modes of the associated LCO, this change is acceptable.

2.3.3.2.b <u>Source Range Monitor (SRM) Instrumentation (Improved TS 3.3.1.2)</u>

(1) The licensee has proposed to delete the requirement of ACTION b of Unit 2 CTS 3.3.6.5 to "lock" the reactor mode switch in the shutdown position if two or more SRMs are inoperable in Modes 3 or 4. Reactor mode switch operability is contained as part of the operability of the required interlocks and the position of the reactor mode switch is adequately controlled by the Mode definition table (improved TS Table 1.1-1). Movement of the reactor mode switch from the shutdown or refuel position (and therefore any requirement to "lock") is adequately controlled by plant procedures, changes to which are controlled by 10 CFR 50.59. Additionally, improved TSs 3.9.1 and 3.9.2 contain requirements related to mode switch operability for refueling interlocks and the one-rod-out interlock, and improved TS 3.3.1.2 contains requirements for the control rod block functions. Because of these other improved TS requirements, the position of the mode switch will be adequately controlled. Therefore, deletion of the locking requirement is acceptable.

(2) The licensee has proposed to delete the requirement of Unit 1 CTS 3.10.C.1 to have an operable SRM outside the fueled region of the core during spiral offload or reload of the core in Mode 5. In Mode 5, during a spiral offload or reload, an SRM outside the fueled region is not capable of monitoring neutron flux in the fueled region of the core. However, the SRM detector in the fueled region must be operable, and this single detector is sufficient. Therefore, this change (Note (b) of improved TS Table 3.3.1.2-1) is acceptable.

(3) ACTION a of Unit 2 CTS 3.3.6.5 requires placing the plant in Mode 3 within 6 hours if an inoperable SRM cannot be restored to operable status within 4 hours so that three SRMs are operable. Corresponding ACTIONS A and C of improved TS 3.3.1.2 allow 12 hours to be in Mode 3. This additional time allows for more orderly corrective actions, reduces the potential for unit upset conditions that could challenge safety systems, and provides a sufficient restriction, based on operating experience and the low likelihood of an event during this period, to avoid an undue risk to public health and safety. Therefore, this change is acceptable.

(4) The Frequencies of Unit 2 CTS SRs 4.3.6.5.a.2 and b.2, the channel functional test (CFT) and channel calibration, respectively, for the SRMs, do not specify an exception to Unit 2 CTS 4.0.4 when entering Mode 2 (with IRMs on range 2 or below) from Mode 1. Corresponding improved TS SRs 3.3.1.2.6 and 3.3.1.2.7 contain Notes that permit these SRs to be performed within 12 hours after the IRMs are on range 2 or below. This allowance is similar to that already allowed for the APRMs in the RPS specification. The SRMs are required in Modes 2 and 3, but not in Mode 1, and the required surveillance cannot be performed in Mode 1 (prior to entry into the applicable Mode 2 or 3) without utilizing jumpers or lifted leads. Use of these devices is not recommended since minor errors in their use may significantly increase the probability of a reactor transient or an event which is a precursor to a previously analyzed accident. Therefore, it is acceptable to allow time to conduct the SRs after entering the applicable Mode. Therefore, this allowance is acceptable.

(5) Frequency 1 of Unit 2 CTS SR 4.3.6.5.b requires an SRM CFT before moving the mode switch from the shutdown position. Frequency 1 of Unit 2 CTS SR 4.9.2.b requires performing this test before performing CORE ALTERATIONS. The licensee has proposed to delete these Frequency requirements for the SRM CFT. This test is required to be performed periodically while in Modes 2, 3, and 4. Performing this test at the currently required periodic Frequency of 7 days has been determined from HNP operating history to be sufficient verification that the SRMs are properly functioning. Moving the reactor mode switch, withdrawing control rods, and performing CORE ALTERATIONS do not affect the ability of the SRMs to perform their required function. Thus, an additional surveillance required to be performed "prior to" one of these events is an extraneous and unnecessary performance of a surveillance. Therefore, these changes are acceptable.

2.3.3.2.c <u>Control Rod Block (CRB) Instrumentation (Improved TS 3.3.2.1)</u>

(1) Note f of Unit 1 CTS Table 4.2.7 and Note b of Unit 2 CTS Table 4.3.5-1 require performing the rod block monitor (RBM) quarterly CFT within 24 hours prior to performing a reactor startup if not performed within the previous 7 days. This Frequency for this SR is being omitted from corresponding improved TS SR 3.3.2.1.1, consistent with the STS. This SR is required periodically while in the applicable Modes. Performing this test at the currently required periodic Frequency of 92 days has

been determined from HNP operating history to be sufficient verification that the RBMs are properly functioning. Performing a reactor startup does not impact the ability of the RBMs to perform their required function. Thus, the additional Frequency of "prior to a reactor startup" results in an extraneous and unnecessary performance of this SR. Therefore, this change is acceptable.

(2) Unit 1 CTS 3.3.F.2 requires blocking control rod withdrawal within 24 hours if only one RBM channel is operable. This time is being extended by 1 hour. Corresponding ACTION A of improved TS 3.3.2.1 allows 24 hours to restore the RBM channel to operable status. If this is not accomplished, ACTION B provides an additional 1 hour to trip the channel, consistent with the STS. This added time has a negligible impact on plant safety since the other required channel remains capable of performing the RBM function. Therefore, this change is acceptable.

(3) Note d of Unit 2 CTS Table 4.3.5.1 and SR 4.1.4.3.b require performing a CFT of the other RBM channel before withdrawing control rods when one RBM channel is inoperable. This Frequency requirement is being omitted from corresponding improved TS SR 3.3.2.1.1, consistent with the STS. The requirement for demonstrating operability of the redundant subsystems was originally specified because there was a lack of plant operating history and insufficient equipment failure data. Since that time, plant operating experience has demonstrated that testing of the redundant subsystem when one subsystem is inoperable is not necessary to provide adequate assurance of operability of the remaining subsystem. Omission of this Frequency is based on the acceptability of taking credit for normal periodic surveillances as a demonstration of operability and availability of the remaining RBM channel. Therefore, this change is acceptable.

(4) The licensee has proposed to change the Frequency of the rod worth minimizer (RWM) CFT, specified in Unit 1 CTS 4.3.G.1.a and Unit 2 CTS SR 4.1.4.1.a, from prior to the withdrawal of control rods in Mode 2 and prior to control rod insertion when in Mode 1, to once per 92 days in corresponding improved TS SRs 3.3.2.1.2 and 3.3.2.1.3. Currently, this test must be performed every reactor startup and shutdown, regardless of the actual frequency of these events. The improved TS Frequency, which is consistent with the STS, will only require this test to be performed every 92 days. The RWM is a highly accurate nuclear measurement analysis and control (NUMAC) system, which has been previously shown in other functions to be reliable. In addition, other similar functions have a 92-day Frequency for the CFT. Therefore, this change is acceptable.

(5) Unit 1 CTS 4.3.F requires performing an instrument functional test of the one remaining rod block monitor (RBM) channel prior to withdrawing control rods when only one channel is operable and when a limiting control rod pattern for rod withdrawal error (RWE) exists (i.e., when MCPR is less than the value provided in the Core Operating Limits Report (COLR)). The ACTIONS of corresponding improved TS 3.3.2.1 omit this surveillance performance requirement. Plant operating experience has

demonstrated that testing of the redundant subsystem(s) when one subsystem is inoperable is not necessary to provide adequate assurance of system operability. The normal periodic surveillances adequately demonstrate the operability and availability of the remaining RBM channel. Therefore, this omission, which is consistent with the STS and the guidance of Generic Letter 87-09, is acceptable.

2.3.3.2.d Feedwater and Main Turbine Trip High Water Level Instrumentation (Improved TS 3.3.2.2)

Improved TS 3.3.2.2 is a new requirement for both Units 1 and 2, and reflects the licensee's May 1, 1990, letter response to Generic Letter 89-19, "Safety Implications of Control Systems in LWR Power Plants." See paragraph 2.3.3.3.d(1) of this safety evaluation for additional discussion.

2.3.3.2.e Post Accident Monitoring (PAM) Instrumentation (Improved TS 3.3.3.1)

(1) The licensee has proposed to change the channel check and channel calibration Frequencies, for the following PAM instruments, including the recorders, to every 31 days and every 18 months, respectively.

Unit 1 CTS Table 4.2-11

Ref. No.	Function
1	Reactor Vessel Water Level
2	Shroud Water Level
3	Reactor Pressure
4	Drywell Pressure
5	Drywell Temperature
7	Suppression Chamber Water Temperature
8	Suppression Chamber Water Level
11	Hydrogen and Oxygen Analyzer
14	Drywell High Range Pressure
15	Drywell High Range Radiation
Note f	Recorders

Unit 2 CTS Table 4.3.6.4-1

Instrument	Function
1	Reactor Vessel Pressure
2	Reactor Vessel Water Level
6	Drywell Pressure
9	Drywell H_2 and O_2 Analyzer
11	Drywell High Range Pressure

These instruments (including the recorders) are highly reliable, and provide indication only. No automatic actions are performed by this instrumentation. The sensors and recorders are also similar to others in Unit 2 that are calibrated every 18 months. This Frequency is

consistent with the STS. Because these instruments are indication-only and are sufficiently reliable, the proposed Frequencies for these SRs are acceptable.

(2) The action requirement for one channel inoperable in one or more functions for more than 30 days (Note c.1 of Unit 1 CTS Table 3.2-11 and ACTION a of Unit 2 CTS 3.3.6.4) is being revised from requiring a shutdown to requiring a special report in accordance with administrative control specification 5.6.6 of the improved TS. The current action requirement for one or more drywell high range radiation channels inoperable (Note g.1.a of Unit 1 CTS Table 3.2-11 and Note b.1 of Unit 2 CTS Table 3.3.6.4-1) is being revised from requiring a channel to be restored within 7 days to requiring restoration within 30 days. The current requirement to submit a report if not restored is unchanged. Because of the passive function of this instrumentation and the operator's ability to respond to an accident utilizing alternate instruments and methods for monitoring, it is not appropriate to impose stringent shutdown requirements for out-of-service PAM instrumentation. In some instances, the existing allowed outage time (AOT) for these monitoring instruments is shorter than the AOT for the system that is needed to maintain the monitored parameter within limits. Therefore, these changes, which are consistent with the STS, are acceptable.

(3) The Mode 3 operability requirement for the PAM instrumentation specified by Note g.1 of Unit 1 CTS Table 3.2-11 and the Applicability of Unit 1 CTS 3.3.6.4 is being omitted from corresponding improved TS 3.3.3.1. PAMs are provided to assist in the diagnosis and preplanned actions required to mitigate design basis accidents which are assumed to occur in Modes 1 and 2. The probability of an event in Modes 3, 4 or 5 that would require PAM instrumentation is sufficiently low that the PAMs are not required in these Modes. Therefore, this change in the Applicability for PAM requirement is acceptable.

(4) Note e.1 of Unit 1 CTS Table 3.2-11 requires that if all suppression pool water level indication is lost, the indication must be restored within 6 hours or the reactor must be in hot shutdown (Mode 3) within the next 6 hours and in cold shutdown (Mode 4) within the following 18 hours. This ACTION is being omitted from corresponding improved TS 3.3.3.1. The PAM system requirement related to indication of suppression pool level is covered by the suppression pool water level specification, Unit 1 CTS 3.7.A.1.a, which requires the water level to be within certain limits with the level verified daily. (This current specification is being retained as improved TS 3.6.2.2., "Suppression Pool Water Level"). Indication must be available to accomplish this verification. If all indicating instruments are inoperable, so that suppression pool water level is not known, up to 24 hours (the maximum time before the next SR could be due) is allowed until Unit 1 CTS 3.7.A.1.a is declared not met. Once not met, Unit 1 CTS 3.7.A.8 requires the reactor to be in hot shutdown in 12 hours and in cold shutdown within the following 24 hours. If corresponding improved TS SR 3.6.2.2.1 is not met, the ACTIONS of improved TS 3.6.6.2 allow 2 hours to restore suppression pool water level within limits. Failing this,

the ACTIONS require being in Mode 3 within 12 hours and Mode 4 within 36 hours. (See paragraph 2.3.6.2.j(1) for discussion of the 2-hour level-restoration Completion Time.)

Therefore, the proposed deletion of Note e.1 of Unit 1 CTS Table 3.2-11 effectively extends the time to:

- restore indication by 20 hours;
- reach hot shutdown by an additional 6 hours; and
- reach cold shutdown by an additional 6 hours.

Administratively, this change eliminates the current situation of multiple inconsistent TS action requirements for a single condition, with the corresponding potential for overlooking one or more other action requirements. Because appropriate ACTIONS are being retained in improved TS 3.6.2.2 and in view of the considerations described, this change is acceptable.

(5) Unit 1 CTS Table 3.2-11 requires three operable channels for the following instrumentation functions:

Function	Title	Channels Required
3.2.K.1	Reactor Vessel Water Level -150" to +60"	1 Recorder 2 Indicators
3.2.K.3	Reactor Pressure 0 to 1500 psig	1 Recorder 2 Indicators

Corresponding function 2.b, reactor vessel water level, -150 inches to +60 inches, and function 1, reactor steam dome pressure, of improved TS Table 3.3.3.1-1, "PAM Instrumentation," only require two channels each, with no distinction made between recorders and indicators. This is consistent with the number of channels required for other PAM instrumentation functions and the recommendations of Regulatory Guide 1.97. Each level and pressure sensor is associated with one of two reactor vessel penetration "reference legs." Two sensors for each function from separate reference legs would satisfy the requirement for physical independence of the channels. The present requirement for three channels results in one pair of channels for each function not meeting this requirement. Thus, the third channel is not physically independent. Because the use of two channels is consistent with regulatory guidance and satisfy the physical independence requirement, this change is acceptable. Regarding the level instrumentation, additional functions are being contained in improved TS. See Section 2.3.3.3.e of this safety evaluation.

2.3.3.2.f <u>Remote Shutdown System (RSS) (Improved TS 3.3.3.2)</u>

This specification is a new requirement for Unit 1. Less restrictive requirements than given in the CTS for Unit 2 are the following:

(1) The Mode 3 Applicability of Unit 2 CTS 3.3.6.3 and the related cold shutdown (Mode 4) requirement of ACTION a for the remote shutdown system (RSS) are being omitted from corresponding improved TS 3.3.3.2. The RSS is provided, in accordance with GDC 19, to shut down the reactor from outside the control room and maintain the reactor in hot shutdown. The system is not required to place the unit in cold shutdown. Therefore, this change is acceptable.

(2) The licensee has proposed to decrease the RSS monitoring instrumentation, channel calibration Frequency, from quarterly as specified in Unit 2 CTS Table 4.3.6.3-1 to every 18 months, consistent with the STS. These instruments are highly reliable, and they provide indication only. No automatic actions are performed by this instrumentation. The sensors used are similar to others that are currently calibrated every 18 months, which operating history has shown to be acceptable. Because these instruments are indication-only and are sufficiently reliable, we find that the 18-month Frequency for this SR in corresponding improved TS SR 3.3.3.2.2 is acceptable.

2.3.3.2.g <u>End of Cycle Recirculation Pump Trip (EOC-RPT) Instrumentation (Improved TS 3.3.4.1)</u>

(1) ACTIONS b and c.1 of Unit 2 CTS 3.3.9.2 require placing an inoperable EOC-RPT channel in trip within 12 hours. This time is being extended to 72 hours in corresponding ACTION A of improved TS 3.3.4.1. This Completion Time has been shown to maintain an acceptable risk in accordance with previously conducted reliability analysis (GENE-770-06-1, "Bases for Changes to Surveillance Test Intervals and Allowed Out-of-Service Times for Selected Instrumentation TS," February 1991. On this basis, this change is acceptable.

(2) The licensee has proposed to allow operation with the EOC-RPT instrumentation out of service if the minimum critical power ratio (MCPR) limits of improved TS LCO 3.2.2 are reduced as specified in the COLR. This reduction will also ensure a MCPR safety limit violation will not occur. ACTION B is being included to provide proper actions if this new allowance is used. The purpose of the EOC-RPT instrumentation is to ensure a MCPR safety limit violation will not occur late in core life due to a turbine trip or generator load rejection. Because this optional requirement also satisfies this purpose and is consistent with the STS, this change is acceptable.

(3) Note (f)1 of Unit 1 CTS Table 3.2-9 and ACTION c.2 of Unit 2 CTS 3.3.9.2 do not allow the option of placing more than one inoperable EOC-RPT channel of the same function in the tripped condition, but require declaring that trip system inoperable. Consistent with the STS, corresponding ACTION A of improved TS 3.3.4.1 contains this option.

This conservatively compensates for the inoperable status, restores the single-failure capability and provides the required initiation capability of the instrumentation. Therefore, providing this option does not impact safety. However, if this action would result in system

actuation, then declaring the system inoperable is the preferred action. On this basis, the addition of this option is acceptable.

(4) Note (f)1 of Unit 1 CTS Table 3.2-9 and ACTION e of Unit 2 CTS 3.3.9.2 require reducing thermal power to less than 30% within 6 hours if both channels of an EOC-RPT trip function are out of service. Improved TS 3.3.4.1, ACTION B, allows 2 hours to restore the EOC-RPT trip capability or to apply the MCPR limit for inoperable EOC-RPT as specified in the COLR. If ACTION B is not met, then ACTION C allows the option of removing the associated recirculation pump from service in lieu of reducing power to below 30%, with a Completion Time of 4 hours. Since this optional action accomplishes the functional purpose of the instrumentation and enables continued operation in a previously approved condition, this change does not have a significant effect on safe operation. The time permitted to complete the ACTIONS is, in total, the same as currently specified. These ACTIONS are also consistent with the STS. Therefore, this change is acceptable.

(5) The EOC-RPT breaker response time test of Unit 1 CTS Table 4.2-9 and Unit 2 CTS SR 4.3.9.2.3 is being modified to allow the breaker interruption time portion of the test to be verified every 60 months, instead of every 18 months, in corresponding improved TS SR 3.3.4.1.6, which is consistent with the STS. Industry experience has shown that this portion of the test is difficult to perform and the response time does not vary much from test to test. Thus, it has relatively little impact on the overall response time. Therefore, this change is acceptable.

2.3.3.2.h <u>Anticipated Transient Without Scram Recirculation Pump Trip (ATWS-RPT) Instrumentation (Improved TS 3.3.4.2)</u>

(1) The ATWS-RPT instrumentation has two trip functions, each with four channels. There are two trip systems, each with two channels from each trip function, or four channels total in each trip system. A trip system actuates to trip both recirculation pumps whenever both channels of the same function in that trip system trip.

Unit 1 CTS Table 3.2-9 does not specify an ACTION for the Condition of one function with ATWS-RPT capability not maintained (neither trip system has sufficient operable channels from one trip function to initiate a recirculation pump trip when the associated function's setpoint is exceeded); therefore, LCO 3.0.3 would apply. ACTIONS c.2 and e of Unit 2 CTS 3.3.9 consider this Condition as both trip systems being inoperable, and allow 1 hour to restore one trip system to operable status or require placing the plant in Mode 2 within the next 6 hours. ACTION B of improved TS 3.3.4.2 corresponds to this Condition and specifies a 72-hour Completion Time to restore the ATWS-RPT trip capability for the affected trip function.

ACTION b of Unit 2 CTS 3.3.9.1 allows 12 hours to place an inoperable channel in trip. ACTION A of improved TS 3.3.4.2 allows 14 days to either restore the channel or to place it in trip, which is consistent

with the time allowed by Note (b)1 of Unit 1 CTS Table 3.2-9 and the STS.

In addition, ACTION A allows the option of placing all inoperable channels in trip, which is a conservative measure that provides the required initiation capability of the instrumentation. However, if this measure would result in system actuation (tripping the recirculation pumps), then ACTION D (to go to Mode 2 or to stop the pumps) would be the preferred ACTION. Therefore, Action A is acceptable.

The improved TS 14-day and 72-hour Completion Times noted above have been shown to maintain an acceptable risk in accordance with previously conducted reliability analysis, GENE-770-06-1. Therefore, these Completion Times are acceptable.

(2) If both associated AWTS-RPT trip functions are out of service, the remarks of Unit 1 CTS Table 3.2-9 for the two ATWS-RPT functions require placing the plant in Mode 2 within 1 hour. For this Condition, ACTION e of Unit 2 CTS 3.3.9.1 allows 1 hour to restore one function (at least one trip system) or requires placing the plant in Mode 2 within the next 6 hours. Corresponding ACTION C of improved TS 3.3.4.2 allows one hour to restore one function, otherwise ACTION D requires placing the plant in Mode 2 within 6 hours. However, ACTION D also adds the option of removing the associated recirculation pump from service.

Since this option accomplishes the functional purpose of the ATWS-RPT instrumentation and enables continued operation in a previously approved condition, this change does not have a significant effect on safe operation. The 6-hour Completion Time is reasonable, based on operating experience, both to reach Mode 2 from full power operation and to remove a recirculation pump from service in an orderly manner. Therefore, these changes, which are consistent with the STS, are acceptable.

2.3.3.2.i <u>Emergency Core Cooling System (ECCS) Instrumentation (Improved TS 3.3.5.1)</u>

(1) The time allowed to place an inoperable channel in trip, when less than the required number of channels is operable in one trip system, specified in the following CTS requirements, is 12 hours.

Unit 1		Unit 2
Table 3.2-2, Note b.1	HPCI	ACTION b, LCO 3.3.3
Table 3.2-4, Note b.1	ADS	
Table 3.2-5, Note b.1	LPCI	
Table 3.2-6, Note b.1	CS	

The time allowed for placing core spray (CS), low pressure core injection (LPCI), and high pressure core injection (HPCI) channels in trip is being extended to 24 hours in corresponding ACTIONS B and C of improved TS 3.3.5.1 for all associated functions except the minimum flow function (pump discharge flow - low). The time allowed for the minimum

flow function (currently specified for Unit 1 only) is being extended to 7 days in corresponding ACTION E.

The allowed time for placing automatic depressurization system (ADS) channels in trip is being extended in corresponding ACTIONS F and G to

- 96 hours if HPCI or reactor core isolation cooling (RCIC) is also inoperable, and
- 8 days if both HPCI and RCIC are operable.

These extended Completion Times have been shown to maintain an acceptable risk in accordance with previously conducted reliability analyses, NEDC-30936-P-A, "BWROG TS Improvement Analyses for ECCS Actuation Instrumentation, Part 2," December 1988. Therefore, these changes are acceptable.

(2) Note b.1 of Unit 1 CTS Tables 3.2-2, 3.2-4, 3.2-5, and 3.2-6 and ACTION c of Unit 2 CTS 3.3.3 require declaring the associated ECCS inoperable when neither associated trip system has the required minimum number of channels operable. The ACTIONS of corresponding improved TS 3.3.5.1 provide the alternative measure of placing more than one channel in trip in each trip system in lieu of declaring the associated ECCS inoperable. This conservatively compensates for the inoperable status, restores the single-failure capability and provides the required initiation capability of the instrumentation. Therefore, providing this option does not affect safety. However, if this action would result in system actuation, then declaring the system inoperable is the preferred action. On this basis, this change is acceptable.

(3) Requirements for the reactor vessel steam dome pressure - low function in Modes 1, 2, and 3, specified in Unit 1 CTS Table 3.2-5 and Unit 2 CTS Table 3.3.3-1, apply whether the associated recirculation pump discharge valve is open or closed. Corresponding Note (c) of improved TS Table 3.3.5.1-1 only requires this function when the associated recirculation pump discharge valve is open. With the valve closed, the instrument's function has been completed. Reopening of the valve is a controlled evolution, and is not performed without strict administrative controls. Therefore, this change is acceptable.

Unit 2 CTS also require this function in Modes 4 and 5. This CTS Applicability is being deleted in the improved TS. The function of this instrumentation is to close the recirculation pump discharge valve to ensure LPCI injects to the proper location (valve closing prevents backflow to the downcomer region and forces the flow through the jet pumps, which directs the flow to the bottom of the core). In Modes 4 and 5, the loop injection location is not critical. Loop injection through the recirculation loop in either direction will still ensure water reaches the core since there is no significant reactor steam dome back-pressure. In addition, the CS pump, which can be used to meet the ECCS requirements in Modes 4 and 5, injects to the top of the core. Therefore, this change in the Applicability is acceptable.

(4) Unit 1 CTS Tables 3.2-5 and 3.2-6 specify 422 psig as the minimum allowable value at which the CS and LPCI injection valves must open. This is being changed to 390 psig in corresponding improved TS Table 3.3.5.1-1 (functions 1.c and 2.c). This value will still ensure the CS and LPCI system injection valves will be open within the times assumed in the accident analysis to ensure that ECCS injection prevents the fuel peak cladding temperature from exceeding the limits of 10 CFR 50.46. The value is also consistent with the Unit 2 value (Unit 2 and Unit 1 ECCS analyses are the same). Therefore, this change is acceptable.

(5) Unit 2 CTS Table 3.3.3-1, trip function 2.c, specifies requirements for the reactor vessel shroud level - high function in Modes 4 and 5. The Mode 4 and 5 Applicability of these requirements is being deleted in corresponding improved TS Table 3.3.5.1-1, function 2.e. This function provides an interlock to ensure that LPCI flow is not diverted for other RHR functions (e.g., suppression pool cooling) unless additional controls are used (i.e., this function can be overridden by operator action using installed override switches). This function is not needed in Modes 4 and 5 because other administrative controls will prevent a flow diversion if LPCI is needed to maintain the core covered during a vessel draining event. Also, time is not as critical a factor as it would be in Mode 1, 2, or 3. In addition, this interlock affects systems which are not required to be operable (e.g., suppression pool cooling) in Modes 4 and 5 and which are not normally needed while shutdown. Thus, this requirement is being deleted. Therefore, this change is acceptable.

(6) During its review, the staff was concerned that Required Action B.3 of improved TS 3.3.5.1 allows 24 hours to place an inoperable channel in trip for the reactor vessel water level — low low low, Level 1 function which initiates CS and LPCI when in Modes 4 and 5. It appeared that this ACTION would allow both trip systems to be inoperable for 24 hours without suspending operations with the potential for draining the reactor vessel (OPDRVs) or restoring secondary containment (if inoperable). The licensee, in its January 19, 1995, letter, committed to not use the 24-hour allowance but to follow the ACTIONS of improved TS 3.5.2 if the initiation function on Level 1 is lost. The appropriateness of the 24-hour allowance in the STS will be resolved as part of the implementation of the final shutdown risk rule.

The ACTIONS of improved TS 3.5.2, "ECCS—Shutdown," require initiating action to suspend OPDRVs and restoring secondary containment, the required standby gas treatment (SGT) subsystems, and isolation capability in each unisolated penetration flow path to operable status within appropriate Completion Times if low pressure ECCS capability is lost. Therefore, we conclude that the proposed action requirements for the Level 1 function in Modes 4 and 5 in conjunction with the licensee's commitment are acceptable.

2.3.3.2.j Reactor Core Isolation Cooling (RCIC) System Instrumentation (Improved TS 3.3.5.2)

(1) Unit 1 CTS Table 3.2-3, Note b.1, and ACTION b of Unit 2 CTS 3.3.4 allow 12 hours to place a channel in trip when the minimum number of channels are not operable in one trip system. The ACTIONS of corresponding improved TS 3.5.2 allow 24 hours to place an inoperable channel in trip. This Completion Time has been shown to maintain an acceptable risk in accordance with previously conducted reliability analysis, GENE-770-06-2, "Addendum to Bases for changes to Surveillance Test Intervals and Allowed Out-of-Service Times for Selected Instrumentation TS," February 1991. Therefore, this change is acceptable.

(2) Unit 1 CTS Table 3.2-3, Note b.1, and ACTION c of Unit 2 CTS 3.3.4 require declaring the associated RCIC system inoperable when the required number of operable channels is not met for both trip systems. For this Condition, the ACTIONS of corresponding improved TS 3.3.5.2 allow the option of placing all inoperable channels in the tripped condition. This compensates for the inoperable status, restores the single-failure capability, and provides the required initiation capability of the instrumentation. Therefore, providing this option does not impact safety. However, if this action would result in system actuation, then declaring the system inoperable is still the preferred action. Therefore, this provision, which is consistent with the STS, is acceptable.

2.3.3.2.k Primary Containment Isolation Instrumentation (Improved TS 3.3.6.1)

(1) The time allowed for placing a primary containment isolation system (PCIS) channel in trip or to restore it to operable status, as specified in the current existing requirements which follow, is being extended in the ACTIONS of corresponding improved TS 3.3.6.1.

Unit 1 CTS

Table 3.2-1 (Isolation Actuation Instrumentation)
Note c.1, ACTION for one or more inoperable channels in one trip system
Column for action to be taken if both trip systems have less than the required number of operable channels
Table 3.2-8 (Radiation Monitoring Systems Which Limit Radioactivity Release)
Column for action to be taken if there are not two operable or tripped trip systems

Unit 2 CTS

3.3.2 (Isolation Actuation Instrumentation)
ACTION b, (one or more inoperable channels in one trip system)
Note * to ACTION b, (action for a design with only one channel per trip system; 2-hour Completion Time)

Table 3.3.2-1
Note c (same as Note * to ACTION b)

The time for placing a channel in trip when one trip system has one or more inoperable and untripped channels is being extended to 12 hours for those channels common to the RPS and 24 hours for all other channels. The time for placing a channel in trip for when both trip systems have one or more inoperable and untripped channels is being extended to 1 hour. These Completion Times have been shown to maintain an acceptable risk in accordance with previously conducted reliability analyses, NEDC-30851P-A, Supplement 2, "Technical Specifications Improvement Analysis for BWR Isolation Instrumentation Common to RPS and ECCS Instrumentation," March 1989 and NEDC-31677P-A, "TS Improvement Analysis for BWR Isolation Actuation Instrumentation," July 1990. Therefore, these changes are acceptable.

(2) Unit 1 Table 3.2-1 and ACTIONS b and c of Unit 2 CTS 3.3.2 specify ACTIONS in the event of inoperable channels. These ACTIONS are being combined in the ACTIONS of improved TS 3.3.6.1, independent of whether one or both trip systems are affected. With channels inoperable in both trip systems, the CTS do not allow all inoperable channels to be placed in the tripped condition and operation to continue without isolating the affected penetration, even if placing the channels in trip would not cause an isolation. The CTS require isolating the penetrations at all times when channels are inoperable in both trip systems. Because of the varied logic in isolation actuation systems, there is no relatively simple set of actions that can be defined to cover all situations.

Therefore, improved TS combine the ACTIONS for inoperable channels, independent of whether one or both trip systems are affected. This allows the conservative action of tripping the inoperable channels which is preferable to initiating a shutdown as would currently be required in many cases. If all channels are not restored or tripped within the specified Completion Times, then the ACTIONS referenced in corresponding improved TS Table 3.3.6.1-1 are required, similar to CTS. On this basis, this change is acceptable.

(3) The time required to close the main steam isolation valves (MSIVs) in Unit 1 CTS Table 3.2-1 is being extended from 6 to 12 hours, and the time to reach Mode 4 from 24 to 36 hours, in the ACTIONS of improved TS 3.3.6.1. This additional time allows for more orderly corrective actions, reduces the potential for unit upset conditions that could challenge safety systems, and provides a sufficient restriction, based on operating experience and the low likelihood of an event during this period, to avoid an undue risk to public health and safety. Therefore, these Completion Times are acceptable.

(4) The ACTIONS for Ref. No. 1 of Unit 1 CTS Table 3.2-1 and ACTION 20 for trip function 3 of Unit 2 CTS Table 3.3.2-1, for inoperable channels of RPV level low-low-low, require a plant shutdown. Corresponding ACTIONS A, B, C, and D together of improved TS 3.3.6.1 allow isolation of the affected main steam line in lieu of placing the plant in Mode 4.

Some conditions may affect the isolation logic for only one main steam line. In these cases, it is not necessary to require a plant shutdown; rather, isolation of the affected line returns the system to a status equivalent to the instrumentation having performed its function, and continued operation is allowed (although it may be at a reduced power level). The remainder of the instrumentation is unaffected and is still capable of performing its isolation function. Therefore, this change, which is consistent with the STS, is acceptable.

(5) Unit 1 CTS Table 3.2-1, (Ref. No. 1), and ACTION 26 of Unit 2 CTS Table 3.3.2-1 for trip function 6.a, specify ACTION requirements for times when an RHR shutdown cooling (SDC) system reactor vessel low water level isolation channel is inoperable. If the inoperable channel is not tripped within the specified time, the associated valves are required to be closed. This action, however, will result in a loss of SDC, and could, in fact, result in a more significant safety problem than if the valves were left open with inoperable channels.

Therefore, consistent with the STS, ACTION I of improved TS 3.3.6.1 requires immediately initiating action to isolate the affected lines or to restore the channels to operable status. The associated Bases describe circumstances under which each Required Action is to be taken. These Required Actions ensure that SDC is not interrupted when needed, yet also ensure effort to restore the channels continues if SDC operation with an inoperable isolation channel is necessary. Therefore, this change is acceptable.

(6) The ACTION for when a channel of reactor vessel water level low-low (Level 2) isolation function (Unit 1 CTS Table 3.2-1, Ref. No. 1) is inoperable is being modified to allow the reactor water cleanup (RWCU) system penetration flow paths to be isolated in 1 hour, instead of requiring a unit shutdown, in corresponding ACTION F of improved TS 3.3.6.1. Isolation of the affected line returns the system to a status equivalent to the instrumentation having performed its safety function, thus, plant operation may be continued. Therefore, this change, which is consistent with the STS, is acceptable.

(7) Requirements for the reactor water cleanup (RWCU) system differential flow isolation instrumentation are specified in Unit 1 CTS Tables 3.2-1 and 4.2-1, and Unit 2 CTS Tables 3.3.2-1, 3.3.2-2, 3.3.2-3, and 4.3.2-1. These requirements are being omitted from the improved TS.

An unnecessary isolation of the RWCU system, although not a nuclear safety concern, is not desirable from the standpoint of plant operations. The following material describes the RWCU system leak detection instrumentation and provide justification for deleting the differential flow isolation instrumentation from the CTS. The differential flow instrumentation is shown to be unnecessary to mitigate design basis events; however, for reasons of equipment protection, the instrumentation will be retained as part of the RWCU isolation system.

The RWCU system contains two isolation valves that are part of the primary containment isolation system (PCIS). The two valves are in Isolation Group 5. The following signals isolate the Group 5 valves:

- reactor vessel water level low-low (Level 2)
- RWCU equipment room temperature high
- RWCU equipment room ventilation differential temperature high
- RWCU differential flow high
- actuation of the standby liquid control system (outboard valve only)
- high RWCU system temperature exiting nonregenerative heat exchanger (outboard valve only, not an engineered safety feature (ESF) signal)

This proposed change deals only with the high differential flow leak detection instrumentation.

Although <u>isolation</u> of the RWCU system is necessary to mitigate design basis events, General Electric (GE) report EAS-24-0489, "Hatch Nuclear Plant Evaluation of the Failure of the Time Delay Relays in the RWCU Differential Flow High Instrumentation During Design," dated May 1989, concludes that the differential flow instrumentation is not required to accomplish this function. The other protective instrumentation is sufficient. The report investigated a failure of time delay relays 2G31-R616C and D, and demonstrated that the safety-grade instrumentation which is provided for accident prevention (e.g., temperature instrumentation) would isolate the RWCU system during a loss-of-coolant accident (LOCA) or high energy line break (HELB) event. Therefore, bypass of the isolation signals from the RWCU differential flow instrumentation will have no impact on the ability of the PCIS to mitigate design basis events.

Additionally, the GE report shows that the timer is not truly an engineered safety feature (ESF), since, under any postulated accident scenario, containment isolation would be accomplished via the safety-related temperature and differential temperature sensors.

As discussed above and in the GE report, the high differential flow isolation signal and logic are not necessary to mitigate design basis events. Therefore, deleting this function is acceptable. The differential flow instrumentation does have a time delay relay associated with the isolation signal intended to reduce spurious isolation. However, detailed reviews of RWCU isolation on high differential flow have concluded that several events occurred while returning the system or portions of the system (e.g., filter demineralizers) to service. These unnecessary isolation events could have often been avoided if the differential flow instrumentation (and time delay relay) had been removed.

The GE report also provides a basis for GPC to reclassify the differential flow sensors and logic as no longer being ESFs and no longer providing a protective action to the PCIS. Therefore, this change is acceptable.

(8) Unit 2 CTS Table 3.3.2-1 requires 2 trip systems for trip function 6.a, RPV level-low (Level 3), in Modes 3, 4, and 5. With a channel of this function inoperable, ACTION 26 requires closing the affected system isolation valves and declaring the affected system inoperable. The licensee has proposed (consistent with the STS) to eliminate the requirement to have two operable trip systems provided that the RHR SDC system integrity is maintained.

Since the system isolation on low water level in Modes 4 and 5 is provided to mitigate a vessel draindown event, an intact system fulfills the function of one trip system of isolation instrumentation. Therefore, the second trip system requirement is not required (Note d to improved TS Table 3.3.6.1-1) provided system integrity is maintained. With the piping not intact or with maintenance being performed that has the potential for draining the reactor vessel through the system, both trip systems are required for RHR system isolation in Modes 4 and 5. Therefore, this change is acceptable.

(9) If the number of operable channels is not met for both trip systems of the main steam line pressure - low function (Ref. No. 5) or the condenser vacuum - low function (Ref. No. 11), Unit 1 CTS Table 3.2-1 requires initiating an orderly load reduction and closing the MSIVs within 8 hours. As an alternative to closing the MSIVs, ACTION D of improved TS 3.3.6.1 requires a shutdown to Mode 3 within 12 hours and to Mode 4 within 36 hours. This effectively places the unit in a condition in which the instrumentation is not required. It also allows the plant to maintain the MSIVs open, so that a cooldown using the main condenser is available. The 12-hour Completion Time to reach Mode 3 allows for more orderly corrective actions, reduces the potential for unit upset conditions that could challenge safety systems, and provides a sufficient restriction, based on operating experience and the low likelihood of an event during this period, to avoid an undue risk to public health and safety. Therefore, this change is acceptable.

(10) Note b.1 of Unit 1 CTS Table 3.3.2-1 requires two operable or tripped trip systems for the RHR shutdown cooling system isolation on reactor vessel water level - low (Level 3) signal (Ref. No. 1) when primary containment integrity is required. This results in requiring this isolation function in Modes 1 and 2, when it is not needed. Consistent with Unit 2 CTS and the STS, the requirement for this function to remain operable during Modes 1 and 2 is being deleted. During Modes 1 and 2, the RHR shutdown cooling system is maintained isolated by the reactor vessel high pressure signal. Since it is isolated and not in operation in these Modes, the low water level isolation function used to detect leakage from the system and protect the vessel from inadvertent draindown through the system is unnecessary. Therefore, this change is acceptable.

(11) The ACTIONS of improved TS 3.3.6.1 extend the time to reach Mode 2 from 2 to 6 hours and the time to reach Mode 3 from 6 hours to 12 hours for all of the PCIS trip functions specified in Unit 2 CTS Table 3.3.2-1 and associated ACTIONS 20, 21, 22, 23, and 29. This additional time allows

for more orderly corrective actions, reduces the potential for unit upset conditions that could challenge safety systems, and provides a sufficient restriction, based on operating experience and the low likelihood of an event during this period, to avoid an undue risk to public health and safety. Therefore, these changes are acceptable.

(12) The licensee has proposed to delete the requirement of ACTIONS 21 and 23 of Unit 2 CTS Table 3.3.2-1 to be in Mode 2 and to extend the time to isolate the associated steam line from 2 hours to 12 hours if any of the following trip functions of Table 3.3.2-1 are inoperable:

1.b	Main Steam Line Pressure - Low (ACTION 21)
1.d	Main Steam Line Tunnel Temperature - High (ACTION 21)
1.f	Turbine Building Area Temperature - High (ACTION 21)
1.e	Condenser Vacuum - Low (ACTION 23)

The action to isolate all main steam lines is a sufficient action with the referenced functions inoperable and will require being in Mode 2 to avoid a scram. The requirement to be in Mode 2 is therefore implicit and is being omitted from corresponding ACTION D of improved TS 3.3.6.1. In addition, the time allowed to isolate the associated main steam lines is being extended from 2 hours to 12 hours. This additional time allows for more orderly corrective actions, reduces the potential for unit upset conditions that could challenge safety systems, and provides a sufficient restriction, based on operating experience and the low likelihood of an event during this period, to avoid an undue risk to public health and safety. Therefore, these changes, which are consistent with the STS, are acceptable.

(13) The Mode 3 operability requirement of Unit 2 CTS Table 3.3.2-1 for trip function 3.d, standby liquid control (SLC) system initiation, is being deleted. The SLC system is not required in Mode 3 since no control rods can be withdrawn (the mode switch is in the shutdown position and rod block precludes rod movement per improved TS 3.3.2.1). This is consistent with the Applicability of SLC system requirements both in the CTS and the improved TS. Therefore, it is acceptable to omit the Mode 3 requirement for the SLC system initiation function from improved TS Table 3.3.6.1-1, function 5.c.

2.3.3.2.1 <u>Secondary Containment Isolation Instrumentation (Improved TS 3.3.6.2)</u>

(1) Unit 1 Table 3.2-1, Note c.1, and ACTIONS b and c of Unit 2 CTS 3.3.2 specify ACTIONS in the event of inoperable channels. These ACTIONS are being combined in the ACTIONS of improved TS 3.3.6.2, independent of whether one or both trip systems are affected. With channels inoperable in both trip systems, the CTS do not allow all inoperable channels to be placed in the tripped condition and operation to continue without isolating the affected penetrations and starting the standby gas treatment (SGT) system, even if placing the channels in trip would not isolate the penetrations. The CTS require isolating the penetrations at all times when channels are inoperable in both trip systems. Because of

the varied logic in isolation actuation systems, there is no relatively simple set of action requirements that can be defined to cover all situations.

Therefore, improved TS combine the ACTIONS for inoperable channels, independent of whether one or both trip systems are affected. This allows the conservative action of tripping the inoperable channels, which is preferable to initiating a shutdown as would currently be required in many cases. If all channels are not restored or tripped within the specified Completion Times, then the ACTIONS referenced in corresponding improved TS Table 3.3.6.2-1 are required to be taken, similar to the CTS. Therefore, this change, which is consistent with the STS, is acceptable.

(2) For the following trip functions, Unit 1 CTS Table 3.2-1 contains the requirement to place the plant in Mode 4 within 24 hours if the required number of operable channels is not met for both trip systems (possible loss of isolation capability for the function).

- Ref. No. 1, Reactor Vessel Water Level - Low (Level 2)
  (function 1 of improved TS Table 3.3.6.2-1)
- Ref. No. 3, Drywell Pressure - High
  (function 2 of improved TS Table 3.3.6.2-1)

Corresponding ACTION B of improved TS 3.3.6.2 allows 1 hour to restore isolation capability. Otherwise, ACTION C provides the following options with a 1-hour Completion Time:

- isolate the affected lines (zones), or declare the associated isolation valves inoperable; and

- start the associated SGT subsystem(s), or declare the associated SGT subsystem(s) inoperable.

Isolating the affected lines and starting the associated SGT subsystem compensates for the inoperable status of the instrumentation, and restores the single-failure capacity and the required initiation capability of the instrumentation. Therefore, these new ACTIONS do not impact safety. If isolation valves or SGT subsystem(s) are declared inoperable, the ACTIONS of the associated improved TS 3.6.4.3, "SGT System," will result in a unit shutdown, similar to the CTS requirements. Therefore, ACTIONS B and C, which are consistent with the STS, are acceptable.

(3) The time allowed for placing a secondary containment isolation instrument channel in trip or to restore it to operable status, as specified in Unit 1 CTS Table 3.2-1 and ACTION b of Unit 2 CTS 3.3.2, is being extended in corresponding ACTION A of improved TS 3.3.6.2.

The allowed outage time (AOT) for placing a channel in trip when one trip system has one or more inoperable and untripped channels is being

extended to 12 hours for those Unit 1 channels common to RPS and 24 hours for channels in Units 1 and 2 that are not shared with the RPS. The AOTs for placing a channel in trip for times when both trip systems have inoperable and untripped channels is being extended to 1 hour. These AOTs have been shown to maintain an acceptable risk in accordance with previously conducted reliability analyses, NEDC-30851-P-A, Supplement 2, and NEDC-31677-P-A. Therefore, these changes are acceptable.

(4) Unit 1 CTS Table 3.2-8 requires ceasing refueling operations if there are not two operable or tripped trip systems for the refueling floor exhaust vent radiation monitor (Ref. No. 2). This specific action requirement is omitted from improved TS 3.3.6.2 because refueling operations may continue provided the functions of these radiation monitors are accomplished. In the event these radiation monitors are inoperable and not tripped, improved TS Required Actions C.1.1 and C.2.1 require, within 1 hour, isolating the associated secondary containment penetration flow path(s) and starting the associated SGT subsystem(s), which are the functions of these instruments. Thus, suspending refueling operations would be unnecessary if these action requirements were satisfied. However, if these action requirements are not met, then improved TS Required Actions C.1.2 and C.2.2 require declaring the associated penetration(s) and the SGT subsystem(s) inoperable, which would require entering the ACTIONS of the specifications for these systems. If these systems were not restored to operable status within the specified times, the associated ACTIONS would then require ceasing refueling operations. The additional time specified in the improved TS, for responding to the situation described, allows for more orderly corrective actions, and provides a sufficient restriction, based on operating experience and the low likelihood of an event during this period, to avoid an undue risk to public health and safety. Therefore, this change is acceptable.

(5) ACTION 24 of Unit 2 CTS Table 3.3.2-1 for the secondary containment isolation instrumentation (trip functions 2.a, b, c, and d) is being retained in corresponding Required Actions C.1.1 and C.2.1 of improved TS 3.3.6.2. In the Unit 2 CTS, if these ACTIONS are not satisfied within an hour, a shutdown is required by Unit 2 CTS LCO 3.0.3. Alternatively, after an hour, improved TS Required Actions C.1.2 and C.2.2 allow declaring the affected components inoperable and taking the appropriate ACTIONS of the specifications for secondary containment isolation valves (SCIVs) and the SGT system.

Since these instruments provide a signal for the SCIVs and SGT system (i.e., they support SCIV and SGT system operability), it is appropriate to declare the associated SCIVs and SGT subsystems inoperable. The current requirement for an immediate shutdown is overly restrictive, in that if the associated SCIVs and SGT subsystems were inoperable for other reasons, a longer restoration time is specified. Therefore, omitting the immediate shutdown requirement of Unit 2 CTS from the improved TS is acceptable.

2.3.3.2.m Low-Low Set (LLS) Instrumentation (Improved TS 3.3.6.3)

(1) Note b.1 of Unit 1 CTS Table 3.2-14 allows one hour to either restore a channel to operable status or place it in trip for the reactor steam dome pressure - high trip function; otherwise the associated LLS valve must be declared inoperable. For this Condition, ACTION b of Unit 2 CTS 3.3.3 allows 12 hours. For an inoperable channel of the LLS pressure setpoints trip function, the CTS require immediately declaring the associated LLS valve inoperable. Corresponding ACTIONS A and D of improved TS 3.3.6.3 extend the time to restore operability to 24 hours for both functions. Because the option of placing an inoperable channel in trip could cause actuation of the associated LLS valve, it is omitted from ACTION A. The 24-hour Completion Time has been shown to maintain acceptable risk in accordance with the previously conducted reliability analysis GENE-770-06-1. In addition, since the LLS pressure setpoint channel now has additional time before entering the associated LLS valves ACTIONS of improved TS 3.6.1.6, ACTION D of improved TS 3.3.6.3 is included to ensure that the LLS valve is declared inoperable if the channel is not restored within the 24 hours. Therefore, ACTIONS A and D of improved TS 3.3.6.3 are acceptable.

2.3.3.2.n Main Control Room Environmental Control (MCREC) System Instrumentation (Improved TS 3.3.7.1)

(1) ACTION 54.b of Unit 2 CTS Table 3.3.6.7-1 requires initiating the MCREC system in the pressurization mode of operation within one hour with no control room air inlet radiation - high monitors operable. ACTION 51 of Table 3.3.6.1-1 duplicates this action requirement. The 1-hour Completion Time is being extended to 2 hours in the ACTIONS of improved TS 3.3.7.1. (1 hour is provided by Required Action A.1 to declare the associated subsystem inoperable and by Required Action B.1 to start the subsystem). This Completion Time has been shown to maintain an acceptable risk in accordance with the previously conducted reliability analysis GENE-770-06-1. In addition, an optional allowance to declare the associated MCREC subsystems inoperable (Required Action B.2) is also being included since this is the effect of two inoperable channels. Therefore, these changes are acceptable.

(2) Unit 1 CTS LCO 3.12.C requires the control room air intake radiation monitors to be operable whenever Unit 1 CTS 3.12.A requires the ventilation system to be operable, which is whenever the secondary containment is required to be operable (Unit 1 CTS 3.7.C); this can include certain conditions in Modes 4 and 5. Unit 2 CTS Table 3.3.6.7-1 requires this function in Mode 5 when handling irradiated fuel in the secondary containment. The CTS of both units require this function in Modes 1, 2, and 3.

In the event that the Unit 1 LCO for this function is not met, Unit 1 CTS 3.12.D requires going to Mode 4 in 36 hours or, if the unit is in Mode 5, to cease refueling operations in 2 hours. Unit 2 requires running the MCREC system in the pressurization mode within an hour when both radiation monitors are inoperable.

These requirements are being changed in corresponding improved TS 3.3.7.1. Required Action B.1 allows placing the associated MCREC subsystem(s) in the pressurization mode of operation if one or more channels cannot be restored to operable status or tripped within the 6-hour Completion Time of Required Action A.2. Initiation of the associated subsystems returns the MCREC system to a status where the function of the instrumentation has been accomplished (initiation of the system); thus, a shutdown is not necessary. Therefore, this ACTION, in lieu of a shutdown to Mode 4, is acceptable.

The 6-hour Complete Time is based upon not having lost the MCREC system intake monitor initiation function and is consistent with the time allowed for testing by the improved TS SR Note (which is consistent with Unit 2 CTS 3.3.7.1, ACTION 6). Therefore, there is negligible impact on safety.

The Applicability of MCREC instrumentation requirements in Modes 4 and 5 is being limited to during those operations which have potential to create a need for the MCREC system to be in operation. Therefore, the Applicability of improved TS 3.3.7.1 is acceptable.

2.3.3.2.o <u>Loss of Power (LOP) Instrumentation (Improved TS 3.3.8.1)</u>

(1) Note c.1 of Unit 1 CTS Table 3.2-12 and ACTION a of Unit 2 CTS 3.3.8 allow operation with one inoperable channel of the degraded voltage instrumentation provided that the channel is placed in trip; i.e., the loss of offsite power (LOSP) lock-out relay of corresponding improved TS 3.3.8.1 in trip. However, this causes the associated DG to start because the HNP design for the DG start portion of the subject logic is one-out-of-two. Therefore, improved TS 3.3.8.1 replaces this requirement with ACTIONS A and B to declare the associated DG inoperable if the channel is not restored to operable status within one hour. This would require taking the appropriate ACTIONS of improved TS 3.8.1 or 3.8.2. Since these instruments produce a start signal for the DGs, they support DG operability. Thus, these ACTIONS are appropriate. Therefore, this change is acceptable.

2.3.3.2.p <u>Reactor Protection System (RPS) Electric Power Monitoring (Improved TS 3.3.8.2)</u>

(1) Unit 1 CTS 3.9.D.1 requires the operability of the RPS power monitoring system whenever the RPS motor-generator (MG) sets or the alternate source is in service. Unit 2 CTS 3.8.2.7 requires operability of the RPS power monitoring system at all times. Corresponding improved TS 3.3.8.2 requires operability of this system in Modes 1, 2, and 3, and also in Modes 4 and 5 with either

- any control rod withdrawn from a core cell containing one or more fuel assemblies, or
- both RHR shutdown cooling (SDC) isolation valves open.

With neither of the Modes 4 and 5 Applicability conditions satisfied, there is no need for the RPS and the RPS bus-powered components to perform their function. Thus, there is no need to require their protection. Therefore, the change in Applicability of the requirements for this system is acceptable.

(2) Unit 1 CTS 3.9.D.1.(a) and the ACTION of Unit 2 CTS 3.8.2.7 allow 30 minutes to restore operability of the power monitoring assembly when one assembly is inoperable. Otherwise, the RPS MG set or alternate source associated with the inoperable assembly must be removed from service. If both assemblies are inoperable, LCO 3.0.3 applies.

The corresponding ACTIONS of improved TS 3.3.8.2 allow 72 hours to restore the operability of one inoperable power monitoring assembly and 1 hour for two inoperable assemblies. These Completion Times provide sufficient time for the plant personnel to take corrective actions. With one assembly inoperable, the other assembly is fully capable of providing the necessary protection; thus, 72 hours provides time to repair the inoperable assembly and decreases the potential for a unit upset (that could result when power supplies are shifted, since power is initially lost to the RPS trip system and RPS bus-powered components). The time extension for two inoperable assemblies is minimal but necessary to allow consideration of plant conditions, available personnel and the appropriate actions. Therefore, these changes are acceptable.

(3) A Note is included with improved TS SR 3.3.8.2.1 to only require the channel functional test (CFT) before entering Mode 2 or 3 from Mode 4, when in Mode 4 for ≥ 24 hours concurrent with the existing 184-day Frequency of Unit 1 CTS 4.9.D.1.(a) and Unit 2 CTS SR 4.8.2.7.a. Thus, the existing 184-day Frequency would not have to be met until a shutdown to Mode 4 lasting ≥ 24 hours occurs. The performance of this SR could result in half-scrams, actual valve isolation, and other plant perturbations, since if the assembly opens, power is lost. Thus, the test requirement is being changed, consistent with the STS, to allow it to be performed while the plant is shutdown to minimize the impact of this SR on plant operation. Therefore, this Note is acceptable.

The above less restrictive requirements have been reviewed by the staff and have been found to be acceptable because they do not present a significant safety question in the operation of the plant. The requirements that remain in the improved TS are consistent with current licensing practices, operating experience and plant accident and transient analyses, and provide reasonable assurance that the public health and safety will be protected.

2.3.3.3 <u>More Restrictive Changes</u>

By electing to implement STS Section 3.3 specifications, the licensee has adopted a number of requirements that are more restrictive than requirements given in the CTS. These more restrictive requirements are described below for each of the 16 specifications in improved TS Section 3.3.

2.3.3.3.a Reactor Protection System (RPS) Instrumentation (Improved TS 3.3.1.1)

(1) The ACTIONS for when the following Unit 1 CTS scram functions are inoperable are being made more restrictive in improved TS 3.3.1.1, consistent with the STS:

- The time provided to be in Mode 2 for Unit 1 CTS scram 8 (APRM fixed high-high flux, excluding the APRM inoperable function) is being reduced from 8 hours to 6 hours in improved TS ACTION F.

- Improved TS ACTION G for the APRM inoperable scram function (listed with Unit 1 CTS scram 8) requires a shutdown to Mode 3 instead of the existing requirement of Mode 2. This is required since the APRM 15% flux scram is applicable in Mode 2, and the inoperable scram function supports the 15% flux scram.

- The time provided to be in Mode 2 for scram function 10 (the MSIV closure scram) is being reduced from 8 hours to 6 hours in improved TS ACTION F.

- The time provided to be less than 30% RTP, for the turbine control valve fast closure and turbine stop valve closure (Unit 1 CTS scram functions 11 and 12) is being reduced from 8 hours to 4 hours in improved TS ACTION E.

(2) The IRM channel check Frequency in CTS for both units is being increased from daily to once per 12 hours in improved TS SR 3.3.1.1.1, consistent with the STS.

(3) Improved TS SR 3.3.1.1.7, to verify the IRM and APRM channels overlap during shutdown, is a new requirement for Unit 1.

(4) The existing SR for verifying that the absolute difference between the APRM channels and the calculated power is $\leq$ 2% RTP is required by improved TS SR 3.3.1.1.2 to be performed 12 hours after thermal power $\geq$ 25% RTP. Since the Unit 1 CTS permit up to 7 days, this change, which is consistent with the STS, is an additional restriction on Unit 1 operation.

(5) Two SRs are being added to Unit 1 requirements, consistent with the STS. Improved TS SR 3.3.1.1.14 verifies that the APRM flow biased scram time constant is within the limits specified in the COLR. SR 3.3.1.1.15 verifies all logic is functioning properly by performing a logic system functional test (LSFT).

(6) The Unit 1 the APRM flow biased simulated thermal power-high setpoint Unit 1 CTS 2.1.A.1.c.(1) is being decreased from a maximum of 117% to 115.5% in the improved TS and the Unit 1 CTS APRM downscale setpoint (Unit 1 CTS Table 3.1-1) is being increased from a minimum of 3% to 4.2% in improved TS Table 3.3.1.1-1. The current values are the analytical

limits. The proposed values are the Allowable Values. These are additional restrictions on Unit 1 operation.

In addition, an Allowable Value is being added to the Unit 2 APRM downscale setpoint. Since the Unit 2 CTS do not specify an APRM downscale Allowable Value, this is an additional restriction on Unit 2 operation.

(7) Unit 1 CTS do not specify a Frequency for RPS response time testing. The addition of the 18-month staggered test basis Frequency in SR 3.3.1.1.16 is, therefore, more restrictive and is consistent with present testing methods.

(8) Improved TS SR 3.3.1.1.11, to verify the automatic enabling of the turbine stop valve and turbine control valve scrams at ≥ 30% RTP, is being added to Unit 2 test requirements, consistent with the STS.

2.3.3.3.b <u>Source Range Monitor (SRM) Instrumentation (Improved TS 3.3.1.2)</u>

(1) The Unit 1 CTS Mode 2 SRM requirements have been modified, consistent with the STS, to require three SRMs instead of two SRMs. Additionally, the Mode 2 requirements are applied during a plant shutdown when core power is below range 3 of the IRMs. These are additional restrictions on Unit 1 operation.

(2) Improved TS 3.3.1.2 requires two SRMs to be operable during Modes 3 and 4. This new Applicability requirement for Unit 1 ensures flux monitoring is available while the plant is shutdown. Associated ACTION D and SRs 3.3.1.2.3, 4, 6, and 7 are also new requirements for Unit 1 during Modes 3 and 4.

(3) Currently, no ACTIONS are provided for Unit 1, other than not to startup, refuel, or perform CORE ALTERATIONS, if the required SRMs are not operable. ACTIONS A, B, and C of improved TS 3.3.1.2 apply proper action requirements once a startup has commenced. These ACTIONS ensure that the SRMs are restored to operable status, and if not, require suspension of rod withdrawal and shutdown of the unit. In addition, ACTION E applies proper action requirements during Mode 5 operations, including during CORE ALTERATIONS. ACTION E requires suspension of CORE ALTERATIONS (but allows control rod insertion) and requires inserting control rods that are in core cells containing fuel assemblies.

(4) The improved TS contain new SRs for Unit 1 and Unit 2 to ensure SRM operability. The following SRs are new for Unit 1 only:

- SR 3.3.1.2.1 requires a channel check every 12 hours during Mode 2.
- SR 3.3.1.2.2 requires verifying that SRM location requirements are met once every 12 hours during CORE ALTERATIONS. (These SRM location requirements are consistent with Unit 1 CTS 3.10.C.1.)

- SRs 3.3.1.2.5 and 3.3.1.2.6 require a CFT every 7 days in Mode 5 and every 31 days during Mode 2.

The following SRs are new for both units:

- SRs 3.3.1.2.4, 3.3.1.2.5, and 3.3.1.2.6 contain a new requirement to verify and determine SRM signal-to-noise ratio.

- SR 3.3.1.2.7 requires channel calibrations every 18 months during Modes 2 and 5.

(5) Improved TS SRs 3.3.1.2.1 (SRM channel check) and 3.3.1.2.4 (verify SRM count rate and signal to noise ratio) must be met within the 12 hours preceding the start of CORE ALTERATIONS and every 12 hours thereafter during CORE ALTERATIONS. These Frequencies are more restrictive than given in corresponding Unit 1 CTS 4.10.C. In addition, improved TS SR 3.3.1.2.5 (SRM channel functional test) must be completed every 7 days when in Mode 5, not just "prior to spiral unloading or reloading" as currently required for the SRM CFT in Unit 1 CTS 4.10.C.

(6) Improved TS 3.3.1.2, ACTION B, to suspend control rod withdrawal if the three required SRMs are inoperable in Mode 2 with the IRMs on range 2 or below, is a new requirement for Unit 2. With no operable SRMs, the ability to monitor positive reactivity changes is significantly restricted and no further control rod withdrawal is allowed.

(7) A time limit is being placed on how soon before the withdrawal of the Unit 2 control rods the verification of the SRM count rate must be completed (Unit 2 CTS SR 4.3.6.5.c and improved TS SR 3.3.1.2.4). The SR must be performed within 24 hours before control rod withdrawal. In addition, the SR must be performed once per 24 hours, regardless of whether or not control rods are withdrawn. Since it must be performed at all times, not just before control rod withdrawal, the phrase "prior to control rod withdrawal" is not needed and is deleted.

2.3.3.3.c <u>Control Rod Block (CRB) Instrumentation (Improved TS 3.3.2.1)</u>

(1) Improved TS 3.3.2.1 adds appropriate operability, action, and surveillance requirements for the reactor mode switch shutdown position CRB function for both units. In Modes 3 and 4, these requirements ensure that all rods remain inserted with the mode switch in the shutdown position. In Mode 5, with the mode switch in the shutdown position, the control rod withdrawal blocks are assumed in the safety analysis to prevent criticality. Therefore, in order to conform to the safety analysis, they must be operable.

(2) Improved TS contain three SRs that are new for both units. SR 3.3.2.1.4 calibrates the automatic enabling points of the rod block monitor (RBM). SRs 3.3.2.1.1 (CFT) and 3.3.2.1.7 (channel calibration) check the RBM bypass time delay.

(3) The ACTIONS of improved TS 3.3.2.1 specify a Completion Time of 1 hour to place an inoperable CRB channel in trip. Unit 1 CTS do not specify a time limit.

(4) Requirements regarding when to verify the operability of the rod worth minimizer (RWM) are being presented as Notes in improved TS SRs 3.3.2.1.2 and 3.3.2.1.3. In addition, 1 hour is allowed to perform the surveillance after entering the Applicability of improved TS 3.3.2.1. The CTS do not specify a time limit.

(5) Improved TS SR 3.3.2.1.5 is a new requirement for both units. It ensures that the automatic enabling point of the RWM is calibrated properly.

(6) The RBM setpoints given in improved TS SR 3.3.2.1.4 are 1% below the RBM setpoints of Unit 1 CTS 3.3.F and Table 3.2-7 (function 4 and Note f). The CTS setpoints are the analytical limits. The improved TS setpoints are the Allowable Values.

2.3.3.3.d <u>Feedwater and Main Turbine High Water Level Trip Instrumentation (Improved TS 3.3.2.2)</u>

(1) The improved TS add a new specification requiring the three channels of feedwater and main turbine high water level trip instrumentation to be operable when thermal power is ≥ 25% RTP. This instrumentation is assumed to function in the feedwater controller failure, maximum demand event. Appropriate ACTIONS and SRs are also being added. This specification is consistent with the STS and is an additional restriction on plant operation.

2.3.3.3.e <u>Post Accident Monitoring (PAM) Instrumentation (Improved TS 3.3.3.1)</u>

(1) Requirements for additional PAM functions and channels are being incorporated in the Unit 1 improved TS. In addition, requirements for additional PAM functions and additional channels of drywell temperature monitors are being incorporated in the Unit 2 improved TS. These are being added in accordance with the STS guidelines to include all Type A and Category 1 PAM instrumentation in Regulatory Guide 1.97. Appropriate ACTIONS and SRs are also being added for both units.

(2) The Unit 1 Applicability of the requirements for the H_2 and O_2 analyzers is being extended to encompass all of Mode 2 in the improved TS, not just when > 1% RTP as in Unit 1 CTS 3.7.A.6.c.

(3) The restoration time allowed by the ACTIONS of Unit 2 CTS 3.3.6.4, in the event of two inoperable channels in the same function, is being reduced from 30 days to 7 days in improved TS 3.3.3.1, ACTION C, consistent with the STS.

2.3.3.3.f Remote Shutdown System (RSS) (Improved TS 3.3.3.2)

(1) Improved TS 3.3.3.2 is a new specification for Unit 1, consistent with the STS, and requires the RSS to be operable in Modes 1 and 2. The RSS is required by 10 CFR Part 50, Appendix A, GDC 19, to be available to shut down and control the unit if the control room is evacuated.

(2) Improved TS SR 3.3.3.2.2, to verify each required Unit 2 control circuit and transfer switch is capable of performing the intended function with a Frequency of once per 18 months, is a new SR for Unit 2.

2.3.3.3.g End of Cycle - Recirculation Pump Trip (EOC-RPT) Instrumentation (Improved TS 3.3.4.1)

(1) The Applicability of the Unit 1 EOC-RPT instrumentation specification is being changed in improved TS 3.3.4.1 so that it is always applicable when thermal power is ≥ 30% RTP, not just from EOC-2000 MWD/t to EOC as in Note (f)1 of Unit 1 CTS Table 3.2-9.

Unit 1 CTS Note (f)1 also specifies an allowance for the Unit 1 EOC-RPT system to be placed in an inoperable status for up to 2 hours to provide the required monthly surveillance. The improved TS omit this allowance since there are no monthly surveillances required in the improved TS. Unit 1 CTS Note (f)2 provides a 6-hour allowance for testing of channels. This Note is being retained as the Note preceding the SR table of improved TS 3.3.4.1.

(2) If one EOC-RPT trip system is inoperable and is not restored to operable status within 72 hours, the CTS allow 6 hours to reduce the power to < 30% RTP. Corresponding improved TS 3.3.4.1, ACTION C, reduces this time to 4 hours, consistent with the time provided in the minimum critical power ratio (MCPR) specification (improved TS 3.2.2).

In addition, for Unit 1, improved TS 3.3.4.1, ACTION B, specifies a new 2-hour Completion Time to restore one trip system to operable status if both trip systems are inoperable (i.e., restore EOC-RPT trip capability) to be consistent with the time given in improved TS 3.2.2 for restoring the MCPR to within limit. (The EOC-RPT instrumentation is provided to protect the MCPR limit from being exceeded). While a new 2-hour restoration time has been provided for when both trip systems are inoperable, the overall time allowed for reducing power below 30% RTP is (a) less for the case when one trip system is inoperable and (b) is not affected for the case when both trip systems are inoperable. Thus, this change is considered more restrictive for Unit 1.

Further, for Unit 2, the Completion Time to restore one trip system to operable status has been increased from 1 hour to 2 hours, also to be consistent with the time provided in improved TS 3.2.2 to restore the MCPR to within limit. Although this Completion Time is longer, the overall time allowed for reducing power below 30% RTP is less. Thus, this change is also considered more restrictive for Unit 2.

(3) Improved TS contain new SRs. Unit 1 improved TS SR 3.3.4.1.3 requires a channel calibration and a verification that the Allowable Values are set properly. Unit 1 and Unit 2 improved TS SR 3.3.4.1.2 verify the bypass capability is properly functioning.

(4) If the EOC-RPT channels are inoperable because of a trip breaker that will not open, placing the channels in the tripped condition, as required by the CTS, will not accomplish the intended restoration of the functional capability. Thus, improved TS 3.3.4.1, Required Action A.2, contains a Note to prevent placing the channels in trip if in this condition.

2.3.3.3.h <u>Anticipated Transient Without Scram - Recirculation Pump Trip (ATWS-RPT) Instrumentation (Improved TS 3.3.4.2)</u>

(1) Unit 1 CTS Table 3.2-9 does not specify a Completion Time to place the unit in Mode 2 if inoperable channels are not restored to operable status within the specified time. Improved TS 3.3.4.2, ACTION D, specifies a Completion Time of 6 hours, consistent with the STS.

(2) If the ATWS-RPT channels are inoperable because of a trip breaker that will not open, placing the channels in the tripped condition as required by the CTS will not accomplish the intended restoration of the functional capability. Thus, improved TS 3.3.4.2, Required Action A.2, contains a Note to prevent placing the channels in trip if in this condition.

(3) The time provided to restore an ATWS-RPT trip function to operable status is being reduced from the 14 days in ACTION b of Unit 2 CTS 3.3.9.1 to 72 hours in improved TS 3.3.4.2, ACTION B, consistent with the STS.

2.3.3.3.i <u>Emergency Core Cooling System (ECCS) Instrumentation (Improved TS 3.3.5.1)</u>

(1) The existing allowance to place an inoperable channel in trip is being removed for some functions. Placing a channel in trip may not compensate for the inoperability, or it may be a less safe action to take. Therefore, for these types of functions, the channel must be restored; it is not allowed to be tripped in the improved TS. This applies to the following Unit 1 CTS functions: HPCI functions 6 and 7; ADS functions 3, 4, 5, and 6; LPCI functions 3.a, 3.b, 6 and 7; and CS functions 3 and 5 (Unit 1 CTS Tables 3.2-2, 4, 5, and 6, respectively); and the following Unit 2 CTS functions: 1.c, 2.d, 2.e, 2.f, 3.f, 4.c, 4.d, 4.f, and 4.g (Unit 2 CTS Table 3.3.3-1).

(2) Note (b) to improved TS Table 3.3.5.1-1 is being added to ensure the diesel generator (DG) and plant service water (PSW) turbine building isolation valves are also covered by the associated instruments. Thus, when a channel is not restored, the affected DG or PSW subsystem will be declared inoperable in addition to the affected ECCS subsystem.

(3) Mode 4 and 5 requirements for ECCS instrumentation are being added for Unit 1, since improved TS 3.5.2 contains requirements for LPCI and CS in these Modes.

(4) The Allowable Value for the condensate storage tank (CST) level—low function is being modified in the improved TS for both units to reference water level to a more appropriate reference point. In addition, the Allowable Value is being increased in improved TS Table 3.3.5.1-1 to ensure 10,000 gallons of useable water is available above the swap-over setpoint, instead of just 10,000 gallons of water total in the CST (as specified in the CTS), because some water may be below the swap-over setpoint level. (This change also applies to improved TS 3.3.5.2.)

The Allowable Value for the suppression pool water level—high function is being decreased to 154 inches to correspond with the correct Allowable Value in the setpoint calculations.

(5) An upper limit to the CS and RHR discharge pressure-high allowable values for the ADS is being provided for both units. This will ensure that the setpoint is below the shutoff head of the low pressure ECCS pumps. Also, upper limits for Unit 1 LPCI and CS minimum flow Allowable Values are being added, and the Unit 1 HPCI upper limit is being decreased slightly.

(6) The ADS timer setpoints are being decreased to the proper Allowable Value for both units. The current TS value is the analytical limit. This is an additional restriction on plant operation.

(7) The highest Allowable Value at which the CS and LPCI injection valves can open is being reduced from 500 psig to 476 psig for both units. This provides added overpressure protection for the low pressure piping.

(8) Additional functions for Unit 2 are specified in improved TS 3.3.5.1 to provide requirements for minimum flow instrumentation for the ECCS pumps, consistent with the STS. The logic of the ECCS pump minimum flow instrumentation is important for the proper functioning of the ECCS in response to a design basis accident. Appropriate ACTIONS and SRs are also being specified.

2.3.3.3.j <u>Reactor Core Isolation Cooling (RCIC) System Instrumentation (Improved TS 3.3.5.2)</u>

(1) The allowance to place an inoperable channel in trip is being removed from the Unit 1 CTS for function 5 of Unit 1 CTS Table 3.2-3, reactor vessel water level - high, Level 8 trip. Placing the channel in trip results in RCIC being unable to start when needed. Therefore, improved TS 3.3.5.2, Required Action C.1, only requires restoration of the channel to operable status; it does not allow the channel to be tripped with the unit operating.

(2) Improved TS SR 3.3.5.2.5, LSFT of the RCIC initiation logic, is new for Unit 1 and is consistent with the STS.

(3) Unit 2 improved TS 3.3.5.2 contains requirements for an additional RCIC instrumentation function that is not specified in Unit 2 CTS, the reactor vessel water level — high, Level 8 trip (function 2 of improved TS Table 3.3.5.2-1), consistent with the STS. This function is similar in design to the HPCI Level 8 trip in the Unit 2 CTS for ECCS instrumentation. Appropriate ACTIONS and SRs are also being added.

2.3.3.3.k <u>Primary Containment Isolation Instrumentation (Improved TS 3.3.6.1)</u>

(1) The time specified in Unit 1 CTS to reach Mode 2, when inoperable channels of the main steam line pressure - low function are not made operable within the specified times, is being decreased from 8 hours to 6 hours in corresponding improved TS 3.3.6.1, ACTION E. For other functions with Mode 4 shutdown requirements, Required Actions D.2.1 and G.1 are being added to also require being in Mode 3 within 12 hours.

The Unit 2 CTS time to reach Mode 4 after reaching Mode 3 (after failing to restore inoperable channels or to isolate the penetration in the specified times) is being decreased from 30 hours (ACTIONS 21 and 29 of Unit 2 CTS Table 3.3.2-1) to 24 hours in ACTIONS D and G of improved TS 3.3.6.1. These times are consistent with the STS and are additional restrictions on plant operation.

(2) The allowance for not closing the Unit 1 shutdown cooling (SDC) supply isolation valves, if the steam dome pressure is $\leq$ 145 psig, is being deleted. Isolation of the SDC system is required in the improved TS 3.3.6.1 even if pressure is less than 145 psig. This is necessary because reactor pressure could inadvertently increase while in Mode 3 with pressure $\leq$ 145 psig.

(3) A Completion Time of 1 hour, consistent with the STS, is specified in improved TS 3.3.6.1, ACTION F, for isolating the affected penetration flow path(s). Unit 1 CTS do not specify a Completion Time.

(4) New primary containment isolation instrumentation functions are being added to Unit 1 CTS, as listed in improved TS Table 3.3.6.1-1, functions 1.f, 3.d, 3.e, 3.g, 4.d, 4.f, and 5.c. These functions are added to ensure the safety analysis assumptions are met. Appropriate new ACTIONS and SRs are also specified.

(5) The Unit 1 CTS for the RHR SDC low water level isolation function is being revised in the improved TS to require this isolation function to be operable in Modes 4 and 5, because this is when it is needed to isolate in the event of an inadvertent reactor vessel draindown. Improved TS 3.3.6.1, Note d, however, only requires one trip system to be operable (versus two), if the RHR system is intact and integrity is maintained. These changes are consistent with the STS and are additional restrictions on Unit 1 operation.

(6) The Completion Time specified in the Unit 1 CTS to close the affected isolation valves for an inoperable drywell radiation high channel is being decreased from 24 hours to 1 hour in improved TS 3.3.6.1, ACTION F. In addition, the time to reach Mode 3 is being extended to 12 hours in ACTION G. However, since the overall time to reach Mode 3, assuming the valve associated with an inoperable instrument is not closed, has not increased (the Unit 1 CTS provides a total of 30 hours - 24 to close the valve and 6 to reach Mode 3, while the improved TS provides 13 hours - 1 to close the valve and 12 to reach Mode 3) this change is considered more restrictive. These Completion Times are consistent with the STS.

(7) Unit 1 CTS Table 3.2-8 and Unit 2 CTS Table 3.3.2-1 do not specify any shutdown actions if the refueling floor and reactor building exhaust ventilation radiation monitors, are inoperable. Improved TS 3.3.6.1, Required Action A.2 and ACTION G are new requirements for Unit 1 and Unit 2 that provide the proper response if these functions (2.d and 2.e of improved TS Table 3.3.6.1-1) are not restored within 24 hours. ACTION G requires shutting down to Mode 4 within 36 hours.

The Unit 1 CTS ACTIONS for the refueling floor monitor are only related to the secondary containment portion of the instrumentation function; no PCIV action requirements are specified. A portion of the reactor building monitor ACTION requires closure of the PCIVs, which could result in a unit shutdown. In contrast, improved TS 3.3.6.1, ACTION G, requires a unit shutdown for the same ACTIONS Condition. Thus, overall, this addition is more restrictive on Unit 1 operations.

The Unit 2 CTS ACTIONS for both these radiation monitors provide no action requirements for the Unit 2 PCIVs that are affected. The Unit 2 CTS only contains action requirements for the secondary containment isolation valves and the SGT system. Thus, ACTION G is being added to require a plant shutdown since the plant cannot operate indefinitely with the associated valves (the vent and purge valves) closed. This is more restrictive on Unit 2 operation.

(8) Unit 2 CTS Table 3.3.2-1, Note e for trip function 1.d, main steam line tunnel temperature - high, states that a channel is operable if 2 of 4 instruments in that channel are operable; i.e., it allows 2 of the 4 instruments in a channel to be inoperable, with no actions required. A similar allowance is provided for the turbine building area temperature - high, trip function 1.f. This allowance is being partially deleted in the improved TS since the accident analysis assumes an MSIV isolation on high temperature in any area (the current allowance could result in high temperature in some areas without causing an MSIV isolation).

The actual number of required temperature channels has been identified for both of the high temperature functions. For the tunnel temperature function, 6 are required (2 per line times 4 lines equals 8, but 6 will ensure an isolation will occur if a leak develops on any line; thus, only 6 will be required). For the turbine building area, each listed channel encompasses 16 temperature channels; thus, 32 channels per trip system are installed. Since Unit 2 CTS Note e appears to allow one-half

of the inputs to be inoperable, only 16 per trip system will be required in improved TS 3.3.6.1. However, this is being modified with the additional requirements specified in Note (b) of corresponding improved TS Table 3.3.6.1-1. Note (b) states that with 8 channels per trip string, each trip string shall have 2 channels per main steam line, with no more than 40 feet separating any two operable channels. This is considered more restrictive on Unit 2 operation.

(9) The Unit 2 CTS number of required channels for area temperature - high and area ventilation differential temperature - high is being increased to 1 "per area" in improved TS 3.3.6.1, instead of just 1 from any area as in the CTS. This ensures that a leak in any area will be detected, consistent with the accident analysis.

(10) The Unit 2 CTS action requirements for the condenser vacuum-low function are being changed to also require the unit to be placed in Mode 4 (improved TS 3.3.6.1, Required Action D.2.2) if the channel is not restored to operable status and the main steam lines are not isolated. This additional action requirement will place the unit in an operational condition in which this function is not required.

(11) A maximum value is being specified for function 3.g, the suppression pool area temperature timer relays, in improved TS Table 3.3.6.1-1. The Unit 2 CTS do not provide this limit. The times specified in improved TS Table 3.3.6.1-1 are consistent with the HNP accident analysis.

(12) The Unit 2 channel calibration Frequency is being increased from once per refueling outage to every 3 months in improved TS SR 3.3.6.1.3 for those functions listing this SR in improved TS Table 3.3.6.1-1. The improved TS Frequency is consistent with the assumptions of the setpoint methodology. This change is more restrictive on plant operation. In addition, since the definition of channel calibration encompasses a CFT, the explicit CFT requirement is being deleted, consistent with the STS.

(13) The Allowable Value for the turbine building area temperature - high function is being decreased from the Unit 2 CTS Table 3.3.2-2 value of 200°F to 194°F in the improved TS, consistent with the current setpoint methodology.

2.3.3.3.1 <u>Secondary Containment Isolation Instrumentation (Improved TS 3.3.6.2)</u>

(1) The Applicability of the requirements of the four secondary containment isolation instrumentation functions are being increased by adding several conditions. These functions, as listed in improved TS Table 3.3.6.2-1, are:

1. Reactor vessel Water Level - Low Low, Level 2
2. Drywell Pressure - High
3. Reactor Building Exhaust Radiation - High
4. Refueling Floor Exhaust Radiation - High

Unit 1 CTS require functions 1 and 2 when primary containment integrity is required. This is being simplified to Modes 1, 2, and 3, consistent with improved TS 3.6.1.1, "Primary Containment." Improved TS 3.3.6.2 requires all four functions in Modes 1, 2, and 3.

Note (a) of improved TS Table 3.3.6.2-1 adds the condition of during OPDRVs to the Applicability for functions 1 and 3. OPDRVs could result in a vessel draindown event and subsequent release of radioactivity, such that these instruments would be needed to isolate the secondary containment and start the SGT system.

Note (b) adds the conditions of during CORE ALTERATIONS and during movement of irradiated fuel assemblies in secondary containment to the Applicability for function 4. Any time fuel handling is performed in Unit 2, the refueling floor exhaust radiation - high function is required, not just during Mode 5 (as currently required). Since fuel handling can take place in Mode 4 and when defueled, this change is considered more restrictive on plant operations.

CORE ALTERATIONS (those not covered by handling of irradiated fuel) could result in a radiation release such that function 4 would be needed to isolate the secondary containment and start the SGT system.

(2) The channel calibration Frequency for the reactor building exhaust radiation monitors in the Unit 2 CTS is being increased from once per refueling outage to every 92 days in improved TS SR 3.3.6.2.3. This new Frequency is consistent with the assumptions of the setpoint methodology. This change is more restrictive on Unit 2 operation. In addition, since the definition of channel calibration encompasses a CFT, the explicit CFT requirement is being deleted.

2.3.3.3.m <u>Low-Low Set (LLS) Instrumentation (Improved TS 3.3.6.3)</u>

(1) The allowance of CTS for both units to place an inoperable reactor steam dome pressure - high channel in trip is being deleted. Placing the channel in trip will give a false signal to the logic that could result in actuating the LLS when not needed nor desired. Because of this concern, improved TS 3.3.6.3, Required Action A.1, only requires restoration of the channel.

(2) The action requirements of Note b.1 of Unit 1 CTS Table 3.2-14 and ACTION c of Unit 2 CTS 3.3.3, in the event one or both channels in one trip system are inoperable, have been changed to only allow one channel to be inoperable, not both channels, in one trip system. Two inoperable channels affect two LLS valves. In addition, corresponding ACTIONS Condition A of improved TS 3.3.6.3 states "one LLS valve with initiation capability not maintained." Thus, the "both trip systems" of the CTS has been changed to "two or more LLS valves with initiation capability not maintained" in ACTIONS Condition D. The time allowed to declare the LLS valves inoperable if more than one valve's initiation capability is not maintained is being reduced from 1 hour to "immediately" in the improved TS.

(3) Improved TS SR 3.3.6.3.1, to perform a channel check every 12 hours to ensure a gross failure of LLS instrumentation has not occurred, is new for both units. SR 3.3.6.3.6, to perform a LSFT every 18 months, is new for Unit 1.

2.3.3.3.n Main Control Room Environmental Control (MCREC) System Instrumentation (Improved TS 3.3.7.1)

(1) The time provided by Unit 1 CTS 3.12.C to restore or trip one inoperable channel (radiation monitor) is being decreased from 30 days to 6 hours in improved TS ACTION A, consistent with the Unit 2 CTS and STS.

(2) Unit 1 CTS 3.12.D, "Shutdown Requirements", is being modified to also require declaring the associated MCREC subsystem inoperable in corresponding ACTION A of improved TS 3.3.7.1. This requirement essentially results in the same shutdown action as is currently required when the unit is in Modes 1, 2, or 3, since an inoperable channel affects both MCREC subsystems (and two inoperable subsystems requires a plant shutdown). When the unit is in Mode 5 and refueling operations are in progress, this would result in suspending CORE ALTERATIONS and fuel handling immediately (by ACTION E of improved TS 3.7.4), which is more restrictive than currently required.

2.3.3.3.o Loss of Power (LOP) Instrumentation (Improved TS 3.3.8.1)

(1) The Applicability of operability requirements for LOP instrumentation is being expanded to include the condition of when the associated diesel generators (DGs) are required to be operable by improved TS 3.8.2, "AC Sources-Shutdown." This effectively adds Modes 4 and 5 to the Applicability of improved TS 3.3.8.1 during the times when one or more DGs are required in these Modes.

(2) The existing allowance of CTS for both units to place the LOSP lock-out relay in trip is being replaced in improved TS 3.3.8.1, ACTION A, by the requirement to restore the entire channel to operable status. Placing the LOSP lock-out relay in trip does not result in all components affected by the channel receiving a trip signal. In addition, a Completion Time of 1 hour is given in ACTION A to restore the operability of the LOSP lock-out relay channel (instead of placing the channel in trip). The CTS do not specify a Completion Time for the existing action requirement to place the channel in trip.

(3) Improved TS SR 3.3.8.1.4, to perform a LSFT once per 18 months, is a new requirement for both units. This will ensure that the entire logic is functioning properly similar to the current LSFT already required for the ECCS instrumentation (improved TS 3.3.5.1), which also provides a DG start signal. This is consistent with the STS and is an additional restriction on plant operation.

(4) To satisfy Criterion 3 of the Final Policy Statement, HNP credits manual actions in the range of 78.8% to 92% of 4.16 kV. Entry into this range is annunciated. The range specified for manual actions indicates that

sufficient power is available to the large ECCS pump motors. However, sufficient voltage for the equipment required for loss-of-coolant accident (LOCA) conditions may not be available at lower voltages. The required channels of LOP annunciation instrumentation ensure the initiation of manual actions to protect the ECCS and other assumed systems from degraded voltage without initiating an unnecessary automatic disconnect from the preferred offsite power source. The LOP anticipatory annunciators are designed with a time delay of 65 seconds to reduce the possibility of nuisance annunciators while permitting prompt detection of potential low voltage conditions. HNP takes credit for the annunciators in restoring acceptable voltage levels. Therefore, improved TS Table 3.3.8.1-1 is being added to CTS requirements. Additionally, ACTION B, addressing the annunciation function, is being added and the other functions are renumbered and amended to provide for the annunciation. SRs are also being added for the annunciator bus undervoltage and associated time delay relays.

2.3.3.3.p <u>Reactor Protection System (RPS) Electric Power Monitoring (Improved TS 3.3.8.2)</u>

(1) Improved TS 3.3.8.2, ACTIONS Condition D (Required Actions of Conditions A or B are not met in Mode 4 or 5), contains a new requirement to insert any withdrawn control rods in cells containing fuel (Required Action D.1) and either initiate action to restore the assembly to operable status (Required Action D.2.1) or initiate action to isolate the RHR SDC system (Required Action D.2.2). These Required Actions place the reactor in the least reactive condition and ensure that the safety function of the RPS and isolation of the RHR SDC system will not be required.

(2) The CTS cite maintenance in addition to testing as a reason for taking a channel out of service for a limited period of time each month. The maintenance portion of this allowance is being deleted. The testing allowance is being retained as a Note to the SRs of improved TS 3.3.8.2. The CTS SRs to which the allowance applies are performed every 6 months or 18 months. Thus, the monthly allowance is not applicable and is being deleted. Further, the Completion Time is being reduced from 8 hours in the CTS to 6 hours in the improved TS, since 6 hours is generally a sufficient time to perform these surveillances.

The staff has reviewed these more restrictive requirements and believes they improve the CTS. Therefore, these more restrictive requirements are acceptable.

2.3.3.4 <u>Significant Administrative Changes</u>

In accordance with the guidance in the Final Policy Statement, the licensee has proposed the following administrative changes to the existing technical specifications (TS) to bring them into conformance with the improved TS.

(1) In accordance with the guidance in the STS, the licensee has proposed to relocate RPS-related portions of current Unit 1 limiting safety system

settings (LSSS) specifications 2.1.A.1 through 2.1.A.5, and 2.2.A.1.a, and Unit 2 existing LSSS specification 2.2 and associated Table 2.2.1-1 to improved TS 3.3.1.1, "Reactor Protection System Instrumentation," to bring these requirements into conformance with the format of the improved TS. These CTS give the reactor protection system (RPS) instrumentation setpoints and Allowable Values. These items are contained in improved TS 3.3.1.1. The protection and monitoring functions of the RPS have been designed to ensure safe operation of the reactor. This is achieved by specifying LSSS in terms of parameters directly monitored by the RPS, as well as limiting conditions of operation (LCOs) on other reactor system parameters and equipment performance. The LSSS are defined in this specification as the Allowable Values, which, in conjunction with the LCOs, establish the threshold for protective system action to prevent exceeding acceptable limits, including safety limits (SLs), during design basis accidents (DBAs). Nominal trip setpoints are given in the setpoint calculations. The nominal setpoints are selected to ensure that the actual setpoints do not exceed the Allowable Value between successive channel calibrations. Operation with a trip setpoint that is less conservative than the nominal trip setpoint, but within its Allowable Value, is acceptable. A channel is inoperable if its actual trip setpoint is not within its required Allowable Value. Thus, the current RPS setpoints are effectively retained within the improved TS. Therefore, this is considered an administrative change in the presentation of CTS requirements within the improved TS.

(2) The CTS Applicability for the LPRM operability requirement is being deleted in improved TS 3.3.1.1 since it is covered by the operability of the APRM functions. The improved TS Bases state that if sufficient LPRMs are not available (the same number as in Unit 1 CTS Table 3.3.1 and Unit 2 CTS Table 3.3.1-1), then the associated APRM is inoperable. This change in presentation of existing requirements is considered administrative.

(3) Each of the 8 MSIVs inputs its closure signal to each RPS trip system. All channels are required to be operable to ensure a scram with the worst single failure. Therefore, the minimum number of channels is more appropriately specified as "8" in improved TS 3.3.1.1 rather than the CTS "4." Since this change involves no design change but is only a difference of nomenclature, it is considered administrative.

(4) The ACTION of the Unit 1 CTS Table 3.1-1 Note to reduce power to 25% RTP if the RPS channels for Scrams 11 or 12 (improved TS Table 3.3.1.1-1 for functions 8 and 9, turbine stop valve closure and fast closure) are inoperable is being changed to only require power to be reduced to < 30% RTP in corresponding ACTION E of improved TS 3.3.1.1. The effective Applicability of the requirements for these functions is currently ≥ 30% RTP; thus, as soon as power is reduced to < 30% RTP, the functions are not required, and further reduction to 25% RTP would not be required. Therefore, this change, which is also consistent with the STS, is administrative.

(5) The SR Frequencies of Unit 1 CTS Table 4.1-1 Note l, "Perform within 24 hours of startup if not performed within the previous 7 days" and Note m, "unless performed within the previous 7 days" are redundant to the requirements of improved TS SR 3.0.4 which require the surveillance to be performed and current prior to entry into the applicable operational conditions.

The Unit 2 SR Frequency of "S/U" in Unit 2 CTS Table 4.3.1-1, and the SR Frequency of Note b in this table, "within 24 hours prior to startup if not performed within the previous 7 days," are also redundant to the requirements of SR 3.0.4 which require the surveillance to be performed and current prior to entry into the applicable operational conditions.

Once the applicable conditions are entered, meeting the SR within the specified Frequency provides adequate assurance of operability, if required. Therefore, omission of these redundant SR Frequencies from improved TS 3.3.1.1 is considered administrative.

(6) The ACTION of the Unit 1 CTS Table 3.1-1 Note to "initiate insertion ... within four hours" and the Unit 2 CTS Table 3.3.1-1, ACTION 8, to "insert ... within 1 hour" are being revised to "initiate action to insert ... Immediately" in the ACTIONS of improved TS 3.3.1.1. The existing requirement appears to provide 4 hours in Unit 1 (1 hour in Unit 2) in which control rods could be left withdrawn, even if able to be inserted. Also, if the control rod is incapable of being inserted in 4 hours (1 hour), the existing action requirement would appear to result in a requirement for a licensee event report (LER). The intent of this action requirement is more clearly presented in improved TS 3.3.1.1, ACTION H, which says to immediately insert the control rod(s) and maintain them inserted (a significantly more conservative requirement). No longer would the provision to withdraw or leave withdrawn one or more control rods for up to 4 hours appear to exist. With this conservatism, however, comes the understanding that if best efforts to insert the control rod(s) take longer than 4 hours, no LER would be required. This interpretation of the intent is consistent with the presentation of this ACTION in the STS. Thus, this change is considered administrative.

(7) With one or more SRMs inoperable in Mode 5, the requirement of ACTION a of Unit 2 CTS 3.9.2 to actuate the manual scram is being replaced with ACTION E of improved TS 3.3.1.2 to initiate action immediately to insert all insertable control rods in core cells containing one or more fuel assemblies. In Mode 5, control rods can be withdrawn under the provisions of improved TS 3.10.5 and 3.10.6, or some unanticipated event may have resulted in uninserted control rods. Initiation of a manual scram could result in damage to the CRD or its mechanism. Therefore, the new wording provides the same intent without the higher potential for damage to result, and is considered an administrative change.

(8) The minimum number of operable channels is being increased from "1" in Unit 1 CTS Table 3.2-7 and Unit 2 CTS Table 3.3.5-1, to "2" in improved TS 3.3.2.1, "CRB Instrumentation," since this number is already required in Unit 1 CTS 3.3.F and Unit 2 CTS 3.1.4.3. In addition, the proper

number of time delay relay channels is being added, for consistency. This change in presentation of existing requirements is administrative.

(9) ACTION C of improved TS 3.3.2.1 is being added to provide proper guidance for when a startup is not allowed with a inoperable RWM (i.e., less than 12 rods withdrawn and a startup with the RWM inoperable in the last calendar year has already been performed). This action is implied by the CTS wording for an inoperable rod worth minimizer in Unit 1 CTS 3.3.G.1 and Unit 2 CTS 3.1.4.1 ACTIONS. Therefore, the addition of this action requirement is an alternate presentation of an existing requirement, and is, therefore, considered administrative.

(10) The required number of drywell high range radiation function channels is being changed from two indicators and two recorders (an apparent total of four channels) of Unit 1 CTS Table 3.2-11 to two channels in improved TS 3.3.3.1, "PAM Instrumentation." The instrument design has an indicator, which is a remote indicating switch, that sends a signal to a recorder. The improved TS is written such that the indicator is part of the associated recorder channel. That is, if the remote indicating switch is inoperable, such that the recorder does not receive a signal, the channel is considered inoperable. This change is considered administrative, since each proposed channel consists of the indicator and its associated recorder.

(11) The requirement of Unit 1 CTS 3.7.A.8 to place the unit in Mode 4 if the H_2 and O_2 analyzers are no restored to operable status is being deleted. The current Applicability of the Unit 1 CTS for the analyzers is only "power operation" (> 1% RTP). Therefore, once power is reduced below 1% RTP, the H_2 and O_2 analyzers are no longer required, and the shutdown to Mode 4 would not have to be completed. Therefore, this deletion is considered administrative.

(12) Reformatting and renumbering of ECCS instrumentation requirements is in accordance with the STS. The existing sections for HPCI, ADS, LPCI, and CS instrumentation in Unit 1 TS have been combined in improved TS 3.3.5.1. During this process, the listing of the various tables has been deleted since it is found in the Table of Contents at the beginning of the improved TS. Therefore, the LCO statement of improved TS 3.3.5.1 references the proper table. In addition, Note 1 to the surveillance requirements delineates the proper SRs to be performed on the ECCS instrumentation functions. This Note was added due to the combining of the four current tables. This change in the Unit 1 presentation of ECCS instrumentation requirements is considered administrative.

(13) In improved TS Section 3.3, column titles in the instrumentation tables are on a per function basis rather than the per trip system basis of the CTS. Typically, the number of channels in the improved TS table is doubled for functions having two trip systems. For example, this new categorization is used for all ECCS, except the ADS. For the automatic depressurization system (ADS), each of the two trip systems are listed in the table, thus, the channels per function do not change. In the

case of the ADS instrument "RHR Pump Discharge Pressure," the design of a channel, as currently required, consists of 2 portions. These are presented as separate channels in the improved TS. The number of channels of radiation monitors has been changed typically from "2" to "1 per area." Where there are currently two channels, one in each of the two trip systems, the "per trip system" channel description in the CTS has been changed to specify the total number of channels in the improved TS LCO. Another example is the 2 channels per loop requirement for the CS discharge pressure - high (permissive) function of Unit 2 CTS Table 3.3.3-3, which means 4 channels total. This has been changed to "4" in the corresponding improved TS Table 3.3.3.5-1. These presentation changes are administrative.

(14) Improved TS 3.3.5.1, Required Action D.2.2, directs the HPCI suction to be aligned to the suppression pool instead of tripping the inoperable condensate storage tank (CST) water level - low channel, as currently required by Note b.1 of Unit 1 CTS Table 3.2-2. Because performing Required Action D.2.2 results in the same condition as tripping the channel, this change is considered administrative.

(15) The suppression pool water level trip setting has been changed to the Allowable Value specified in the setpoint analysis; the Unit 1 CTS value of ≤ 0 inches, specified in Unit 1 CTS Table 3.2-3, corresponds to 151 inches above the lowest elevation on the inside bottom of the torus (the "invert") specified in improved TS Table 3.3.5.2-1. Because the actual pool level at which the trip channel must be set is unchanged, this change is administrative.

(16) The ACTION of Unit 1 CTS Table 3.2-1 to close the MSIVs (when the number of operable main steam line pressure instrument channels is less than required, in both trip systems) is being modified to place the unit in Mode 2 (improved TS 3.3.6.1, Required Action E.1). These ACTIONS are effectively the same because in order to close the MSIVs, the unit must be in Mode 2. Once in Mode 2, the MSIV isolation function is not required. Thus, the MSIVs are not required to be closed. This change in presentation of existing action requirements is considered administrative.

(17) The Unit 2 CTS Table 3.3.2-3 response times for the reactor vessel level, drywell pressure, main steam line pressure, main steam line temperature, condenser vacuum, and turbine building area temperature trip functions correspond with the diesel generator start delay time. While the time specified in this existing Unit 2 specification is one second longer than the existing TS start times for the DGs, the additional one second is in error and the response times should have been the same as the diesel generator start times. This is consistent with the CTS '*' footnote to the table. Therefore, these response time tests are redundant to the diesel generator start time tests in Unit 2 CTS 3/4.8.1.1 (improved TS 3.8.1). NUREG-1366 and Generic Letter 93-05 both recommend deletion of these tests when they are redundant to the diesel generator tests. Therefore, these response time tests are being omitted from improved TS 3.3.6.1. In addition, the HPCI and RCIC steam

line high flow-high functions have a minimum time specified. This time appears consistent with the minimum closure time of an MSIV, to ensure these valves do not close faster than MSIVs. However, the HPCI and RCIC valves are motor-operated and cannot physically close in that short of a time, so the time limit is not needed. Because these changes delete redundant or unnecessary requirements, they are considered administrative.

(18) The shutdown action requirements of Unit 1 CTS 3.6.H.1.d and Unit 2 CTS 3.4.2.1, ACTION e, in the event both S/RV tailpipe pressure switches of an S/RV are declared inoperable, are being changed. The improved TS require the associated LLS valves to be declared inoperable immediately (improved TS 3.3.6.3, Required Action D.1). Since two inoperable S/RV tailpipe pressure switches affect the logic of two LLS valves, and improved TS 3.6.1.6 ACTIONS for two LLS valves require an immediate shutdown, the new ACTIONS accomplish the same result as the current action requirements. Therefore, this change is administrative.

(19) The requirement for performing the instrument functional test is contained in improved TS SR 3.3.8.1.1. It is possible that the test would not be able to be performed with an inoperable channel, and a plant shutdown would be required due to the inability to perform the required surveillance. However, this restriction on continued operation need not be specified as an ACTION (as is the case in Unit 1 CTS Table 3.2-12, Note c.1 and Unit 2 CTS 3.3.8, ACTION a); it exists inherently as a result of the instrument functional test requirement. In addition, the channel is not allowed to be placed in trip in the improved TS, thus this Note does not apply. Since no change in operation, requirements or intent is made, the improved TS revision to eliminate a specific restriction on continued operation is administrative.

(20) The Unit 2 control room air inlet radiation-high function is currently specified in Unit 2 CTSs 3/4.3.6.1 and 3/4.3.6.7. These have been combined in improved TS 3.3.7.1. Certain requirements are only specified in one of the two Unit 2 CTS specifications. Thus, in the improved TS, the more limiting of the requirements is maintained, unless otherwise changed. The Unit 2 CTS requirements that are affected are:

- The daily channel check requirement of Unit 2 CTS 3/4.3.6.1 is maintained.

- The allowance in Unit 2 CTS 3/4.3.6.1, ACTION a, to not declare inoperable a channel with an improper trip setpoint for up to 4 hours, is being deleted since Unit 2 CTS 3/4.3.6.7 does not provide for this allowance.

- The condition of "during handling irradiated fuel" in the Applicability of Unit 2 CTS 3/4.3.6.7 is maintained.

- The Allowable Value of ≤ 1 mr/hour specified in Unit 2 CTS 3/4.3.6.7 is maintained in lieu of the 1 mr/hour trip setpoint in Unit 2 CTS 3/4.3.6.1.

This overall change is administrative.

The above changes result in the same limits given in the current requirements or they more clearly present the intent of the CTS. Accordingly, these changes are purely administrative and are acceptable.

2.3.3.5 Significant Differences Between the Improved TS and the STS

In electing to adopt STS Section 3.3, the licensee proposed the following differences between the improved TS and the STS:

(1) The Frequency for calibrating the local power range monitors in STS SR 3.3.1.1.8 is 1000 MWD/T average core exposure. Improved TS SR 3.3.1.1.8 specifies a nearly equivalent Frequency of 1000 effective full power hours, as given in the CTS. Paragraph 2.3.3.2.a(7) of this safety evaluation also discusses a proposed change to this SR Frequency.

(2) The licensee has not elected to add to its CTS for instrumentation the SR to calibrate trip units which is contained in the following STS SRs:

SR 3.3.1.1.10	SR 3.3.6.1.3
SR 3.3.4.2.3	SR 3.3.6.2.3
SR 3.3.5.1.3	SR 3.3.6.3.5
SR 3.3.5.2.3	SR 3.3.7.1.3

This SR is a setpoint verification which is currently performed as part of the channel functional test (CFT). When the licensee installed the new GE analog transmitter trip system (ATTS) at HNP, the licensee committed to perform setpoint verifications as part of the CFT procedures on a monthly basis; no requirements were added to CTS for HNP by the NRC[9], although appropriate SRs were added to the STS. The licensee reports that this method of performing the setpoint verification, which was subsequently relaxed to once per quarter, has been successfully utilized for a number of years. The existing provisions previously established by this commitment to perform trip unit calibration as part of the CFT on a quarterly basis are adequate. Therefore, omission of the above STS SRs from the improved TS is acceptable.

(3) STS SR 3.3.1.1.14 is changed from verifying the APRM flow bias and simulated thermal power - high time constant is "< 7 seconds" to "within the limits specified in the COLR." In addition, this SR and the limit

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[9] NRC SERs for Unit 2 Amendment 39 dated July 13, 1984, and Unit 1 Amendments 103 dated December 7, 1984, and 121 dated January 17, 1986, approved the ATTS trip units to be calibrated during the channel functional test on a once per month basis.

value of the time constant are not contained in existing TS for either unit. Therefore, because it is an enhancement to existing requirements, the improved TS presentation of STS SR 3.3.1.1.14 is acceptable.

(4) Improved TS contain in several instrumentation specifications a SR Note similar to the following Note which is either not contained in STS or which allows 6 hours instead of the STS time of 2 hours:

> "When a channel is placed in an inoperable status solely for performance of a Required Surveillance, entry into associated Conditions and Required Actions may be delayed for up to 6 hours provided the other required channel(s) is OPERABLE."

Appropriate Notes adding this 6-hour allowance to existing instrumentation SRs were approved by the NRC for the CTS by letter dated April 30, 1993, forwarding TS Amendment 185 for Unit 1 and TS Amendment 125 for Unit 2. Affected STS instrumentation specifications are:

3.3.1.2	STS SR Note 2 only allows 2 hours
3.3.3.1	Note not contained in STS
3.3.3.2	Note not contained in STS
3.3.8.1	STS SR Note 2 only allows 2 hours
3.3.8.2	Note not contained in STS

(5) Unit 1 improved TS SR 3.3.1.1.16, RPS response time verification, (STS SR 3.3.1.1.17), is only required for function 9, turbine control valve fast closure, trip oil pressure - low, consistent with the current licensing basis requirement for Unit 1. The ECCS response times and isolation system response times are not required in Unit 1 CTS.

Most of the isolation system response times in STSs 3.3.6.1 and 3.3.6.2 are essentially the same as, and therefore redundant to, the diesel generator start delay time. As recommended by NUREG-1366 and Generic Letter 93-05, the Unit 2 improved TS omit these redundant SRs (STS SRs 3.3.6.1.8 and 3.3.6.2.7). Only main steam line isolation functions 1.a, 1.b, and 1.c retain a requirements to verify the isolation system response time (Unit 2 improved TS SR 3.3.6.1.7).

(6) Improved TS SR 3.3.1.2.4, verifying proper SRM count rate, contains an additional Note which states this SR is not required to be met during spiral unloading, based on the allowance of the CTS, approved by Amendments 66 and 26 to Unit 1 and 2 TS, respectively.

(7) The title of STS 3.3.2.2, "Feedwater and Main Turbine Trip Instrumentation," is changed in the improved TS to "Feedwater and Main Turbine High Water Level Trip Instrumentation."

(8) In ACTION D of STS 3.3.3.1, if two hydrogen monitor channels are inoperable, 72 hours is provided to restore one channel. In the improved TS, the hydrogen monitor channels are contained with other

post-accident monitoring channels, allowing 7 days to restore all but one channel to operable status, consistent with the CTS.

(9) Improved TS Table 3.3.3.1-1 differs from the corresponding STS table to reflect the HNP Regulatory Guide 1.97 commitments. The revised table contains all Type A and Category 1 channels. (See paragraph 2.3.3.1.a (3) of this safety evaluation for additional discussion.)

(10) As discussed in paragraph 2.3.3.1.b(2) of this safety evaluation, STS Table 3.3.3.2-1 for remote shutdown system instrumentation is not contained in the improved TS.

(11) The ACTIONS of STS 3.3.5.1 assume only one division of emergency core cooling is affected when a trip system is lost. The trip system logic at HNP has each trip system sending a start signal to both divisions of emergency core cooling. Because of this design difference, the words "when its redundant feature ECCS initiation capability is inoperable" are omitted from the corresponding improved TS ACTIONS.

(12) STS requirements for manual initiation channels are not being adopted in the improved TS because requirements for these channels are not contained in the CTS, and the licensee will not voluntarily backfit.

(13) ACTION A of STS 3.3.6.3 for the low-low set (LLS) instrumentation is reworded in the improved TS ACTION A to "One LLS valve with initiation capability not maintained," in contrast to the STS wording of "One LLS valve inoperable due to inoperable channel(s)." This difference is acceptable because the ACTION should address the condition in which the LLS valve is inoperable because initiation capability is lost as well as because of an inoperable channel. A similar change is made to STS 3.3.6.3 ACTION D involving two or more LLS valves, and to STS 3.3.6.3 SR Note 2.

(14) The improved TS require only the control room air inlet radiation - high function to initiate the MCREC system. Therefore, STS Table 3.3.7.1-1 and references to it are not contained in the improved TS.

(15) Improved TS Table 3.3.8.1-1 adds the loss of power (LOP) anticipatory annunciator functions because HNP takes credit for them to allow manual action to respond to a certain range of low voltages. The alarm is delayed for 65 seconds to reduce the potential of nuisance annunciators, while detecting the less-than-adequate voltage conditions. In addition, ACTION B is added to verify the 4.16 kV voltage once per hour if one or more of the 4.16 kV emergency bus under-voltage annunciation relays are inoperable.

(16) The Applicability and ACTION D of improved TS 3.3.8.2 in Modes 4 and 5 adds the condition "or with both residual heat removal (RHR) shutdown cooling isolation valves open." This change is consistent with the STS Required Action D.2.2 to isolate the RHR shutdown cooling system, if previous ACTIONS are not met. Because of this enhancement to the

Applicability statement and ACTION D, the ACTIONS of improved TS 3.3.8.2 are clearer. Therefore, this difference is acceptable.

These proposed differences from STS Section 3.3 are consistent with HNP design features and existing requirements and commitments. Therefore, they are acceptable.

2.3.4 Reactor Coolant System (Improved TS Section 3.4)

2.3.4.1 Relocated Requirements

2.3.4.1.a Existing Specifications Entirely Relocated

In accordance with the criteria in the Final Policy Statement, the following current specifications are being entirely relocated to the licensee-controlled documents noted:

Unit 1 CTS	Title	Relocation Document
3.6.K	Structural Integrity	Inservice Inspection Program
3/4.6.F.2	Conductivity and Chloride	Plant Procedures and TRM

Unit 2 CTS	Title	Relocation Document
3/4.4.8[10]	Structural Integrity	Inservice Inspection Program
3/4.4.4	Chemistry	Plant Procedures and TRM

(1) Structural Integrity

The structural integrity inspections in the CTS prevent long-term degradation of ASME Code Class 1, 2, and 3 components, and ensure that structural conditions of these components are maintained at an acceptable level throughout the life of the plant. The inspection program associated with the CTS requirements is performed on systems assumed to function to mitigate a design basis accident. However, the CTS also establish operability requirements for these same systems. Thus, the limits in Unit 1 CTS 3.6.K and Unit 2 CTS 3/4.4.8 are not required to ensure operability of ASME Code Class 1, 2, and 3 components. Therefore, these specifications may be relocated to the inservice inspection (ISI) program which implements the requirements of 10 CFR 50.55a and which will ensure that the structural degradation of safety systems will be within limits. See paragraph 2.3.0.1.b(1) of this safety evaluation for additional discussion of the relocation of ISI program requirements from CTS to the licensee-controlled ISI program. Because 10 CFR 50.55a contains the necessary requirements to accomplish the safety objective of the CTS ISI requirements for ASME

[10] This SR references Unit 2 CTS SR 4.0.5, inservice inspection and testing of ASME Class 1, 2, & 3 components.

Code Class 1, 2, and 3 components, an explicit specification requiring compliance with the ISI provisions in 10 CFR 50.55a does not need to be included in the improved TS.

(2) Conductivity and Chloride; Chemistry

The reactor coolant chemistry program provides limits on particular chemical properties of the primary coolant, and surveillance practices to monitor those properties, to ensure that degradation of the reactor coolant pressure boundary is not exacerbated by poor chemistry conditions. However, degradation of the reactor coolant pressure boundary is a long-term process, and there are other, direct means to monitor and correct the degradation of the reactor coolant pressure boundary which are controlled by regulations or TS; for example, inservice inspection and primary coolant leakage limits are provided to prevent long-term degradation of the reactor coolant pressure boundary materials, and provide long term maintenance of acceptable structural conditions of the system. These limitations are not of immediate importance to the operator, and are not required to ensure operability of the reactor coolant system pressure boundary. Further, this change is made to be consistent with the STS presentation. Thus, these requirements specified in CTS do not satisfy the Final Policy Statement TS screening criteria and are being relocated to the Technical Requirements Manual and plant procedures controlled in accordance with 10 CFR 50.59. Therefore, this relocation is acceptable.

The above existing requirements relating to structural integrity and reactor coolant system chemistry, that are being entirely relocated to licensee-controlled documents, are not required to be in the TS under 10 CFR 50.36, and are not required to obviate the possibility of an abnormal situation or event giving rise to an immediate threat to the public health and safety. Further, they do not fall within any of the four criteria in the Final Policy Statement (discussed in the Part 1 of this safety evaluation). In addition, the staff finds that sufficient regulatory controls exist under 10 CFR 50.55a and 10 CFR 50.59. Accordingly, these requirements may be removed from the CTS and placed in the ISI program, plant procedures, and the TRM, as appropriate.

2.3.4.1.b Existing Specifications Relocated In Part

In accordance with the criteria in the Final Policy Statement, the licensee has proposed to relocate the following parts of existing TS to other licensee-controlled documents; the corresponding improved TS location of the remaining part of each specification is also noted. (CTS Tables may be recognized by a "dash" followed by a colon and the instrument function number(s).)

Unit 1 CTS	Improved TS	Description of Relocated Requirements
3/4.2-10: 1	3.4.5	Drywell Equipment Drain Sump Flow Integrator
4.6.F.1.b	3.4.6	Xenon and Krypton offgas isotopic analysis

3.6.G.2.a	3.4.5	Drywell Equipment Drain Sump Flow Integrator
4.6.G	SR 3.4.4.1	Procedural details for RCS Leakage SR
4.6.G	SR 3.4.4.1	RCS Leakage Radiation Monitor Records
3.2-10: 3,4,5	SR 3.4.5.1	Setpoints for particulate, scintillation, and noble gas RCS leakage monitors
4.6.H.1.b	SR 3.4.3.2	S/RV lift test method details
4.6.H.1.c	3.4.3	Leak inspection of S/RV accumulators
4.6.H.1.d	3.4.3	S/RV disassembly and inspection (maintenance)
3.6.H.1.b and c	3.6.2.1	Details of actions for suspected open S/RV
3.6.I	3.4.2	Evaluation of suspected inoperable jet pump(s)
4.6.I	3.4.2	Evaluation of inoperable jet pump(s)
4.6.I	SR 3.4.2.1	Jet pump test performance details
3.6.J.5	3.4.1	Procedural precaution for two-loop operation

Unit 2 CTS	Improved TS	Description of Relocated Requirements
3.4.1.2, ACTION b	3.4.2	Evaluation of suspected inoperable jet pump(s)
4.4.1.2	3.4.2	Evaluation of inoperable jet pump(s)
4.4.1.2	SR 3.4.2.1	Jet pump test performance details
3.4.2.1,Note *	SR 3.4.3.1	Conditions for verifying S/RV lift setpoints
3.4.2.1, ACTIONS b and c	3.6.2.1	Details of actions for suspected open S/RV
3.4.3.1.b and ACTION b	3.4.5	Drywell Equipment Sump Level Monitoring System design detail
4.4.3.2.a and b	SR 3.4.4.1	SR method details and design details for RCS Leakage Monitoring System SR
4.4.5-1: 5	3.4.6	Xenon and Krypton offgas isotopic analysis

(1) Unit 1 CTS 3.6.J.5 requires following a procedure-type precaution when going from single-loop to two-loop operation to provide assurance that excessive vibration of the jet pump risers will not occur. Such excessive vibration could, over time, reduce the lifetime of the jet pump. Requirements of this type are generally found in plant operating procedures, similar to other operating requirements necessary to minimize the potential for damage to components. Such requirements need not be in TS to be effective. Unit 2 CTS do not have this requirement, but it is presently applied to Unit 2 through plant procedures. The remaining provisions for operation of the recirculation loops in improved TS 3.4.1 are adequate to ensure safe plant operation. Any changes to these procedures for operating the recirculation loops will be adequately controlled under the provisions of 10 CFR 50.59.

(2) Unit 1 CTS 3.6.I and Action b of Unit 2 CTS 3.4.1.2 specify evaluating the reason for a jet pump being inoperable or suspected of being inoperable. In order for the unit to be restarted, the jet pump must be

restored to operable status. Inherent in this restoration is determining the reason for the inoperability in order to effect repairs or to ensure a similar problem does not recur. This type of evaluation is more appropriate for plant procedures or general plant policy.

In addition, the SRs given in Unit 1 CTS 4.6.I and Unit 2 CTS 4.4.1.2 are required to be performed whenever plant personnel believe a jet pump is inoperable. If operators suspect a component is inoperable, they would take appropriate actions to determine the actual status of the component, such as performing a surveillance; thus, specifying this type of action requirement in TS is not necessary.

Thus, these action and surveillance requirements and details for their performance are being relocated to appropriate plant procedures. The requirements of corresponding improved TS 3.4.2 will continue to ensure that the plant is not operated with inoperable jet pumps. Any changes to these procedures for evaluating problems with jet pumps and restoring them to operable status will be adequately controlled by the provisions of 10 CFR 50.59.

(3) Unit 1 CTSs 4.6.H.1.c (leak inspection of accumulators) and 4.6.H.1.d (valve disassembly and inspection) are being relocated to plant procedures because they do not directly relate to S/RV operability, but to the ADS function. The system may be able to perform its required safety function in the short term, yet by the current requirement (4.6.H.1.c) would be required to be declared administratively inoperable. In the second case (4.6.H.1.d), the surveillance is strictly a preventive maintenance requirement. In addition, the accumulators are not required in order for the S/RV safety function to operate. The SRs being relocated will continue to identify degradation of the ADS air system pressure retention capabilities but are not a requirement for operability. The operability and testing of the S/RV safety function will continue to be specified by improved TS 3.4.3 and the operability and testing of the ADS function by improved TS 3.5.1. Any changes to these inspection and maintenance requirements will be adequately controlled by the provisions of 10 CFR 50.59.

(4) Unit 1 CTS 4.6.H.1.b requires each S/RV to be opened until thermocouples downstream of the valve indicate steam is flowing from the valve. This detail regarding the performance of this SR is being moved to the appropriate plant procedure. In addition, as discussed in the Bases for corresponding improved TS SR 3.4.3.2, there are other methods for determining that the valve has opened with the expected steam flow. Any changes to these procedural details will be adequately controlled by the provisions of 10 CFR 50.59.

(5) Unit 1 CTSs 3.6.H.1.b and c, and Unit 2 CTS 3.4.2.1, ACTIONS b and c, require placing the reactor mode switch in the shutdown position whenever (a) one or more S/RVs are stuck open or (b) one or more tailpipe pressure switches are inoperable and the associated valve(s) are otherwise indicated to be open. These explicit requirements are being omitted from improved TS because the ACTIONS of corresponding

improved TS 3.6.2.1 require taking equivalent actions in the event one or more S/RVs become stuck open. Specifically, ACTION D of this specification requires immediately placing the reactor mode switch in the shutdown position if the suppression pool average temperature is ≥ 110°F. The CTS ACTIONS, in anticipation of the average pool temperature rising above the limit, are meant to preclude plant operation with the temperature limit exceeded, but may not be the appropriate response to a stuck open S/RV in all cases. It is more effective to include the details of the response to this type of transient in emergency operating procedures (EOPs) while maintaining the shutdown requirement in the improved TS for times when the suppression pool average temperature limit is exceeded, whatever the cause. Any changes to the EOPs will be adequately controlled by the provisions of 10 CFR 50.59.

(6) Unit 2 CTS 3.4.2.1 has a Note "*" that contains details relating to the required conditions for verifying and adjusting the lift settings of the S/RVs. These procedural details for performing this SR are being relocated to the Bases of corresponding improved TS SR 3.4.3.1. Any changes to these details will be adequately controlled by the provisions of improved TS 5.5.11, "Bases Control Program."

(7) Unit 1 CTS 4.6.G and Unit 2 CTSs 4.4.3.2.a and b, to periodically verify that RCS leakage is within limits, include details of the methods for performing this SR. These details are being moved to the Bases for corresponding improved TS SR 3.4.4.1 and plant procedures. Any changes to these procedural details will be adequately controlled by the provisions of 10 CFR 50.59 and improved TS 5.5.11.

(8) Current requirements for the drywell equipment drain sump monitoring system, listed below, are being relocated to the Bases for improved TS Section 3.4.4 and plant procedures.

Unit 1	Unit 2
3.6.G.2.a	3.4.3.1.b
Table 3/4.2-10	3.4.3.1, ACTION b

The drywell equipment drain sump monitoring system functions to quantify identified leakage. However, this system need not be explicitly included in TS because it supports compliance with the limits for RCS operational leakage in improved TS 3.4.4. Omission of requirements for this support system from the improved TS is consistent with the STS. The design and operation of this system are also described in the FSAR. The limits on RCS leakage are still required to be met in improved TS 3.4.4 and adequate leak detection instrumentation systems are required by improved TS 3.4.5 to detect and measure RCS leakage. Any changes to the design of and procedures for the drywell equipment drain sump level instrumentation will be adequately controlled by the provisions of 10 CFR 50.59 and improved TS 5.5.11.

(9) Unit 1 CTS 4.6.G, Table 3.2-10, Note e, includes details relating to the setpoints for particulate, radioiodine, and noble gas activity detectors, and details relating to the recording of readings. These details are being moved to appropriate plant procedures. The channel check requirement is retained as improved TS SR 3.4.5.1. Any changes to the setpoint requirements will be adequately controlled by the provisions of 10 CFR 50.59.

(10) Unit 2 CTSs 3.4.3.1.b and 4.4.3.2.b refer to the primary containment floor drain system as a level and flow monitoring system. Such details related to system design and purpose are being moved to the Bases for improved TS 3.4.5, and are also included in the FSAR. Any changes to the design of the drywell floor drain sump monitoring system will be adequately controlled by the provisions of 10 CFR 50.59 and improved TS 5.5.11.

(11) Unit 1 CTS 4.6.F.1.b and Unit 2 CTS Table 4.4.5-1, Item 5, to perform the offgas isotopic analysis for Xenon and Krypton are being deleted because this analysis does not involve direct measurements related to the LCO limits. These measurements are used to routinely monitor and trend coolant activity and are applicable to plant specific controls and administrative limits only. Therefore, this SR is being relocated to plant procedures. The RCS specific activity monitoring requirement of improved TS SR 3.4.6.1 is adequate for monitoring RCS specific activity. Any changes to the offgas isotopic analysis procedures will be adequately controlled by the provisions of 10 CFR 50.59.

The detailed information and requirements described above that are contained in the CTS are not required to be in the TS under 10 CFR 50.36. Such detailed information and requirements are not required to obviate the possibility of an abnormal situation or event giving rise to an immediate threat to the public health and safety. Further, they do not fall within any of the four criteria in the Final Policy Statement (discussed in Part 1 of this safety evaluation). In addition, the staff finds that sufficient regulatory controls exist under 10 CFR 50.59 and improved TS 5.5.11, "Bases Control Program." Accordingly, the detailed information and requirements described above may be removed from the CTS and placed in plant procedures, the FSAR, the EOPs, and the improved TS Bases, as appropriate.

2.3.4.2 Less Restrictive Requirements

The licensee, in electing to implement STS Section 3.4 specifications, proposed a number of requirements that are less restrictive than requirements given in the CTS. These less restrictive requirements are described below for each of the ten specifications in improved TS Section 3.4

2.3.4.2.a Recirculation Loops Operating (Improved TS 3.4.1)

(1) Unit 1 CTS 3.6.J.4 and Unit 2 CTS 3.4.1.1, ACTION c, require initiating action within 15 minutes to get the unit out of the "Operation Not Allowed" region of Unit 1 CTS Figure 3.6-5 (Figure 3.4.1.1-1 for Unit 2), the power-flow operating map for single-loop operation, within 2

hours. The explicit 15-minute requirement is being deleted because the Bases discussion of corresponding ACTION B of improved TS 3.4.1 state that "prompt action should be initiated" to restore the power-flow state of the plant to an acceptable point. Any changes to the Bases will be adequately controlled by the provisions of improved TS 5.5.11, "Bases Control Program." Because of this and the equivalence of the Bases statement with the 15-minute initiation requirement, this change is acceptable. In addition, improved TS 3.4.1, ACTION B, retains the current requirement to restore proper core flow as a function of core thermal power within 2 hours.

(2) The SRs in Unit 1 CTS 4.6.J.2 and Unit 2 CTS 4.4.1.1.2 are required to be performed upon commencing single-loop operation; i.e., going to a single recirculation pump in operation from either natural circulation or two pump operation. Corresponding improved TS SR 3.4.1.2 contains a Note that modifies this Frequency to allow the SR to be initially performed within 1 hour of commencing single-loop operation. This Note removes an ambiguity of the CTS by allowing sufficient time to satisfy the SR while ensuring that the SR is met within a short time of starting single-loop operation. Therefore, this change is acceptable.

(3) Unit 1 CTS 4.6.J.2(b) and Unit 2 CTS 4.4.1.1.2.b require verifying that the plant is operating within the limits of Figure 3.6-5 (Unit 1) and Figure 3.4.1.1-1 (Unit 2) ("Power-Flow Map With One Reactor Coolant System Recirculation Loop In Operation") whenever thermal power has been changed by at least 5% of rated thermal power (RTP) and steady-state conditions have been reached (in addition to the Frequency of 24 hours). This Frequency is being omitted from corresponding improved TS SR 3.4.1.2 because steady state conditions may not be reached before the next required 24-hour periodic surveillance. In addition, CTS do not state how soon the surveillance must be completed after steady state conditions have been reached. Therefore, the 24-hour Frequency and the operators' continuous awareness of reactor status, including significant changes in thermal power and core flow, are sufficient to ensure the limits of improved TS Figure 3.4.1-1 are satisfied during plant power changes during single-loop operation. Therefore, omission of this Frequency is acceptable.

2.3.4.2.b <u>Jet Pumps (Improved TS 3.4.2)</u>

(1) The CTS allow entry into the Applicability of the current specification for the jet pumps without first performing the jet pump SR given in Unit 1 CTS 4.6.I and Unit 2 CTS 4.4.1.2. However, CTS require meeting this SR prior to thermal power exceeding 25% RTP. The improved TS relaxes this requirement with Note 2 of improved TS SR 3.4.2.1, consistent with the STS. This Note provides time to perform this SR subsequent to thermal power exceeding 25% RTP. Below 25% RTP, low jet pump flow results in indication which precludes the collection of repeatable and meaningful data. Because verification of jet pump operability should be accomplished by testing that is meaningful and repeatable, this change is acceptable. This flexibility to proceed to $\geq$ 25% RTP and then commence the SR every 24 hours is also consistent with approved

technical specifications for comparable BWR-6 plants, at both Perry Nuclear Power Plant and River Bend Station. Therefore, this change is acceptable.

2.3.4.2.c Safety/Relief Valves (S/RVs) (Improved TS 3.4.3)

(1) When one safety/relief valve is known to have failed, Unit 1 CTS 3.6.H.1.a requires initiating an orderly plant shutdown in order to depressurize the reactor below 113 psig within 24 hours. Corresponding ACTION A of improved TS 3.4.3 allows continuing plant operation for 14 days in this ACTIONS Condition. This is acceptable because the remaining S/RVs are capable of mitigating the bounding pressurization transient (failure of the direct scram function associated with MSIV position on closure of all MSIVs at power), assuming no single failure. In addition, ACTION A is consistent with the Unit 2 CTS and the STS.

(2) The Note "***" to Unit 1 CTS 3.6.H.1.a and ACTION f of Unit 2 CTS 3.4.2.1 specify reporting to the NRC the failure or malfunction of any S/RV. This requirement is being deleted because the reporting criteria in 10 CFR 50.72 and 10 CFR 50.73 are adequate to ensure the reporting of significant failures or malfunctions of S/RVs. In addition, the two reporting time limits in the CTS coincide with the time limits in 10 CFR 50.72 and 10 CFR 50.73. Therefore, deletion of this reporting requirement is acceptable.

(3) Unit 1 CTS 2.2.A.1 and Unit 2 CTS 3.4.2.1 specify the allowed lift setpoint tolerance for S/RVs at ±1%. This is being increased to ±3% in the improved TS because HNP reactor vessel overpressure and transient analyses assume this larger setpoint tolerance. In addition, when the setpoints are verified in accordance with improved TS SR 3.4.3.1, they are required to be reset to ±1%. This change is acceptable because the ±3% tolerance is consistent with the assumptions of existing analyses which show that the specified pressure limits are not exceeded, as described below. The technical justification for this change was provided in a letter dated August 31, 1994, forwarding Revision D to the licensee's submittal.

Based on the review of the topical report NEDC-31753P, "BWROG In-Service Pressure Relief Technical Specification Revision Licensing Topical Report," submitted to NRC by BWROG on July 9, 1990, the staff granted a generic approval for General Electric BWRs to relax the current in-service opening pressure setpoint tolerances for the S/RVs up to a limit of ±3%. The staff safety evaluation report (SER)[11] details the basis and limitations of the staff approval, and lists certain plant specific analyses that must be performed by each licensee choosing to implement these TS modifications.

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[11] Letter from A.C. Thadani to C.L. Tully, dated March 8, 1993, "Acceptance for Referencing of Licensing Topical Report NEDC-31753P: BWROG In-service Pressure Relief Technical Specification Revision Licensing Topical Report."

The CTS for both units allow a setpoint tolerance of ±1% for each S/RV. In order to reduce the number of forced outages, and to decrease maintenance and surveillance testing costs, the licensee proposed to increase the S/RV setpoint tolerance to ±3%. Furthermore, when the setpoints are verified, they will still be required to be reset to ±1% to ensure that the S/RVs will not drift outside the proposed ±3% setpoint tolerance range. Corresponding changes to the Bases were also proposed. To justify this change, the licensee performed licensing basis calculations to show that with the proposed setpoint tolerance modification, vessel overpressurization limits and loss-of-coolant accident emergency core cooling system performance requirements are satisfied. The calculations also showed that the proposed change does not have a significant impact on thermal limits, low-low set operation and containment performance. The supporting analyses provided by the licensee to justify the proposed change are consistent with the staff recommendations as outlined in the staff SER, noted previously, and therefore, this proposed change is acceptable.

2.3.4.2.d <u>RCS Operational Leakage (Improved TS 3.4.4)</u>

(1) The total RCS leakage rate allowed by Unit 1 CTS 3.6.G.1.c and Unit 2 CTS 3.4.3.2.c is being increased from 25 gpm to 30 gpm in improved TS 3.4.4.c. No applicable safety analysis assumes the total leakage limit. The limit is based on a consideration of RCS inventory makeup capacity and drywell floor drain capacity. The limit of 30 gpm is well within the capacity of the control rod drive system pumps and the RCIC system, and is well below the capacity of one drywell equipment drain or floor drain pump, which is used to pump the water out of the collecting sump. The collecting sumps can also accommodate this small additional leakage rate. In addition, the 30-gpm leakage rate matches the STS value. Thus, the current capability for monitoring RCS leakage is not reduced with the 30 gpm limit. Therefore, this change is acceptable.

(2) The Applicability of the unidentified leakage rate increase limit is being reduced in improved TS 3.4.4.d to just Mode 1, instead of Modes 1, 2, and 3 (i.e., when reactor coolant temperature is above 212°F) as given in Unit 1 CTS 3.6.G.1.b and Unit 2 CTS 3.4.3.2.d. As reactor pressure increases during a plant startup, RCS leakage will occur because of the increased pressure. Thus, an increase is normally detected, and if greater than the rate increase limit, CTS would require a unit shutdown, even though the leakage rate increase is not indicative of a safety significant degradation of the RCS pressure boundary. The new Applicability will not require the limit to be applied until Mode 1 is achieved, which is when reactor pressure has effectively stabilized at normal operating pressure. The overall 5 gpm unidentified leakage limit will be maintained. This limit is much below the expected flow from a critical crack in the primary system. This change is also consistent with the STS. Therefore, this change in Applicability is acceptable.

(3) Unit 1 CTS SR 4.6.G and Unit 2 CTS SR 4.4.3.2.a and b specify verifying that RCS leakage is within limits every 8 hours. This is being reduced

in corresponding improved TS SR 3.4.4.1 to a Frequency of 12 hours. This is consistent with the recommendation of Generic Letter 88-01, Supplement 1, which allows the Frequency to be extended to shiftly, not to exceed 12 hours. HNP currently uses a 12-hour operating shift. Therefore, this Frequency is acceptable.

2.3.4.2.e <u>RCS Leakage Detection Instrumentation (Improved TS 3.4.5)</u>

(1) The CTS listed below specify that the following primary containment (drywell) RCS leakage monitoring systems be operable: (a) two atmosphere particulate, (b) two atmosphere gaseous, (c) floor drain sump, and (d) equipment drain sump. These CTS also specify certain remedial actions when one or more of these systems are inoperable.

Unit 1	Unit 2
3.6.G.2.a, b, and c	3.4.3.1.a, and c
3.6.G.3.c	4.4.3.1.a

As noted previously, the equipment drain sump is no longer specifically required in order to satisfy improved TS LCO 3.4.5. In addition, this LCO reduces the number of required atmosphere monitoring systems from two to one. The drywell atmospheric particulate and gaseous monitoring systems are grouped so that only one of the two is required since they provide the same type of indication. A diverse method to quantify increased leakage is still provided by the drywell floor drain monitoring system, and this is the primary method for quantifying leakage.

The CTS action requirements are being modified to allow the required atmospheric monitoring system (i.e., both particulate and gaseous monitors) to be inoperable for 30 days, consistent with the new requirement that only one of the two monitors included in the required monitoring system be operable. The CTS SRs are also being modified to reflect this new requirement in the SRs of improved TS 3.4.5.

Overall, improved TS 3.4.5 requires sufficient monitoring systems to ensure the availability of a method which can quantify unidentified leakage and also a diverse method for detecting an indication of increased leakage. Therefore, this specification is acceptable.

(2) Unit 1 CTSs 3.6.G.2.a, b, and c and Unit 2 CTS SR 4.4.3.1.a specify performing the RCS leakage monitoring system channel check every 8 hours. This SR Frequency is being reduced in corresponding improved TS SR 3.4.5.1 to a Frequency of 12 hours, consistent with the recommendation of Generic Letter 88-01, Supplement 1, which allows the Frequency to be extended to shiftly, not to exceed 12 hours. HNP currently uses a 12-hour operating shift. Therefore, this change is acceptable.

(3) Unit 1 Table 4.2-10, Item 2 (daily instrument check of the drywell floor drain sump flow integrator) is being deleted. Unit 2 CTS SR 4.4.3.1.b

(sensor check of primary containment sump level and flow monitoring system every 8 hours) is also being deleted. An instrument check (or a sensor check) does not consistently demonstrate operability since, in this case for both units, there are no other instruments to compare readings with, and their reading could be anywhere on scale. Thus, observing the meter provides no valid information as to whether the instrument is operable.

The monthly channel functional test (CFT) for the leakage detection instrumentation is the best indicator of operability, and this requirement is being maintained in improved TS SR 3.4.5.2, consistent with the STS. Therefore, deletion of these requirements is acceptable.

(4) The leakage detection instrumentation channel calibration Frequency is being extended from 3 or 6 months (as specified in Unit 1 CTS Table 4.2-10) to 18 months in improved TS SR 3.4.5.3. This is consistent with current Unit 2 requirements and vendor recommendations. The Unit 1 instruments are essentially identical to the Unit 2 instruments, which have an 18-month calibration cycle. This Frequency has been shown to be adequate to ensure the operability of these instruments. Therefore, this change is acceptable.

2.3.4.2.f <u>RCS Specific Activity (Improved TS 3.4.6)</u>

(1) The Unit 2 CTS 3.4.5.b requirement to maintain specific activity $\leq$ 100/E-bar μCi/gm is being deleted. The Unit 2 CTS Bases state that the intent of the requirement to limit the specific activity of the reactor coolant is to ensure that whole body and thyroid doses at the site boundary would not exceed a small fraction of the limits stated in 10 CFR Part 100 (i.e., 10% of 25 rem and 300 rem, respectively) in the event of a main steam line failure outside containment. To ensure that offsite thyroid doses do not exceed 30 rem, reactor coolant dose equivalent I-131 (DEI) is limited to less than or equal to 0.2 μCi/gm. Unit 2 CTS also limit reactor coolant gross specific activity to $\leq$ 100/E-bar μCi/gm to ensure that whole body doses do not exceed 2.5 rem.

Unit 2 CTS 3.11.2.7, which corresponds to improved TS 3.7.6, associated with radioactive effluents, requires that the gross gamma radioactivity rate of the noble gases Xe-133, Xe-135, Xe-138, Kr-85, Kr-87, and Kr-88 measured at the main condenser evacuation system pretreatment monitor station be limited to less than or equal to 240,000 μCi/second. The Bases for Unit 2 CTS 3.11.2.7 state that restricting the gross radioactivity rate of noble gases from the main condenser provides reasonable assurance that the total-body exposure to an individual at the exclusion area boundary will not exceed a small fraction of the limits of 10 CFR Part 100 in the event this effluent is inadvertently discharged without treatment directly to the environment.

The offgas treatment system, as required by Unit 2 CTS 3.11.2.7 and improved TS 3.7.6, provides reasonable assurance that the reactor coolant gross specific activity is maintained at a sufficiently low

level to preclude offsite doses from exceeding a small fraction of the limits of 10 CFR Part 100 in the event of a main steam line failure. Therefore, Unit 2 CTS 3.4.5.b is redundant and places an unnecessary burden on the licensee without a commensurate increase in safety. Elimination of Unit 2 CTS 3.4.5.b will help plant personnel to focus their attention on safely operating the plant by removing the distraction of a redundant requirement. Additional assurance that offsite doses will not exceed a small fraction of the 10 CFR Part 100 limits is provided by increasing the frequency of sampling and analysis of the reactor coolant for dose equivalent I-131 from at least once per 31 days to at least once per 7 days.

Therefore, deletion of the LCO and associated ACTIONS and SRs of Unit 2 CTS 3.4.5 for E-bar given in Unit 2 CTS 3.4.5.b, ACTION b.1 of Unit 2 CTS 3.4.5, and Unit 2 CTS Table 4.4.5-1, Items 1 and 3, is acceptable.

(2) The Applicability of Unit 2 CTS 3.4.5 is Modes 1, 2, 3, and 4. However, the Applicability of corresponding improved TS 3.4.6 is being limited to those conditions which represent a potential for release of significant quantities of radioactive coolant to the environment. Thus, Mode 4 is being omitted because the reactor is not pressurized and the potential for leakage is significantly reduced. The conditions of Modes 2 and 3, with the main steam lines isolated, are also being omitted because no escape path would normally exist to permit significant releases. Thus, requirements for limiting RCS specific activity are not necessary during these conditions. The improved TS Applicability is also consistent with the STS. Therefore, the Applicability of improved TS 3.4.6 is acceptable. (Note that the corresponding Applicability in Unit 1 CTS is less restrictive than the improved TS Applicability (Mode 1 and Modes 2 and 3 with any main steam line not isolated. See paragraph 2.3.4.3.f(1) of this safety evaluation.)

Unit 2 CTS 3.4.5, ACTION a.1, requires going to Mode 3 with MSIVs closed in 12 hours and to Mode 4 within 36 hours if the limits given in the LCO are not satisfied. The improved TS do not require going to Modes 3 and 4 as long as the MSIVs are closed (Required Actions B.2, B.4, and B.5 of improved TS 3.4.6). This is acceptable for the reasons given above regarding changes in the Applicability of this specification.

(3) Unit 1 CTS 3.4.5 and Unit 2 CTS 3.6.F.1 do not contain an exception to LCO 3.0.4. Such an exception is being included in improved TS 3.4.6, in the form of a Note with the Required Actions for ACTIONS Condition A. Entry into the Applicability of this specification need not be restricted because the most likely response to Condition A (reactor coolant dose equivalent I-131 specific activity > 0.2 μCi/gm and $\leq$ 0.4 μCi/gm) is restoration of the specific activity to $\leq$ 0.2 μCi/gm in compliance with the LCO within the allowed 48 hours. The 48-hour Completion Time provides a reasonable time for temporary coolant activity increases (iodine spikes or crud bursts) to be cleaned up with the normal processing system. The LCO 3.0.4 exception is acceptable due to the significant conservatisms incorporated into the specific activity limit, the low probability of an event which is limiting due to

exceeding this limit, and the ability to restore transient specific activity excursions while the plant remains at, or proceeds to power operation. Further, since the limits given in the LCO ensure that the dose from a LOCA would be a small fraction of the 10 CFR Part 100 limit, operation during the allowed time frame would not have a significant effect on the health and safety of the public.

In addition, for Unit 1, this allowance is already inherently provided by the words of Unit 1 CTS SR 4.6.F.1.c.1, which state that additional samples are required "during startup" when specific activity exceeds the limit. Thus, this change is a presentation preference only and is considered administrative for Unit 1. Therefore, this exception to LCO 3.0.4 is acceptable.

2.3.4.2.g <u>RHR Shutdown Cooling System – Hot Shutdown (Improved TS 3.4.7)</u>

Improved TS 3.4.7 is a new specification for both units and does not contain any requirements for the RHR shutdown cooling system in Mode 3 that are less restrictive than requirements given in the CTS. See Section 2.3.4.3.g of this safety evaluation.

2.3.4.2.h <u>RHR Shutdown Cooling System – Cold Shutdown (Improved TS 3.4.8)</u>

Improved TS 3.4.8 is a new specification for Unit 2 and does not contain any requirements for the Unit 2 RHR shutdown cooling system in Mode 4 that are less restrictive than requirements given in the Unit 2 CTS. See Section 2.3.4.3.h of this safety evaluation.

(1) Unit 1 CTS 3.5.B.1.b requires one RHR loop with two pumps, or two loops with one pump per loop, to be operable when in the shutdown cooling mode if irradiated fuel is in the reactor vessel and the reactor pressure is atmospheric, except prior to a reactor startup in accordance with Unit 1 CTS 3.5.B.1.a. The above details relating to how many RHR pumps are required are adequately described in the Bases for improved TS LCO 3.4.8. This LCO still describes how many subsystems are required (each subsystem includes one pump). Therefore, because these other details are not necessary in the LCO, it is acceptable to omit them from the improved TS.

(2) The LCO requirements of Unit 1 CTS 3.5.B.1.b are being modified by a Note included with improved TS LCO 3.4.8 (Note 2) to allow one of the two RHR shutdown cooling subsystems to be inoperable for 2 hours to perform required surveillances without requiring that ACTIONS be taken for an inoperable RHR SDC subsystem. This Note is appropriate because an allowance must be provided during surveillance testing to prevent an unnecessary operational burden; e.g., if the system were declared inoperable due to the performance of a surveillance, ACTION A would require an alternate method for decay heat removal to be established in 1 hour. Note that the other RHR shutdown cooling subsystem is still required to be operable, and forced flow is also still required. In addition, decay heat removal by operation of the RHR system is not

required for mitigation of any design basis accident or transient. In consideration of the above, the allowance of this Note is acceptable.

2.3.4.2.i RCS Pressure and Temperature (P/T) Limits (Improved TS 3.4.9)

(1) Unit 1 CTS SR 4.6.B requires recording the metal temperature of the outside surface of the reactor pressure vessel at (a) the bottom head in the vicinity of the control rod drive housing and (b) the shell adjacent to the shell flange every 15 minutes during in-service hydrostatic or leak testing when the vessel pressure is ≥ 312 psig. The Frequency of this surveillance is being decreased from 15 minutes to 30 minutes in corresponding improved TS SR 3.4.9.1. In addition, this surveillance must be performed at all pressures, not just at ≥ 312 psig. The metal temperature is not expected to change rapidly due to its large mass. Thus, a 30 minute Frequency is adequate. In addition, this new Frequency is consistent with CTS 4.4.6.1.1 for Unit 2 as well as the STS. On this basis, the change in Frequency is acceptable.

2.3.4.2.j Reactor Steam Dome Pressure (Improved TS 3.4.10)

Improved TS 3.4.10 is a new specification for Unit 1 and does not contain any requirements for the reactor steam dome pressure that are less restrictive than requirements given in the CTS for both units. See Section 2.3.4.3.j of this safety evaluation.

The above less restrictive requirements in improved TS Section 3.4 have been reviewed by the staff and have been found to be acceptable, because they do not present a significant safety question in the operation of the plant. The TS requirements that remain are consistent with current licensing practices, operating experience and plant accident and transient analyses, and provide reasonable assurance that the public health and safety will be protected.

2.3.4.3 More Restrictive Requirements

By electing to implement STS Section 3.4 specifications, the licensee has adopted a number of requirements that are more restrictive than requirements given in the CTS. These more restrictive requirements described below for each of the ten specifications in improved TS Section 3.4, are the following:

2.3.4.3.a Recirculation Loops Operating (Improved TS 3.4.1)

(1) The Applicability of Unit 1 CTS 3.6.J.1 is being increased to include Mode 2 as well as the current condition of > 1% RTP, consistent with the STS and current Unit 2 requirements.

(2) A new requirement for both units, to ensure the two operating recirculation loops have matched flows, is being included in improved TS 3.4.1, consistent with the STS. This ensures the flow assumption of the LOCA analysis is met. A new ACTION (ACTION C) and SR (SR 3.4.1.1) related to flow matching are also being included, consistent with the STS.

2.3.4.3.b Jet Pumps (Improved TS 3.4.2)

(1) Unit 1 CTS 3.6.I and Unit 2 CTS 3.4.1.2, Action b, allow 24 hours to reach Hot Shutdown (Mode 3) with one or more inoperable jet pumps. Improved TS 3.4.2, ACTION A, only allows 12 hours, consistent with the STS.

(2) Unit 1 CTS SR 4.6.I and Unit 2 CTS SR 4.4.1.2 do not specify a time within which they must be performed following a recirculation pump restart. Note 1 to corresponding improved TS SR 3.4.2.1 specifies such a time limit, 4 hours.

(3) Unit 1 CTS 3.6.I and Unit 2 CTS 3.4.1.2 require only the jet pumps associated with operating recirculation loops to be operable in Modes 1 and 2. Improved TS 3.4.2 requires all jet pumps to be operable in Modes 1 and 2. The improved TS does not allow reactor operation to continue with an inoperable jet pump (whether in an operating or non-operating recirculating loop).

2.3.4.3.c Safety/Relief Valves (S/RVs) (Improved TS 3.4.3)

(1) Unit 1 CTS 3.6.H.1.a requires depressurizing to less than 113 psig within 24 hours when one or more S/RVs are known to have failed. Note that ≥ 113 psig is the default Applicability of the current S/RV LCO, because none is specified. This action is being changed to require a shutdown to Mode 4 (thus, the new Applicability of corresponding improved TS 3.4.3 is Modes 1, 2, and 3).

(2) Unit 1 CTS 2.2.A and the footnote "**" in Unit 2 CTS 3.4.2.1 specify an allowance to replace up to two inoperable valves with spare operable valves that have lower setpoints, until the next refueling outage. This allowance is being omitted from the improved TS.

(3) Two new SRs are being added to Unit 2 CTS. Improved TS SR 3.4.3.1 requires the lift setpoints of the S/RVs to be verified in accordance with the Inservice Testing Program, and improved TS SR 3.4.3.2 requires the S/RVs to be manually actuated every 18 months. Note that SR 3.4.3.1 is currently being performed, though it is not explicitly required by Unit 2 CTS. These new SRs are considered additional restrictions on Unit 2 operation.

2.3.4.3.d RCS Operational Leakage (Improved TS 3.4.4)

(1) A new LCO requirement for Unit 1 to allow no pressure boundary LEAKAGE is being included in improved TS LCO 3.4.4.a, consistent with the STS and current Unit 2 requirements. In the event such leakage occurs, new associated ACTION C of this specification requires shutting the plant down.

2.3.4.3.e RCS Leakage Detection Instrumentation (Improved TS 3.4.5)

(1) The Frequency specified in Unit 1 CTS Table 4.2-10 for the instrument check requirement is being increased from every 24 hours to every 12 hours in improved TS SR 3.4.5.1, consistent with the recommendations of Generic Letter 88-01, Supplement 1.

2.3.4.3.f RCS Specific Activity (Improved TS 3.4.6)

(1) The Applicability of Unit 1 CTS 3.6.F.1 is being increased in improved TS 3.4.6, consistent with the STS, in order to require specific activity to be within limits in those conditions which represent a potential for release of significant quantities of radioactive coolant to the environment. See paragraph 2.3.4.2.f(2) of this safety evaluation for additional discussion regarding changes to current specific activity requirements in the Unit 2 CTS. The action requirements are also being made more restrictive consistent with the revised Applicability and the STS.

(2) The Frequency of Unit 1 CTS SR 4.6.F.1.c is being modified to require sampling and analysis every 4 hours as part of ACTION A of improved TS 3.4.6 when specific activity exceeds 0.2 μCi/gm, not just when the additional conditions stated in the Unit 1 CTS are met. Since the sampling is now required every 4 hours, this will ensure samples are taken if one of the listed conditions is also met. This change is an additional restriction on plant operation.

(3) The Frequency of Unit 1 CTS 4.6.F.1.a (isotopic analysis of I-131, I-132, I-133, and I-135) is being increased from monthly to weekly (every 7 days) in corresponding improved TS SR 3.4.6.1 to be consistent with the improved TS Frequency of this SR for Unit 2. The Frequency of the corresponding Unit 2 CTS SR Frequency (specified in Unit 2 CTS Table 4.4.5-1, Item 4) is being changed to 7 days to compensate for the deletion of E-bar. See paragraph 2.3.4.2.f(1) of this safety evaluation for additional discussion of this change.

2.3.4.3.g RHR Shutdown Cooling System – Hot Shutdown (Improved TS 3.4.7)

(1) Improved TS 3.4.7 is consistent with the STS and is new for both units. It requires two RHR shutdown cooling subsystems to be operable in Mode 3 with reactor steam dome pressure less than the RHR low pressure permissive pressure. This new specification also contains appropriate ACTIONS and a SR.

2.3.4.3.h RHR Shutdown Cooling System – Cold Shutdown (Improved TS 3.4.8)

(1) Unit 1 CTS 3.5.B.1.a requires the RHR system to be operable prior to a startup from a cold condition or when irradiated fuel is in the reactor vessel and the reactor pressure is greater than atmospheric. Equivalent RHR shutdown cooling operability requirements are provided in improved TS 3.4.8 for when the plant is in Mode 4. Consistent with the STS, the following additional operational, action and surveillance requirements

are also being added:

- A requirement to have one RHR shutdown cooling subsystem or one recirculation loop in operation, except as allowed by Note 1 of improved TS 3.4.8 (which allows the subsystem and recirculation loop to be removed from operation for 2 hours every 8-hour period).

- ACTIONS A and B, to specify the proper response when RHR shutdown cooling is inoperable or not in operation. Currently, no action requirements are provided.

- Improved TS SR 3.4.8.1, to ensure the required RHR subsystem or recirculation loop is operating.

(2) Improved TS 3.4.8 is new for Unit 2 and is consistent with the STS. It requires two RHR shutdown cooling subsystems to be operable in Mode 4. This specification also includes appropriate ACTIONS and a SR.

2.3.4.3.i <u>RCS Pressure and Temperature (P/T) Limits (Improved TS 3.4.9)</u>

(1) Improved TS SR 3.4.9.2 is being added to existing requirements. It ensures the RCS pressure and temperature are within the criticality limits once within 15 minutes prior to control rod withdrawal for the purpose of achieving criticality.

(2) Three SR Frequencies are being added to Unit 1 CTS SR 4.6.C. Corresponding improved TS SR 3.4.9.5 ensures the vessel head is not tensioned at too low a temperature every 30 minutes. Improved TS SRs 3.4.9.6 and 3.4.9.7 ensure the vessel and head flange temperatures do not decrease below the minimum allowed temperature every 30 minutes or every 12 hours, depending upon the RCS temperature. These Frequencies are additional restrictions on plant operation since the current requirements have no times specified. In addition, these three SRs are new for Unit 2.

(3) ACTIONS are being included in improved TS 3.4.9, consistent with the STS, to provide direction when the LCO is not met. Currently, no ACTIONS are provided.

(4) A Completion Time is being added to the ACTION of Unit 2 CTS 3.4.6.1 to complete an engineering evaluation. The improved TS 72-hour Completion Time is considered reasonable for operation in Modes 1, 2, and 3 because the limits of improved TS LCO 3.4.9 represent controls on long term vessel fatigue and usage factors. In Modes 4 and 5, the proposed time (prior to entering Mode 2 or 3) would prevent entry into the operating Modes which is consistent with the Unit 2 CTS LCO 3.0.4.

(5) The ACTION of Unit 2 CTS 3.4.1.3 in the event a recirculation pump is started without having met the temperature requirements is being changed. Currently, the ACTION only requires operators to suspend the startup of a recirculation loop. This however, does not provide an action if the loop is already operating. ACTIONS A, B, and C of

improved TS 3.4.9 include an additional requirement to perform an engineering evaluation to ensure continued operation is acceptable.

(6) The Frequency of Unit 2 CTS SR 4.4.1.3 is being changed in corresponding improved TS SRs 3.4.9.3 and 3.4.9.4 to require the temperature checks to be performed within 15 minutes prior to startup of the idle recirculation pump, instead of the current Frequency of 30 minutes.

2.3.4.3.j Reactor Steam Dome Pressure (Improved TS 3.4.10)

(1) Improved TS 3.4.10, which is consistent with the STS, is a new requirement for Unit 1. It requires the reactor dome pressure to be ≤ 1020 psig during Modes 1 and 2. This pressure is an initial condition in the reactor vessel overpressure analysis. This new specification includes appropriate ACTIONS and a SR. This requirement is also more restrictive for Unit 2 because Unit 2 CTS 3.4.6.2 requires steam dome pressure to be ≤ 1054 psig.

(2) The Applicability of Unit 2 CTS 3.4.6.2 includes a Note indicating that the reactor steam dome pressure limit is not applicable during anticipated transients. This Note is being deleted to ensure the initial assumption on steam dome pressure by the transient analyses is satisfied. The ACTIONS of corresponding improved TS 3.4.10 provide for prompt restoration of this initial assumption in the event a transient occurs causing reactor steam dome pressure to exceed the limit.

The staff has reviewed these more restrictive requirements and believes they result in an enhancement to the existing TS. Therefore, these more restrictive requirements are acceptable.

2.3.4.4 Significant Administrative Changes

In accordance with the guidance in the Final Policy Statement, the licensee has proposed the following administrative changes to the CTS to bring them into conformance with the improved TS.

(1) The technical content of Unit 1 CTS 3/4.6.H.2 and Unit 2 CTS 3.4.2.2, "Safety/Relief Valve Low-Low Set Function" is being moved to improved TS 3.3.6.3, "Low-Low Set Instrumentation," and 3.6.1.6, "Low-Low Set Valves," respectively.

(2) The technical content of Unit 2 CTS 3/4.4.7, "Main Steam Isolation Valves," is being moved to improved TS 3.6.1.3, "Primary Containment Isolation Valves."

(3) The requirements of Unit 2 CTS SR 4.4.1.1.1 for cycling recirculation pump discharge valves are being moved to SR 3.5.1.6 of the improved TS. Technical changes to these requirements are addressed in paragraph 2.3.5.2.a(8) of this safety evaluation.

(4) Unit 1 CTS 3.6.G.1.c and Unit 2 CTS 3.4.3.2.c limit RCS total leakage within "any" 24-hour period. Improved TS LCO 3.4.4.c limits total

leakage to within the "previous" 24-hour period. The total leakage limit applies at any moment, to the previous 24 hours (not any future or past 24-hour period). This results in a "rolling average" covering "any 24-hour period." Therefore, changing "any" to "the previous" does not change the intent of the requirement.

Unit 1 CTS 3.6.G.1.b and Unit 2 CTS 3.4.3.2.d limit RCS unidentified leakage increase within "a" (Unit 1) or "any" (Unit 2) 24-hour period "or less." Improved TS LCO 3.4.4.d limits RCS unidentified leakage increase to within the "previous" 24-hour period. An increase "within a (or any) 24-hour period" is understood to mean any increase noted in 24 hours or less. Therefore, "or less" need not be specified; the intent of the requirement is not changed.

Because the intent of these requirements has not changed, these wording changes are administrative in nature and are, therefore, acceptable.

(5) Unit 1 CTS 4.6.F.1.c and Unit 2 CTS 3.4.5, ACTION b.2, specify several conditions, in addition to the LCO limits being exceeded, for taking an additional RCS sample. The conditions for requiring an additional sample are being omitted from improved TS because improved TS 3.4.6, ACTIONS A and B, requires an increased sampling frequency of every 4 hours when the LCO specific activity limit is exceeded. These ACTIONS are equivalent to or more restrictive than current requirements, and are, therefore, acceptable.

(6) Unit 1 CTS 4.6.B and Unit 2 CTS 4.4.6.1.3 require removal and examination of reactor material irradiation surveillance specimens at specified intervals (explicitly stated in Unit 1 CTS and implied by reference to 10 CFR Part 50, Appendix H for Unit 2) to determine changes in the reactor pressure vessel material properties as a function of time and thermal power. The results of the examination are used to adjust the curves of improved TS Figures 3.4.9-1, -2, and -3, as required by 10 CFR Part 50, Appendix H. Since the regulations require compliance and the withdrawal schedule cannot be changed without prior approval as necessary pursuant to Appendix H and 10 CFR 50.59, these SRs are unnecessary and are being omitted from the improved TS. Details for implementing the requirements of Appendix H will continue to be included in appropriate plant procedures. Because the requirements of Appendix H, including the requirement for specimen evaluation schedules, still apply, these changes in the CTS for Units 1 and 2 are considered administrative in nature, and are acceptable.

(7) The existing ACTION of Unit 2 CTS 3.4.6.1 to "restore...within 30 minutes" is being revised, in corresponding ACTION C of improved TS 3.4.9, to "initiate action to restore ...Immediately" when in Mode 4 or 5. The existing action requirement would appear to provide a half hour in which pressure and temperature requirements could exceed the limits, even if capable of being returned to within limits. Also, if the parameters are incapable of being restored to within the limits within 30 minutes, the existing action requirement would appear to result in the requirement for an LER. The intent of the action requirement is

believed to be more appropriately presented in ACTION C of improved TS 3.4.9. This interpretation of the intent is consistent with the STS. Because this is an enhanced presentation of the existing intent, the proposed change is considered administrative, and is, therefore, acceptable.

(8) The titles of the CTS Figures defining the pressure-temperature limit curves for the reactor coolant system are being changed to be consistent with improved TS SRs.

The above changes result in the same limits as the current requirements, or they more clearly present the intent of the CTS. Accordingly, these changes are purely administrative and are acceptable.

2.3.4.5 Significant Differences Between the Improved TS and the STS

In electing to adopt STS Section 3.4, the licensee proposed the following differences in the improved TS presentation from that of the STS:

(1) Improved TS LCO 3.4.1 differs from the STS to reflect the HNP current licensing basis regarding the power-flow stability issue and single loop operation. Also, the STS LCO statement,

> "One recirculation loop *may* be in operation provided the following limits are applied ... ."

is given in improved TS as,

> "One recirculation loop *shall* be in operation with:
>
> a. The following limits applied ... , and
>
> b. Core flow as a function of core thermal power in the "Operation Allowed Region of Figure 3.4.1-1."

These revised words are more appropriate because the single loop requirements are required only if one loop is in operation.

The ACTIONS of this LCO also differ from those of the STS. The improved TS Required Action for the Condition of no recirculation loops in operation is to immediately place the mode switch in the shutdown position (effectively placing the plant in Mode 3). This is more restrictive than the STS Required Action to be in Mode 3 within 12 hours.

(2) Improved TS 3.4.1 includes an additional SR that is not in the STS, improved TS SR 3.4.1.2, to reflect current requirements. See discussion of this SR in paragraph 2.3.4.2.a(3) of this safety evaluation.

(3) Improved TS LCO 3.4.4 ACTIONS do not include STS LCO 3.4.4 alternate Required Action B.2, which is to verify that the source of unidentified

leakage increase is not service sensitive type 304 or type 316 austenitic stainless steel, in lieu of reducing the unidentified leakage increase to within limits. This is because HNP does not have a way to complete this action requirement within the 4 hours specified in the STS. Omitting this provision is more restrictive than the STS, and is, therefore, acceptable.

(4) HNP is not adopting STS 3.4.5, "RCS PIV Leakage." Because both units were licensed prior to 1979, HNP did not include technical specifications for RCS PIVs as part of the licensing basis. In its June 3, 1987, letter in response to Generic Letter 87-06, "Periodic Verification of Leak Tight Integrity of Pressure Isolation Valves," HNP supplied the NRC with the information requested in the generic letter regarding the leak testing of RCS PIVs at HNP.

The RCS PIVs are included in the HNP inservice inspection (ISI) document which is based on Section XI, 1980 edition through Winter 1981 addendum, of the ASME Code. As part of the ISI test plan, PIVs are leak tested during each refueling outage with an acceptable leakage limit consistent with the limits specified by Generic Letter 87-06. In order to implement the operability requirements of STS 3.4.5, system piping would require modification to install leak-off piping or other means to quantify leakage through individual PIVs. Thus, adopting this specification would create an undue burden to modify the plant without providing a commensurate increase in safety beyond that provided by the existing ISI test plan. Based on the above, omitting this STS specification from the improved TS is acceptable.

(5) ACTIONS C and D of STS 3.4.6, "RCS Leakage Detection Instrumentation," are omitted from the ACTIONS of corresponding improved TS 3.4.5 because the HNP design does not include a primary containment air cooler condensate flow rate monitoring system.

(6) The following Note that is not included in the STS is being included with the SRs of improved TS 3.4.5, "RCS Leakage Detection Instrumentation," in order to retain an existing allowance.

> "When a channel is placed in an inoperable status solely for performance of required surveillances, entry into associated Conditions and Required Actions may be delayed for up to 6 hours provided the other required leakage detection instrumentation is operable."

(7) The licensee has elected to retain (in improved TS 3.4.9) the CTS figures defining reactor coolant system pressure-temperature limits. These figures are not included in the STS which assumes they are relocated to the Pressure and Temperature Limits Report (PTLR). In addition, plant-specific surveillance acceptance criteria are being retained.

The utilization of the PTLR in the STS requires the development, and NRC approval, of detailed methodologies for future revisions to P/T limits.

Currently, HNP does not have the necessary methodologies submitted to the NRC for review and approval. Therefore, the improved TS does not reference the PTLR, and retains the existing requirements with a few editorial changes.

These proposed differences from STS Section 3.4 are consistent with HNP design features and existing requirements and commitments. Therefore, we find they are acceptable.

2.3.5 Emergency Core Cooling Systems (ECCS) and Reactor Core Isolation Cooling (RCIC) System (Improved TS Section 3.5)

2.3.5.1 Relocated Requirements

2.3.5.1.a Existing Specifications Entirely Relocated

In accordance with the criteria in the Final Policy Statement, the licensee has proposed to entirely relocate the following current Unit 1 ECCS support system specification to licensee-controlled documents.

(1) Unit 1 CTS 3/4.5.K, "Equipment Area Coolers," contains operability, action, and surveillance requirements for the room coolers provided for maintaining acceptable ambient temperatures in the rooms containing pumps for the RCIC, HPCI, and RHR systems. It requires declaring the pump(s) served by a cooler inoperable whenever the cooler is inoperable, "for technical specification purposes." These coolers are tested in conjunction with the associated pump surveillances. The existing action requirement is overly restrictive because each pump room has redundant coolers. The licensee has proposed to relocate this Unit 1 specification to the Technical Requirements Manual (TRM) which will contain more appropriate action requirements when one or more coolers are inoperable. Operability and surveillance requirements will remain the same. In addition, in that Unit 2 CTS contain no specification for these coolers, the presentation in the TRM is an enhancement to Unit 2 operation. The actual conditions of cooler degradation that require declaring the associated pump(s) inoperable are clarified in the TRM. This will facilitate application of the definition of operability to these pumps so that the appropriate ACTIONS of improved TSs 3.5.1, 3.5.2, and 3.5.3 will be taken in the event of inoperable coolers.

With respect to the Final Policy Statement TS screening criteria, Criteria 2, 3, and 4 are potentially relevant to the equipment area coolers. However, because this equipment supports the operability of ECCS and RCIC pumps which are required to be in the improved TS by these criteria, an explicit specification for the equipment area coolers is unnecessary. Therefore, this current specification may be relocated from the Unit 1 CTS to the TRM, as described previously. Any changes to this specification as presented (with enhancements) in the TRM will be adequately controlled by the provisions of 10 CFR 50.59.

These current requirements relating to room coolers for ECCS and RCIC pumps that are being entirely relocated are not required to be in the TS under 10 CFR 50.36, and are not required to obviate the possibility of an abnormal situation or event giving rise to an immediate threat to the public health and safety. Further, they do not fall within any of the four criteria in the Final Policy Statement (discussed in the Part 1 of this safety evaluation). In addition, the staff finds that sufficient regulatory controls exist under 10 CFR 50.59. Accordingly, these requirements may be removed from the Unit 1 CTS and placed in the TRM.

2.3.5.1.b Existing Specifications Relocated in Part

In accordance with the criteria in the Final Policy Statement, the licensee has proposed to relocate parts of the following CTS requirements to other licensee-controlled documents. The improved TS location of the remaining part of each requirement is also noted.

Unit 1 CTS	Improved TS	Description of Relocated Requirements
3.5.B.1.d	SR 3.5.1.4	LPCI Cross-tie Valve Annunciator
3.5.B.2.b	3.5.1	LPCI System Design Details
3.5.E.1.a and b	3.5.3	RCIC System Design Details
4.5.E.1.a and b	SR 3.5.3.5	RCIC SR Performance Details
4.5.F.1.b	SR 3.5.1.3	ADS Valve Accumulator Leak Test
3.5.H	3.5.3	RCIC System Design Details
4.5.H.3	SR 3.5.1.1	Details of HPCI SR Performance
4.5.H.3	SR 3.5.3.1	Details of RCIC SR Performance
4.5.H.4	3.5.1	ECCS "keep filled" Pressure Instrumentation
4.6.H.1.b	SR 3.5.1.12	Details of ADS SR performance
4.9.A.6.b	SR 3.5.1.5	LPCI Inverter Load Test

Unit 2 CTS	Improved TS	Description of Relocated Requirements
3.5.1.a and b	3.5.1	HPCI Design Details
4.5.1.c.1 and 3	SR 3.5.1.10	Details of SR Performance for HPCI
4.5.2.a	SR 3.5.1.11	Details of SR Performance for ADS
4.5.2.c	SR 3.5.1.3	ADS valve Accumulator Leak Test
4.5.2.b	SR 3.5.1.12	Details of SR Performance for ADS
3.5.3.1	3.5.1	Core Spray Design Details
3.5.3.1.a and b.2	3.5.2	Core Spray Design Details
3.5.3.1, ACTION a.3	3.5.1	Core Spray Header Differential Pressure (dP) Instrumentation
4.5.3.1.c.1	SR 3.5.1.7	Details of CS SR Performance
4.5.3.1.d	SR 3.5.1.10	Details of CS SR Performance
3.5.3.2.a and b	3.5.1 and 2	LPCI Design Details
4.5.3.2.c	SR 3.5.1.10	Details of LPCI SR Performance
3.5.4	3.6.2.2	Suppression Chamber Level Alarm and Setpoint
3.5.4.a.2 and b	1.1-1	Requirement for Locking Mode Switch In Shutdown Position

3.5.4.a.3 and b.1	3.5.2	Core Spray Design Details
4.5.4.1.b	3.5.2 and 3.6.2.2	Suppression Chamber Level Instrumentation SR
3.7.3	3.5.3	RCIC System Design Details
4.7.3.b	SR 3.5.3.3	RCIC SR Performance Detail

(1) The following existing specifications contain details of the design and operation of the HPCI, LPCI, CS, and RCIC systems. These details are being relocated to the improved TS Bases for the specifications listed and/or licensee-controlled documents. These design details and descriptions of system operation are also contained in the FSAR.

Unit 1	Improved TS	System
3.5.B.2.b	3.5.1	LPCI
3.5.E.1.a and b	3.5.3	RCIC
3.5.H	3.5.3	RCIC

Unit 2	Improved TS	System
3.5.1.a and b	3.5.1	CS
3.5.3.1	3.5.1	CS
3.5.3.1.a and b.2	3.5.2	CS
3.5.3.2.a and b	3.5.1 and 2	LPCI
3.5.4.a.3 and b.1	3.5.2	CS
3.7.3	3.5.3	RCIC

The remaining operability, action, and surveillance requirements for these systems are being retained in the appropriate specifications of improved TS Section 3.5. Relocating these design and operational details does not reduce the existing operability requirements of the LPCI, CS, and RCIC systems. Any changes to these relocated design and operational details will be adequately controlled by the provisions of improved TS 5.5.11, "Bases Control Program," and 10 CFR 50.59.

(2) The following existing specifications contain details relating to methods of performing SRs that are being relocated to the Bases and procedures.

Unit 1	Improved TS	System
4.5.E.1.a and b	SR 3.5.3.5	RCIC
4.5.H.1	SR 3.5.1.1	LPCI and CS
4.5.H.3	SR 3.5.1.1	HPCI
4.5.H.3	SR 3.5.3.1	RCIC
4.6.H.1.b	SR 3.5.1.12	ADS

Unit 2	Improved TS	System
4.5.1.c.1 and 3	SR 3.5.1.10	HPCI
4.5.2.a	SR 3.5.1.11	ADS
4.5.2.b	SR 3.5.1.12	ADS

4.5.3.1.c.1	SR 3.5.1.7	CS
4.5.3.1.d	SR 3.5.1.10	CS
4.5.3.2.c	SR 3.5.1.10	LPCI
4.7.3.b	SR 3.5.3.3	RCIC

These relocated details are the following:

- Unit 1 CTS 4.6.H.1.b requires manual opening of each relief valve until thermocouples downstream of the valve indicate steam is flowing from the valve.

- Unit 1 CTS 4.5.H.1 and 3, require observing water flow from the high point vent when verifying the HPCI, LPCI, CS, and RCIC system discharge piping is filled with water.

- Unit 2 CTS 4.5.1.c.1 requires as part of the HPCI system 18-month functional test verifying each automatic valve in the flow path actuates to its correct position.

- Unit 2 CTS 4.5.1.c.3 requires verifying the automatic transfer of the suction of the HPCI system from the condensate storage tank to the suppression pool (chamber) on the appropriate level signals.

- Unit 2 CTS 4.5.2.a and b contain details for how to perform the ADS valve functional test and manual lift test.

- Unit 2 CTS 4.5.3.1.c.1 requires starting each CS pump from the control room for the quarterly flow test.

- Unit 2 CTS 4.5.3.1.d and 4.5.3.2.c require, as part of the 18-month functional test for the CS system and the LPCI system, verifying each automatic valve in the flow path actuates to its correct position.

- Unit 1 CTS 4.5.E.1.a and b require testing the automatic restart of the RCIC system on low water level after it has tripped on a high water level signal, and testing the automatic transfer of the RCIC suction between the CST and the suppression pool.

The existing SRs from which these details are being relocated are being retained in improved TS Section 3.5 SRs, as listed above. Relocating these procedural details does not reduce the existing requirements for demonstrating operability of the HPCI, LPCI, CS, and RCIC systems. Any changes to these relocated design and operational details will be adequately controlled by the provisions of improved TS 5.5.11, "Bases Control Program," and 10 CFR 50.59.

(3) The following existing operability, action, and surveillance requirements are being relocated to plant procedures because they apply to indication-only equipment that does not directly support the operability of related systems or components:

Unit 1	Improved TS	System
3.5.B.1.d	SR 3.5.1.4	LPCI
4.5.H.4	SR 3.5.1.1 and SR 3.5.3.1	CS, LPCI, HPCI RCIC

Unit 2	Improved TS	System
3.5.3.1, Action a.3	SR 3.5.1.7	CS
4.5.3.1.c.2	SR 3.5.1.7	CS
3.5.4	3.6.2.2	Suppression Pool Level
4.5.4.1.b	SRs 3.5.2.1 and 3.6.2.2.1	Suppression Pool Level, ECCS

These specifications require the

- operability of the Unit 1 LPCI cross-tie valve annunciator,
- the calibration of the Unit 1 ECCS and RCIC discharge line level switches ("keep fill" pressure instrumentation),
- operability of the Unit 2 CS header differential pressure (dP) instrumentation (and the associated allowance for it to be inoperable for up to 6 hours for surveillance testing to verify its setpoint per 4.5.3.1.c.2), and
- operability and testing of the Unit 2 suppression chamber level instrumentation.

These requirements do not need to be in the improved TS because these instruments are for indication only and do not directly relate to the operability of the associated systems. Control of the availability of, and necessary compensatory activities if not available, for indication instruments, monitoring instruments, and alarms are presently addressed by plant operational procedures and policies. Therefore, specifications for this instrumentation, along with the supporting surveillances and actions are being relocated to plant procedures. The remaining testing and operability requirements for the ECCS and RCIC systems are adequate to protect the health and safety of the public. Any changes to these relocated requirements will be adequately controlled by the provisions of 10 CFR 50.59.

(4) Unit 1 CTS 4.5.F.1.b and Unit 2 CTS 4.5.2.c require performing a leak rate test of each ADS valve accumulator, check valve, and actuator assembly each refueling cycle. This SR is being relocated to plant procedures because it does not meet the Final Policy Statement TS screening criteria. This SR is also not contained in the STS. Improved TS SR 3.5.1.3 is being added to require monthly verification that sufficient air pressure is available to permit the actuation of the ADS valves should an accident occur. The surveillance being relocated will continue to be performed and will identify long-term degradation of the ADS air system pressure retention capabilities. Any changes in this relocated requirement will be adequately controlled by 10 CFR 50.59.

(5) Unit 1 CTS 4.9.A.6.b requires subjecting the LPCI inverters to a load test each refueling outage to demonstrate operational readiness. This SR is being relocated to plant procedures, consistent with Unit 2 CTS and STS. This is acceptable because improved TS SR 3.5.1.5 addresses the important characteristics of whether there is sufficient voltage available (i.e., is the inverter energized) to permit the LPCI and recirculation system valves to actuate if needed. The surveillance being relocated will continue to be performed and will identify degradation of the LPCI inverters. Any changes to this relocated load test will be adequately controlled by the provisions of 10 CFR 50.59.

(6) Unit 2 CTS 3.5.4.a.2 and b require the mode switch to be locked in the shutdown position. This requirement is being relocated to plant procedures. Improved TS Table 1.1-1, which defines the five Modes, will adequately control movement of the reactor mode switch from the shutdown or refuel position. Any changes to this locking requirement will be adequately controlled by the provisions of 10 CFR 50.59.

The types of detailed information and requirements that are described above and are in existing specifications, are not required to be in the TS under 10 CFR 50.36. Such detailed information and requirements are not required to obviate the possibility of an abnormal situation or event giving rise to an immediate threat to the public health and safety. Further, they do not fall within any of the four criteria in the Final Policy Statement (discussed in Part 1 of this safety evaluation). In addition, the staff finds that sufficient regulatory controls exist under 10 CFR 50.59 and improved TS 5.5.11, "Bases Control Program." Accordingly, the detailed information and requirements described above may be removed from the CTS and placed in plant procedures, the FSAR, and the improved TS Bases, as appropriate.

2.3.5.2 Less Restrictive Requirements

The licensee, in electing to implement STS Section 3.5 specifications, proposed a number of requirements that are less restrictive than requirements given in the CTS. These less restrictive requirements are described below for each of the three specifications in improved TS Section 3.5. The basis for accepting each change which is marked by an asterisk is presented in Section 2.0.2.2 of this safety evaluation.

2.3.5.2.a ECCS - Operating (Improved TS 3.5.1)

(1) Unit 1 CTS 4.5.H.2 requires venting the discharge piping of the LPCI and CS systems as part of restoring their operability. These details are being omitted from improved TS because post maintenance testing is required to demonstrate operability of the system or component. Unit 2 does not contain this explicit requirement. On this basis, this change acceptable.

(2)* The phrase "actual or," in reference to the automatic initiation signal, has been added to the following CTS surveillance requirements for

verifying that each ECCS subsystem actuates on an automatic initiation signal.

Unit 1	Unit 2	System
4.5.A.1.a	4.5.3.1.d	Containment Spray (CS)
4.5.B.1.b	4.5.3.2.c	Low Pressure Coolant Injection (LPCI)
4.5.D.1.a	4.5.1.c.1	High Pressure Coolant Injection (HPCI)
4.5.F.1.a	4.5.2.a	Automatic Depressurization System (ADS)

Improved TS SR 3.5.1.10 corresponds to these CTS SRs; the change involves the Note contained with this SR.

(3)* The time specified in the Unit 1 CTS to reach Mode 4 (cold shutdown) (if a LPCI or CS subsystem is inoperable for more than 7 days) and < 150 psig (if HPCI or one ADS valve is inoperable for more than 14 or 7 days, respectively) is being extended from 24 hours to 36 hours. Affected CTS requirements and the corresponding improved TS 3.5.1 ACTIONS are as follows:

Unit 1 CTS	LCO 3.5.1 ACTIONS	System
3.5.A.3	B and H	CS
3.5.B.3	B and H	LPCI
3.5.D.3	D, G, and H	HPCI
3.5.F.3	G and H	ADS

(4) Unit 1 CTS 4.5.B.1.d and Unit 2 CTS 4.5.3.2.a.2 require verification of the valve lineup of the RHR system (LPCI and containment cooling modes) every 31 days. This SR is being retained as improved TS SR 3.5.1.2 with the addition of a Note, consistent with the STS. This Note clarifies the alignment requirements of the LPCI subsystems. It allows operation of one or more of the RHR subsystems in the shutdown cooling mode during Mode 3, if necessary, and clarifies that the subsystems are still considered operable for the LPCI mode. Because valve positioning for operation of shutdown cooling removes the capability of the LPCI subsystems to respond automatically, the LPCI subsystems would be considered inoperable without this Note. The allowance provided by the Note is acceptable because: (a) the return to operability entails only the manual repositioning of valves, and (b) the energy requiring dissipation in Mode 3, below approximately 145 psig (i.e., the pressure at which shutdown cooling may be in service), is considerably less than that at 100% power with normal operating temperature and pressure. Further, because of the low probability of an event requiring ECCS and the requirement for operating shutdown cooling, it is considered appropriate to have the subsystems aligned for decay heat removal without the penalties imposed by the ACTIONS for inoperable LPCI subsystems. Therefore, this new provision is acceptable.

(5) Unit 1 CTS 3.5.D.2 and ACTION a and Unit 2 CTS 3.5.1 require operability of the HPCI system in order to continue plant operation with an inoperable low pressure ECCS injection/spray subsystem. This

requirement is being relaxed by including a new ACTION (ACTION D) in improved TS 3.5.1. ACTION D, corresponding to the Condition of an inoperable HPCI system coincident with one low pressure ECCS injection/spray subsystem, allows 72 hours in which to restore either of the two systems to operable status. This Completion Time, which is consistent with the STS, is acceptable for the following reasons:

- The analysis summarized in NEDC-31376P, E.I. Hatch Nuclear Plants Unit 1 and 2 SAFER/GESTR-LOCA Loss-of-Coolant Accident Analysis, demonstrates that adequate core cooling is provided by the ADS system and the remaining operable LPCI and CS subsystems.

- The probability of a LOCA occurring during the 72 hours in which the emergency core cooling function would be vulnerable to a single failure is small.

(6) Unit 1 CTS 3.5.F.1.b requires ADS to be operable above a reactor pressure of 113 psig. If one ADS valve is inoperable, Unit 1 CTS 3.5.F.2 allows plant operation for 7 days. Upon failure to restore the valve to operable status within this time, Unit 1 CTS 3.5.F.3 requires reducing reactor pressure to ≤ 113 psig within 24 hours.

The pressure at which ADS is required to be operable is being increased to 150 psig in the Applicability of improved TS 3.5.1 in order to provide consistency with the operability requirements for HPCI and RCIC equipment. This relaxation in Applicability is acceptable because small break loss-of-coolant accidents are not assumed, or analyzed, to occur at low pressures (i.e., between 113 and 150 psig). The ADS is required to operate to lower the pressure sufficiently so that the LPCI and CS systems can provide makeup to mitigate such accidents. Since these systems can begin to inject water into the reactor pressure vessel at pressures well above 150 psig (207 psig for LPCI and 284 psig for CS), there is no safety significance in the ADS not being operable between 113 and 150 psig. This change is consistent with the STS and current requirements for Unit 2, and is acceptable.

Unit 1 CTS action requirements for an inoperable ADS valve are also being revised. ACTION E of improved TS 3.5.1 extends the Completion Time from 7 days to 14 days. This is acceptable because the analysis summarized in NEDC-31376P demonstrates that adequate core cooling is provided by 6 ADS valves and the low pressure ECCS subsystems. In addition, during this time, the 14 days is only allowed if the HPCI system is also operable (improved TS ACTION H would otherwise require immediately entering improved TS LCO 3.0.3). Thus, a single failure of a high pressure subsystem (ADS valve or HPCI) could occur and there would still be sufficient ECCS to meet the accident analysis. Therefore, this change in Completion Time is acceptable.

(7) Unit 2 CTS 3.5.2, ACTION a, allows 14 days to restore an ADS valve to operable status, when one ADS valve is inoperable, provided the HPCI, CS and LPCI systems are operable. In the event one LPCI or CS subsystem is concurrently inoperable with an inoperable ADS valve, Unit 2 CTS LCO

3.0.3 (requires a plant shutdown) applies because an action statement corresponding to that Condition is not given. In contrast, improved TS 3.5.1, ACTION F, contains an appropriate action requirement for this Condition. The analysis summarized in NEDC-31376P shows that adequate core cooling is provided by the HPCI system together with the remaining operable LPCI and CS subsystems. This analysis also shows that adequate core cooling is provided by the remaining 6 ADS valves together with the remaining low pressure ECCS subsystems. However, in this Condition, a single failure may cause the loss of the ability to provide adequate core cooling. Because the capability of the remaining operable ECCS subsystems was shown to be adequate in NEDC-31376P, the licensee has proposed a 72-hour Completion Time in ACTION F of improved TS 3.5.1 to restore either the inoperable ADS valve or the inoperable LPCI or CS subsystems to operability. This Completion Time allows for more orderly corrective actions, reduces the potential for unit upset conditions that could challenge safety systems, and provides a sufficient restriction, based on operating experience and the low likelihood of an event during this period, to avoid an undue risk to public health and safety. Therefore, ACTION F of improved TS 3.5.1 is acceptable.

For cases in which more than one ADS valve coincident with a LPCI or CS subsystem are inoperable, improved TS 3.5.1, ACTIONS G and H, will ensure the appropriate shutdown action is taken (either in accordance with improved TS LCO 3.0.3 or a shutdown within the ACTIONS of improved TS 3.5.1).

Note that Unit 1 CTS 3.5.F.2 permits a 7-day allowed outage time for one ADS subsystem without regard for the status of the low pressure ECCS subsystems. Therefore, improved TS 3.5.1, ACTION F, is a more restrictive requirement for Unit 1.

(8) Unit 2 CTS 4.4.1.1.1, Frequency a, requires cycling each recirculation pump discharge valve "each startup prior to thermal power exceeding 25% of RTP." This "each startup" Frequency is being omitted from improved TS SR 3.5.1.6. It is impractical to exercise the pump discharge valves during startup operation because closing these valves isolates the associated recirculation loop and creates the possibility of exceeding the permissible temperature differential between the recirculation loops. Exceeding the this differential would require a plant cooldown just to restart the recirculation pumps.

Frequency b of this existing Unit 2 SR requires the valves to be stroked prior to entering Mode 2 anytime the plant has been in Mode 4 (cold shutdown) greater than 48 hours if not performed within the previous 31 days. This Frequency is being retained (in the Note for SR 3.5.1.6) because it is consistent with the provisions of ASME/ANSI Operations and Maintenance Standard, Part 10, "Inservice Testing of Valves in Light-Water Reactor Power Plants," which specifies the most recent requirements for inservice testing of valves approved by the NRC in 10 CFR 50.55a. It is also consistent with Unit 1 CTS 4.5.B.1.f. Thus, this retained Frequency provides an acceptable level of verification of valve performance. Therefore, this change is acceptable.

2.3.5.2.b <u>ECCS - Shutdown (Improved TS 3.5.2)</u>

(1) Unit 2 CTS SR 4.5.3.2.b requires operation of two RHR pumps concurrently to produce a flow ≥ 17,000 gpm in order for the associated LPCI subsystem to be considered operable. However, during Modes 4 and 5, the operability of an LPCI subsystem is maintained with only one RHR pump. One pump is sufficient since the decay heat load is low and the reactor is depressurized. The flow rate for one RHR pump is similar to the flow rate of one core spray pump (which makes up an operable core spray subsystem). Therefore, corresponding improved TS SR 3.5.2.5 only requires one pump at a flow rate of ≥ 7700 gpm for the subsystem to be considered operable, consistent with the STS. Because one pump in an LPCI subsystem is sufficient during Modes 4 and 5, this change is acceptable.

(2) Unit 2 CTS 3.5.4, ACTION b, requires suspending all positive reactivity changes when the suppression chamber is drained, and one or more of the following are true:

- the mode switch is not locked in the shutdown position
- OPDRVs are in progress
- the CS system is inoperable
- refueling water level is below the limit when in Mode 5, with the cavity flooded up and the fuel pool gate removed

Refueling requirements, specified in Section 3.9 of the improved TS, provide sufficient control to ensure safe operation during positive reactivity changes including maintaining the required refueling water level. The ECCS function provides protection for loss of vessel inventory events. However, these events are not initiated by, nor is the response of ECCS hampered by, positive reactivity changes. Because this Unit 2 CTS action requirement is unnecessary, it is acceptable to delete it.

(3) Unit 2 CTS 3.8.2.2.e requires operability of the inverters necessary for LPCI operability while in Modes 4 and 5. The LPCI inverters provide AC power from DC batteries to certain LPCI valves such that, during a LOCA with a loss of offsite power, sufficient LPCI subsystems will be maintained energized and operable so that ECCS response times can be met. If a loss of offsite power did not occur and the LPCI valves were receiving power from their AC source (which is different than the inverters), then no power is lost to the LPCI subsystems. For Modes 4 and 5, either loss-of-coolant events or a loss of offsite power is generally assumed, not both concurrently. This assumption (that only one accident occurs), is also found in the Bases for improved TS 3.8.2, "AC Sources - Shutdown." Therefore, because the LPCI valves are not required to receive power from their inverters in Modes 4 and 5, it is acceptable to delete the associated inverter operability requirements.

2.3.5.2.c RCIC System (Improved TS 3.5.3)

(1)* Unit 1 CTS 4.5.E.1.a and Unit 2 CTS 4.7.3.c.1 specify performing the RCIC system functional test using a simulated automatic actuation signal. The phrase "actual or," in reference to the automatic initiation signal, is being added to the corresponding improved TS SR 3.5.3.5. Actuation of the RCIC system on an actual automatic initiation signal is equivalent to actuation on a simulated signal because the RCIC system itself can not discriminate between "actual" and "simulated" signals. Therefore, taking credit for RCIC system actuation on an actual automatic signal is acceptable.

(2) Unit 1 CTS 3.5.E.2 specifies an allowed outage time of 7 days for the RCIC system. This is being extended in improved TS 3.5.3, ACTION A, to the current Unit 2 time of 14 days. This is acceptable because RCIC is not assumed to function in any design basis accident and transient analysis. In addition, the HPCI system, which is required to be operable during the 14 day outage time of RCIC, is capable of performing RCIC's function (it supplies approximately 10 times the flow of the RCIC system). In addition, the times are consistent with an NRC reliability study (Recommended Interim Revisions to LCOs for ECCS Components, December 1, 1975) and the STS.

(3) Unit 1 CTS 3.5.E.3 requires shutting down and depressurizing to < 150 psig within 24 hours if the LCO and action requirements for the RCIC system are not met. The time to reach < 150 psig is being extended from 24 hours to 36 hours. This additional time allows for more orderly corrective actions, reduces the potential for unit upset conditions that could challenge safety systems, and provides a sufficient restriction, based on operating experience and the low likelihood of an event during this period, to avoid an undue risk to public health and safety. In addition, a new (more restrictive) requirement to be in Mode 3 (hot shutdown) within 12 hours is being added. Therefore, this change, which is consistent with Unit 2 CTS, is acceptable.

(4) Unit 1 CTS 3.5.E.2, which specifies action requirements for the RCIC system, does not contain an exception to LCO 3.0.4. However, corresponding Unit 2 CTS 3.7.3, ACTION a, does. This exception is being included as a Note in ACTION A of improved TS 3.5.3 because of the existing allowance for Unit 2, and because of the low significance of the RCIC system in the HNP safety analysis. Entry into the applicable Modes should not be restricted because RCIC is not assumed to be operable during any design basis accidents or transients. Therefore, this Note is acceptable.

The above less restrictive requirements have been reviewed by the staff and have been found to be acceptable, because they do not present a significant safety question in the operation of the plant. The TS requirements that remain are consistent with current licensing practices, operating experience and plant accident and transient analyses, and provide reasonable assurance that the public health and safety will be protected.

2.3.5.3 More Restrictive Requirements

By electing to implement the STS Section 3.5 specifications, the licensee has adopted a number of requirements that are more restrictive than requirements given in the CTS. These more restrictive requirements are described below for each of the three specifications given in improved TS Section 3.5.

2.3.5.3.a ECCS - Operating (Improved TS 3.5.1)

(1) Unit 1 CTS 4.5.B.1.c, specifies a flow criterion of 7700 gpm that must be met by each RHR pump; this results in testing the pumps one at a time. In corresponding improved TS SR 3.5.1.7, the flow criterion is being changed to that required from two RHR pumps, 17000 gpm; thus two pumps will be tested concurrently. This is consistent with the accident analysis, which assumes a 17000 gpm flow rate from two LPCI pumps in one loop and is more restrictive on plant operations.

(2) Unit 1 CTS 3.5.B.1.d regarding the position of the LPCI cross-tie valve is being revised as improved TS SR 3.5.1.4, consistent with the STS, by adding a Frequency of 31 days to verify the position and by changing the operational conditions in which this SR must be satisfied to Modes 1, 2, and 3, instead of the current requirement of during power operation (Mode 1 and Mode 2 > 1% RTP).

(3) Unit 1 CTS SR 4.5.D.1.b(2) and Unit 2 CTS SR 4.5.1.c.2 allow HPCI steam pressure to be as high as 180 psig (165+15 psig) during performance of the HPCI pump flow test. This allowance is omitted from corresponding improved TS SR 3.5.1.9, which restricts HPCI steam pressure to ≤ 165 psig, consistent with the STS.

(4) Consistent with the STS, SR 3.5.1.3 is being added to verify that ADS air supply header pressure is ≥ 90 psig. This is a new surveillance requirement which verifies that sufficient air pressure exists in the ADS accumulators/air receivers for reliable ADS operation.

(5) Consistent with the STS, ACTION F of improved TS 3.5.1 is being added for the Condition of an inoperable ADS valve concurrent with an inoperable low pressure ECCS subsystem. This new ACTION has a Completion Time of 72 hours. Unit 1 CTS do not specify a time limit on plant operation in this ACTIONS Condition, therefore this change is more restrictive for Unit 1.

(6) Consistent with the STS, Unit 2 CTS 3.5.3.2, ACTION a.2, for the Condition of both LPCI subsystems inoperable, is being revised as ACTION H of improved TS 3.5.1 to require going to Mode 4 within 24 hours, instead of the less restrictive actions currently allowed.

(7) Improved TS SR 3.5.1 for verifying proper LPCI inverter output voltage is more restrictive than the corresponding current SRs as follows:

- Unit 1 CTS 4.9.A.6.a contains neither the 31-day Frequency nor the explicit acceptance criteria of ≥ 570 volts and ≤ 606 volts.

- Unit 2 CTS SR 4.8.2.1.b specifies the upper voltage limit as 660 volts, not the improved TS value of 606 volts.

2.3.5.3.b <u>ECCS - Shutdown (Improved TS 3.5.2)</u>

(1) Unit 1 CTS 3.5.A.2 allows the CS system to be inoperable during an inservice hydrostatic or leak test, or below 212°F. Unit 1 CTS 3.5.G allows the CS system and the LPCI and containment cooling subsystems of the RHR system to be inoperable provided the shutdown cooling subsystem is operable and operations are in progress having the potential for draining the reactor vessel. These provisions are being replaced by more restrictive requirements in improved TS 3.5.2, consistent with the STS. The improved TS require two low pressure ECCS subsystems to be operable in Modes 4 and 5 (except when certain RPV water level requirements are met). Appropriate ACTIONS and SRs are also being added.

(2) Unit 2 CTSs 3.5.3.1 (CS) and 3.5.3.2 (LPCI) do not specify explicit action requirements upon failing to restore an inoperable low pressure ECCS subsystem to operable status within 4 hours when two subsystems are inoperable in Modes 4 and 5. Therefore, the following ACTIONS are being included in Unit 2 improved TS 3.5.2. ACTION D requires immediately initiating action to restore to operable status the secondary containment, one required SGT subsystem, and isolation capability in each secondary containment penetration flow path not isolated. These requirements are additional restrictions on Unit 2 operation. These restrictions are equivalent to existing restrictions during Modes 4 and 5 on Unit 1, which are being retained.

(3) The Frequency of Unit 2 CTS SR 4.5.4.1.a, to verify the suppression chamber water level is being increased from once per 24 hours to once per 12 hours in corresponding improved TS SRs 3.5.2.1 and 3.5.2.2.a, consistent with the STS.

(4) Unit 2 CTS SR 4.5.3.1.a, to verify the water volume in the condensate storage tank (CST) once per 12 hours, is being retained as improved TS SR 3.5.2.2.b. In addition, a Note is being added specifying that when the CST is used as a water source for the core spray (CS) system, only one CS subsystem can take credit for this alignment. During operations with a potential for draining the reactor vessel (OPDRVs), the volume in the CST may not provide adequate makeup if the RPV were completely drained. This Note helps to ensure that the other required ECCS subsystem will provide the necessary makeup volume.

2.3.5.3.c <u>RCIC System (Improved TS 3.5.3)</u>

Improved TS 3.5.3 does not contain any requirements that are more restrictive than requirements given in the CTS.

The staff has reviewed these more restrictive requirements and believes they result in an enhancement to the CTS. Therefore, these more restrictive requirements are acceptable.

2.3.5.4 Significant Administrative Changes

In accordance with the guidance in the Final Policy Statement, the licensee has proposed the following administrative changes to the CTS to bring them into conformance with the STS.

(1) Six current specifications for Unit 1, 3.5.A, 3.5.B, 3.5.D, 3.5.F, 3.5.H, and 3.5.K, and four current specifications for Unit 2, 3.5.1, 3.5.2, 3.5.3.1, and 3.5.3.2, are being combined into one specification in the improved TS. Improved TS 3.5.1 combines the three ECCS spray/injection subsystems (HPCI, LPCI, and CS) into a single specification that also lists the 7 required ADS valves. The descriptions of the components that make up each ECCS subsystem are design details that are being moved to the Bases, consistent with the STS (and as discussed in Section 2.3.5.1.b of this safety evaluation).

In addition, the ADS valve cycling requirements located in Unit 1 CTS 4.6.H.1.b and the LPCI inverter requirements located in Unit 1 CTSs 3.9.A.6 and 3.9.B.6 and Unit 2 CTSs 3.8.2.1.e and 4.8.2.1.b are being moved to improved TS 3.5.1 and are contained as part of ADS and LPCI operability, respectively. Thus, if an ADS valve does not cycle or if a LPCI inverter is inoperable, the affected ECCS subsystem is considered inoperable and the appropriate ACTION will be taken. These presentation changes of existing requirements are administrative.

(2) The Modes 4 and 5 requirements of three current Unit 2 specifications, 3.5.3.1, 3.5.3.2, and 3.5.4, are being combined into improved TS 3.5.2 in the improved TS. As such, the new specification combines the two low pressure ECCS injection/spray subsystems (CS and LPCI) into one specification statement. The improved TS require two low pressure subsystems. This requirement is derived from Unit 2 CTS 3.5.3.1, which requires two CS subsystems in Modes 4 and 5, and the ACTIONS b.1 and b.2 of that specification, which allows LPCI subsystems to be substituted for inoperable CS subsystems. Therefore, the new specification is essentially the same as currently allowed, and is an administrative change in presentation.

The suppression pool requirements of the Unit 2 CTS listed above are being retained as improved TS SRs 3.5.2.1 and 3.5.2.2. The existing allowances to drain the suppression pool are also included, with modifications. See the discussion in paragraph 2.3.5.2.b(2) of this safety evaluation.

The requirement of Unit 2 CTS 3.5.4.b, that the mode switch be in the refuel position when in Mode 5, is being changed, as shown in improved TS Table 1.1-1, to allow the mode switch to also be in the shutdown position. Amendment 123, dated October 1, 1992, modified Unit 2 CTS Table 1.2 to allow this position. This requirement is just a repeat of

the previous table requirement, and as such, the change to allow the shutdown position is administrative.

(3) The Unit 1 CTS SR Frequencies of "once/operating cycle," "once during each operating cycle," and "after each refueling outage," are being modified to "18 months" since 18 months corresponds to a normal operating cycle and a refueling outage cycle. The Frequency of "once/3 months" is being modified to be "In accordance with the Inservice Testing program," because the IST Program requires testing every 3 months.

(4) Unit 1 CTS 3.5.B.1.c does not allow reactor start up with the RHR system supplying cooling to the fuel pool. This specific condition on RHR system alignment is being deleted since it is covered by the definition of operability as it relates to the LPCI system. If RHR is supplying cooling to the fuel pool, then the LPCI valves will not be in the correct position per SR 3.5.1.2, and LPCI would be inoperable. This would prevent a unit startup because Mode changes are not allowed with inoperable equipment per improved TS LCO 3.0.4. Because the existing restriction on plant operation is unchanged by removal of this explicit provision, this change is considered administrative.

(5) Unit 1 CTS 4.5.D.1.b.(1) requires a HPCI flow rate test for a system head corresponding to a reactor vessel pressure ≥ 1000 psig when steam is being supplied to the turbine at ≤ 1000 psig. Improved TS SR 3.5.1.8 provides the equivalent test using different wording. The improved TS SR requires reactor pressure to be ≤ 1020 psig and ≥ 920 psig and the pump head to correspond to reactor pressure. For testing purposes, these CTS and improved TS flow test requirements are equivalent. Thus, this change is considered administrative.

(6) Unit 1 CTS 4.5.D.1.b(2) requires a HPCI flow rate test for a system head corresponding to a reactor vessel pressure of ≥ 165 psig when steam is being supplied to the turbine at 165 ± 15 psig. Improved TS SR 3.5.1.9 provides the equivalent test using different wording. It requires reactor pressure to be ≤ 165 psig and the pump head to correspond to reactor pressure. For testing purposes, the current and proposed flow test requirements are equivalent. See Section 2.3.5.2.a(6) of this safety evaluation for a discussion of the change removing the current upper test pressure of 180 psig.

The above changes result in the same limits as the current requirements, or they more clearly present the intent of the CTS. Accordingly, these changes are purely administrative and are acceptable.

2.3.5.5 Significant Differences Between the Improved TS and the STS

In electing to adopt STS Section 3.5, the licensee proposed the following differences between the improved TS and the STS:

(1) The Note with SR 3.5.1.6 reflects current requirements and thus differs from the corresponding Note in the STS. For further discussion, see

Section 2.3.5.2.a(8) of this safety evaluation.

(2) ACTION D of LCO 3.5.2 differs from STS ACTION D and is appropriately written to ensure the proper secondary containment, standby gas treatment (SGT) subsystems, secondary containment isolation valves, and associated instrumentation are made operable in the event other specified ACTIONS are not met. In particular, because of the improved TS presentation of the secondary and SGT system requirements, ACTION D specifies restoring the "required" SGT subsystems to operable status instead of just one subsystem because more than one may be required based upon the secondary containment configuration at the time.

(3) ACTION A of improved TS 3.5.3 contains an exception to LCO 3.0.4 not included in the STS, but presently contained in ACTION a of Unit 2 CTS 3.7.3. See paragraph 2.3.5.2.c(4) of this safety evaluation.

These proposed differences from STS Section 3.5 are consistent with HNP design features and existing requirements and commitments. Therefore, they are acceptable.

2.3.6 Containment Systems (Improved TS Section 3.6)

2.3.6.1 Relocated Requirements

2.3.6.1.a Existing Specifications Entirely Relocated

There are no current specifications for containment systems that are being entirely relocated to licensee-controlled documents.

2.3.6.1.b Existing Specifications Relocated in Part

In accordance with the criteria in the Final Policy Statement, the licensee has proposed to relocate parts of the following CTS requirements to other licensee-controlled documents. The improved TS location of that part of each of these specifications being retained is also indicated. (Tables may be recognized by a "dash.")

Unit 1 CTS	Improved TS	Description of Relocated Requirement
4.5.B.1.a	SR 3.6.2.4.2	Details of Methods to Verify Suppression Pool Spray Headers and Nozzles are Unobstructed
4.7.A.2.a	SR 3.6.1.1.1	Values of P_a, L_t and P_t
4.7.A.2.e	SR 3.6.1.1.1	Type B Tests of Penetrations with Seals and Bellows
3.7-2	SR 3.6.1.1.1	Testable Penetrations with Double O-Ring Seals
3.7-3	SR 3.6.1.1.1	Testable Penetrations with Bellows
4.7.A.2.i	3.6.1.1	Primary Containment Continuous Leak Rate Monitor (Indication-only Instrumentation)

4.7.D.1.c	SR 3.6.1.3.5	Quarterly Cycling of Normally Open Primary Containment Isolation Valves (PCIVs)
4.7.D.1.e	SR 3.6.1.3.6	Weekly Cycling of Main Steam Isolation Valves (MSIVs)
3.7-1	3.6.1.3	List of PCIVs
4.7.A.7.c	SR 3.6.1.3.12	Details of Methods for Visually Inspecting the Purge System Excess Flow Isolation Dampers
4.7.A.4.a	SR 3.6.1.8.2	Suppression Chamber to Drywell Vacuum Breakers Visual Inspection
3.7.A.4.b	3.6.1.8	Position Indication of the Suppression Chamber to Drywell Vacuum Breakers (Indication-only Instrumentation)
4.7.A.1.a	SR 3.6.2.1.1	Method for Determining Average Suppression Pool Temperature.
4.7.A.6.a	3.6.3.1	Containment Atmosphere Dilution (CAD) System Functional Test
3.7.A.6.d	3.6.3.1	Post-LOCA Repressurization Limit Actions
3.7.C.1.a.(4)	3.5.4.1	Fuel Cask Movement
3.7.C.1.a.(5) and (6); 3.7.C.2.a.(3) through (7); 3.7.C.2.c; and 4.7.C.2.b	3.6.4.1	Details Comprising the Operability of Normal and Modified Secondary Containment
3.7.C.1 and 2 Note *	3.6.4.1	Defines Normal and Modified Secondary Containment Configurations
4.7.C.1.a	SR 3.6.4.1.3	Details for Performing Draw Down Test of Normal Secondary Containment
4.7.C.1.b	SR 3.6.4.1.4	Restrictions on Normal Secondary Containment 1-hour Vacuum Test
4.7.C.2.a	SR 3.6.4.1.3	Details for Performing Draw Down Test of Modified Secondary Containment

Unit 2 CTS	Improved TS	Description of Relocated Requirement
3.6.1.2.a.1, 2	SR 3.6.1.1.1	Values of P_a, L_t and P_t
3.6.1.3.a	3.6.1.2	Primary Containment Air Lock Operability Details
3.6.1.3.b	SR 3.6.1.2.1.a	Value of P_a
3.6.3-1	3.6.1.3	List of PCIVs
4.6.6.5.2	SR 3.6.1.3.12	Details of Methods for Visually Inspecting the Purge System Excess Flow Isolation Dampers
3.6.1.2.b.2	SR 3.6.1.3.10	Secondary Containment Bypass Leakage Paths
4.6.3.2	SR 3.6.1.3.7	PCIV Functional Testing Restricted to Modes 4 and 5
4.6.1.7	SR 3.6.1.5.1	Details for Determining Drywell Average Air Temperature

4.6.4.2.b.2	SR 3.6.1.7.3	Reactor Building to Suppression Chamber Vacuum Breakers Visual Inspection
3.6.4.1.b	3.6.1.8	Position Indication of the Suppression Chamber to Drywell Vacuum Breakers (Indication-only Instrumentation)
4.6.4.1.b	SR 3.6.1.8.2	Method for Verifying Vacuum Breaker in Closed Position
4.6.2.1.d	SR 3.6.2.1.1	Method for Determining Average Suppression Pool Temperature.
3.6.2.1.a	3.6.2.2	Suppression Pool Volume Limit in Cubic Feet
3.5.4	3.6.2.2	Suppression Pool Volume Limit in Gallons
3.5.4, ACTIONS c, d, and e; and 4.5.4.1.b	3.6.2.2	Suppression Pool Level Instrumentation (Indication Only)
3.6.2.1.c ACTIONS f, g, and h; and 4.6.2.1.h	3.6.2.2	Suppression Pool Level Instrumentation (Indication Only)
3.6.2.2	3.6.2.3	Design Details of RHR Suppression Pool Cooling Mode of Operation
4.6.2.2.b	SR 3.6.2.3.2	Procedural Detail of RHR Suppression pool Cooling Flow Test
4.6.6.1.1.a	SR 3.6.4.3.1	Details for Performing the Standby Gas Treatment System 10-hour Test
3.6.6.2	3.6.3.1	Design Detail of Primary Containment Hydrogen Recombiners
4.6.6.2.b.1	3.6.3.1	Channel Calibration of Hydrogen Recombiner Instrumentation and Control Circuits (Indication-only Instrumentation)
4.6.6.2.b.2	SR 3.6.3.1.2	Hydrogen Recombiner Visual Examination
4.6.6.2.b.3	SR 3.6.3.1.1	Hydrogen Recombiner Functional Test
4.6.6.2.b.4	SR 3.6.3.1.3	Hydrogen Recombiner Electrical Test
4.6.6.3.a	SR 3.6.3.3.1	Details of Method of Performing Drywell Cooling System Fan Functional Test
4.6.6.3.c	3.6.3.3	Drywell Cooling System Design Detail
3.6.5.2, ACTION; 4.6.5.2; and 3.6.5.2-1	3.6.4.2	Requirements for Secondary Containment Isolation Dampers (Mode 1, 2, or 3) List of Isolation Dampers and Isolation Times
4.6.5.2.c	SR 3.6.4.2.2 and SR 3.6.4.2.3	Mode Restriction for Isolation Damper Isolation Time Verification
3.9.5.2, ACTION; 4.9.5.2.1; 3.9.5.2-1	3.6.4.2	Requirements for Secondary Containment Isolation Dampers (Mode 5 or when moving irradiated fuel in secondary containment) List of Isolation Dampers and Isolation Times

(1) Unit 1 CTS 4.7.A.2.a and Unit 2 CTS 3.6.1.2.a.1 and 2 all address P_a, P_t, or L_t. Appendix J of 10 CFR Part 50 delineates certain parameters that must be contained in TS, and others that are allowed to be detailed within the Bases. The values of P_a, L_t and P_t are parameters that Appendix J allows to be presented in the Bases. CTS contain the values for P_a which are being moved to the Bases. Because L_t and P_t are not used at HNP, they will not be stated in the Bases. Future changes to P_a will be adequately governed by 10 CFR 50.59 and the Bases change control process of improved TS 5.5.11. In addition, leak testing in accordance with Appendix J will continue to be specified in improved TS SR 3.6.1.1.1.

(2) Unit 1 CTS 4.7.A.2.e and associated Tables 3.7-2 and 3.7-3 are being omitted from the improved TS. The tables, which list containment penetrations, are design details that are being relocated to the TRM, consistent with the guidance provided for PCIVs in Generic Letter 91-08. Any changes to the TRM will be adequately controlled by the provisions of 10 CFR 50.59. In addition, leak testing in accordance with Appendix J will continue to be specified in improved TS SR 3.6.1.1.1.

(3) Unit 1 CTS 4.7.A.2.i addresses the continuous leak rate monitor. This monitor does not relate directly to primary containment operability, which will continue to be required by improved TS 3.6.1.1. The STS do not specify indication-only or alarm-only equipment to be operable to support operability of a system or component. Control of the availability of, and necessary compensatory measures for, indications, monitoring instruments, and alarms are addressed by plant operational procedures and policies. Therefore, the continuous leak rate monitor and associated action requirements are being relocated to plant procedures. Any changes to the requirements for this system will be adequately controlled by the provisions of 10 CFR 50.59.

(4) The details comprising operability of the air lock, contained in Unit 2 CTS 3.6.1.3.a, are being moved to the SRs and Bases of improved TS 3.6.1.2. Any changes to these details will be adequately controlled by the provisions of improved 5.5.11.

(5) Appendix J of 10 CFR Part 50 allows the value of P_a, in Unit 2 CTS 3.6.1.3.b, to be presented in the Bases. Based on the allowance of the regulation, this test pressure is being relocated to the Bases. Future changes to this pressure would be governed by 10 CFR 50.59 changes to the plant design basis for post-accident peak containment pressure. Changes to the Bases will be controlled by the provisions of the proposed Bases change control process specified by improved TS 5.5.11. Air lock leak testing at $\geq P_a$ will continue to be required by improved TS SR 3.6.1.2.1.a. Therefore, relocating the value of P_a to the associated Bases is acceptable.

(6) Unit 1 CTS 4.7.D.1.c requires cycling closed normally open power-operated isolation valves each quarter and Unit 1 CTS 4.7.D.1.e requires exercising the main steam line power-operated isolation valves each

week. These valve exercising SRs are being omitted from improved TS because they are duplicative of the inservice testing (IST) requirements of 10 CFR 50.55a. If valves need to be cycled, the IST program covers this. In addition, these valves will continue to be cycled periodically per improved TS SRs 3.6.1.3.5 and 3.6.1.3.6 in accordance with the IST program. Because these SRs are duplicative of IST requirements and these valves will continue to be adequately tested, this change is acceptable.

(7) The lists of PCIVs in Unit 1 CTS Table 3.7-1 and Unit 2 CTS Table 3.6.3-1 are design details being relocated to the TRM, consistent with the guidance provided in Generic Letter 91-08. Any change to the TRM will be adequately controlled by the provisions of 10 CFR 50.59. PCIV operability and test requirements will continue to be specified in improved TS 3.6.1.3.

(8) Unit 1 CTS 4.7.A.7.c and Unit 2 CTS SR 4.6.6.5.2 contain details describing the method for visually inspecting the purge system excess flow isolation dampers and the purpose of the inspections. These details are being relocated to plant procedures. This type of inspection is more appropriate for plant procedures. The valves will still be cycled every 18 months (which is more restrictive than the Unit 2 Frequency of 2 years) per corresponding improved TS SR 3.6.1.3.11 (SR 3.6.1.3.12 for Unit 2) which will adequately verify their operability. Any change to these relocated details will be adequately controlled by the provisions of 10 CFR 50.59.

(9) Unit 2 CTS 3.6.1.2.b.2 lists the secondary containment penetrations that are potential bypass leakage paths. This list is being relocated to the Bases for improved TS 3.6.1.3 and the TRM. Changes to the Bases will be controlled by the provisions of improved TS 5.5.11, "Bases Control Program," and changes to the TRM will be controlled by the provisions of 10 CFR 50.59. Testing of these secondary containment leakage paths will continue to be required by improved TS SR 3.6.1.3.10.

(10) Unit 2 CTS SR 4.6.3.2, the functional test of each primary containment and drywell isolation valve, contains a restriction on plant conditions that requires the surveillance to be performed during cold shutdown or refueling. However, some isolation valves can be adequately tested in other than cold shutdown or refueling, without jeopardizing safe plant operations. The control of the plant conditions appropriate to perform the test is an issue for procedures and scheduling, which has previously been determined to be unnecessary as a TS restriction. As indicated in Generic Letter 91-04, allowing this control is consistent with the vast majority of other SRs that do not dictate plant conditions for the surveillance. This testing is still required by improved TS SR 3.6.1.3.7, consistent with the STS. Procedures for scheduling this SR will be adequately controlled by the provisions of 10 CFR 50.59.

(11) Unit 2 CTS SR 4.6.1.7, determination of average air temperature in the drywell every 24 hours, contains details of how to perform this surveillance. These details of the methods for performing this

surveillance are omitted from corresponding improved TS SR 3.6.1.5.1 and are being relocated to the Bases for improved TS 3.6.1.5 and procedures. Any changes to these details will be adequately controlled by the provisions of 10 CFR 50.59 and improved TS 5.5.11.

(12) Unit 1 CTS 4.7.A.4.a requires a visual inspection of the suppression chamber to drywell vacuum breakers each refueling outage. Similarly, Unit 2 CTS SR 4.6.4.2.b.2 requires a visual inspection of the reactor building to suppression chamber vacuum breakers every 18 months. This kind of surveillance is really a preventive maintenance requirement that is more appropriately prescribed by plant procedure outside TS. Therefore, the inspections are being moved to plant procedures and omitted from the improved TS. Adequate testing requirements for these vacuum breakers are being retained in improved TSs 3.6.1.8 and 3.6.1.7, respectively. Any changes to these maintenance requirements will be adequately controlled by the provisions of 10 CFR 50.59.

(13) Unit 1 CTS 3.7.A.4.b and Unit 2 CTS 3.6.4.1.b require operability of indication-only equipment associated with the position indication of the suppression chamber - drywell vacuum breakers. This instrumentation requirement, along with the associated SR and ACTION, is being omitted from the improved TS and relocated to plant procedures, consistent with the STS. The vacuum breaker position indication instrumentation does not necessarily relate directly to the respective system operability. The STS do not specify indication-only equipment to be operable to support operability of a system or component. Control of the availability of, and necessary compensatory measures, if they are not available, for indication and monitoring instruments are addressed by plant operational procedures and policies. Any changes to these relocated requirements will be adequately controlled by the provisions of 10 CFR 50.59. Adequate requirements for these vacuum breakers are being retained in improved TS 3.6.1.8.

(14) Unit 2 CTS SR 4.6.4.1.b provides details of how to verify a vacuum breaker is closed. These details are being omitted from corresponding improved TS SR 3.6.1.8.2, but will be provided in the Bases and plant procedures. Any changes to these details will be adequately controlled by the provisions of 10 CFR 50.59 and improved TS 5.5.11.

(15) Unit 1 CTS SR 4.7.A.1.a and Unit 2 CTS SR 4.6.2.1.d contain details of how to determine the average suppression pool temperature. These details are being relocated to the Bases for corresponding improved TS SR 3.6.2.1.1 and plant procedures. Any changes to these details will be adequately controlled by the provisions of 10 CFR 50.59 and improved TS 5.5.11.

(16) The Unit 2 CTSs 3.6.2.1.a and 3.5.4 state the suppression pool volumes (in cubic feet and in gallons, respectively) which correspond to the suppression pool level limits. These volumes are being relocated to the Bases. The level limits are being retained in improved TS 3.6.2.2 because this is the information available to the operator regarding the suppression pool volume. These volume and level limits are equivalent

and interchangeable. Therefore, moving one of them to the Bases does not change the requirement and is only a change in the presentation. In addition, the correct volume limits which correspond to the level limits (which are the actual limits assumed in the safety analysis), have been used in the Bases. Changes to the Bases will be controlled by the provisions of the proposed Bases control process described in improved TS 5.5.11.

(17) The suppression pool water level instrumentation (indication and alarm) addressed in Unit 2 CTSs 3.5.4 and 3.6.2.1.c does not relate directly to the operability of the suppression chamber. The STS do not specify indication-only equipment to be operable to support operability of a system or component. Control of the availability of, and necessary compensatory measures, if they are not available, for indication and monitoring instruments are addressed by plant operational procedures and policies. Therefore, this indication-only instrumentation, along with the following supporting SRs and ACTIONS of Unit 2 CTS are being omitted from corresponding improved TS 3.6.2.2.

Unit 2 CTS 3.5.4	ACTIONS c, d, and e	SR 4.5.4.1.b
Unit 2 CTS 3.6.2.1	ACTIONS f, g, and h	SR 4.6.2.1.h

Any changes to the requirements for this instrumentation will be adequately controlled by the provisions of 10 CFR 50.59. The requirements of improved TS 3.6.2.2 "Suppression Pool Water Level," are adequate to ensure this system will perform its intended function.

(18) Unit 2 CTS 3.6.2.2 contains details relating to the design and purpose of the RHR system (in this case the suppression pool cooling function is designed as two "independent" systems, each with pumps and flow path). These details are being relocated to the Bases of corresponding improved TS 3.6.2.3. The design and operation of the system are also described in the FSAR. Any changes to these details will be adequately controlled by the provisions of 10 CFR 50.59 and improved TS 5.5.11.

(19) Unit 2 CTS 4.6.2.2.b requires starting the RHR pump "from the control room" for the RHR pump inservice test to verify its capability to supply adequate flow through the associated heat exchanger in the suppression pool cooling mode of RHR system operation. This detail of how to perform the test is being omitted from corresponding improved TS SR 3.6.2.3.2, but will continue to be provided in the existing plant procedure for this test. Any changes to this procedure will be adequately controlled by the provisions of 10 CFR 50.59.

(20) Unit 1 CTS SR 4.5.B.1.a requires an air or water test on torus headers and nozzles. Corresponding improved TS SR 3.6.2.4.2 requires verifying the spray nozzles are unobstructed, but does not contain the detail of the two methods (air or water) to do this verification. This detail will continue to be provided in the plant procedure for this test and is more appropriate there. (Note that this SR differs from that given in the STS. See paragraph 2.3.6.5(4) of this safety evaluation.) Any changes to this procedure will be adequately controlled by 10 CFR 50.59.

(21) Unit 1 CTS SR 4.7.A.6.a requires functionally testing the containment atmosphere dilution (CAD) system once each operating cycle. This requirement is being relocated to plant procedures since a "functional test" is routinely performed every time the system is used to inert or de-inert the drywell. As such, it is not needed to be specified as a SR. If during a routine use of the CAD system it was found to be inoperable, the appropriate ACTIONS of improved TS 3.6.3.1 would be taken. This change is consistent with the STS. Any changes to the procedure for this functional test will be adequately controlled by the provisions of 10 CFR 50.59. Because the CAD system will continue to be specified in the improved TS and is routinely operated, and because changes to the CAD system functional test procedure will be adequately controlled, relocating this SR to plant procedures is acceptable.

(22) Unit 1 CTS 3.7.A.6.d, "Post-LOCA Repressurization Limit," requires initiating venting via the standby gas treatment (SGT) system to the main stack at 30 psig following the initial post-LOCA pressure peak. This requirement is being omitted from Unit 1 improved TS 3.6.3.1 but will continue to be contained in the emergency operating procedures (EOPs) for Unit 1. Because this type of action is a post-accident action routinely governed by the EOPs, it is appropriate to locate this requirement in the EOPs rather than in TS. Any changes to this requirement will be adequately controlled by the provisions of 10 CFR 50.59.

(23) Unit 2 CTS 3.6.6.2 requires two "independent" recombiner systems. That the two hydrogen recombiners are independent is a design detail that is being relocated to the Bases for Unit 2 improved TS 3.6.3.1. The design and operation of the hydrogen recombiner system are also described in the FSAR. This detail will be adequately controlled by 10 CFR 50.59 and improved TS 5.5.11.

(24) Unit 2 CTS SRs 4.6.6.2.b.2, 3, and 4 contain details of the methods for performing the 18-month hydrogen recombiner

- visual examination,
- functional test, and
- electrical heater circuit continuity and resistance to ground test.

These details are being relocated to the Bases for corresponding Unit 2 improved TS SRs 3.6.3.1.2, 3.6.3.1.1, and 3.6.3.1.3, and to plant procedures, consistent with the STS. Recombiner system design features and operation, which dictate test methods, are also described in the FSAR. Any changes to these details will be adequately controlled by 10 CFR 50.59 and improved TS 5.5.11.

(25) Unit 2 CTS SR 4.6.6.2.b.1, the 18-month channel calibration of all hydrogen recombiner instrumentation and control circuits, is being omitted from Unit 2 improved TS 3.6.3.1. The STS do not specify indication-only equipment to be operable to support the operability of a system or component. Control of the availability of, and necessary

compensatory activities if not available, for indication instrument and monitoring instruments and alarms are addressed by plant operational procedures and policies. Hydrogen recombiner instrumentation does not relate directly to system operability. Therefore, this SR for this instrumentation is being relocated to plant procedures. Any changes to this channel calibration will be adequately controlled by the provisions of 10 CFR 50.59.

(26) Unit 2 CTS SR 4.6.6.3.a requires verifying that each drywell cooling system fan can be started "on operator action in the control room." This detail of the method for performing this test is being omitted from corresponding Unit 2 improved TS SR 3.6.3.3.1 but will continue to be addressed in the plant procedure for this test. The requirement to actually operate the fan is being retained in improved TS SR 3.6.3.3.1. Any changes to these details will be adequately controlled by the provisions of 10 CFR 50.59.

(27) Unit 2 CTS SR 4.6.6.3.c requires verifying that "each fan is aligned to receive electrical power from an operable emergency bus." This detail pertaining to the design of the drywell cooling system is being relocated to the Bases for Unit 2 improved TS 3.6.3.3. The design of this system is also described in the FSAR. Any changes to these details will be adequately controlled by the provisions of 10 CFR 50.59 and improved TS 5.5.11.

(28) Unit 1 CTS 3.7.C.1.a.(4) and Unit 2 CTS 3.9.5.1 both state that one of the conditions for which normal Unit 1 secondary containment is required is moving the fuel cask in the Unit 1 reactor building (in the Unit 1 secondary containment for Unit 2 TS). This condition is being relocated to plant procedures. If the spent fuel shipping cask (fuel cask) has an irradiated fuel assembly in it, then the Applicability of corresponding improved TS 3.6.4.1 will be satisfied and secondary containment will be required; thus, the existing condition is redundant in this case and is being deleted. For the case when the fuel cask is empty, the secondary containment is not required; however, restrictions on the movement of heavy loads would apply, and these are located in appropriate plant procedures. See paragraph 2.3.9.1.a(1) of this safety evaluation for additional discussion. Any changes to these procedures for moving the fuel cask will be adequately controlled by the provisions of 10 CFR 50.59.

(29) Unit 1 CTSs 3.7.C.1.a.(5) and (6), 3.7.C.2.a.(3) through (7), 3.7.C.2.c and 4.7.C.2.b contain details comprising operability of the secondary containment[12] (both normal and modified), summarized as follows:

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[12] See the discussion in Section 2.3.6.2.p of this safety evaluation regarding the revised terminology for the secondary containment in improved TS 3.6.4.1, "Secondary Containment."