



ENERGY NORTHWEST

Sudesh K. Gambhir
Technical Services
P.O. Box 968, Mail Drop PE04
Richland, WA 99352-0968
Ph. 509-377-8313 F. 509-377-2354
sgambhir@energy-northwest.com

July 30, 2007
GO2-07-112

10 CFR 50.90

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555-0001

Subject: **COLUMBIA GENERATING STATION, DOCKET NO. 50-~~357~~ 397
LICENSE AMENDMENT REQUEST FOR PROPOSED CHANGES TO
COLUMBIA TECHNICAL SPECIFICATIONS: MISCELLANEOUS
ADMINISTRATIVE CHANGES INCLUDING ADOPTION OF APPROVED
TSTF TRAVELERS 284, 479, AND 485**

- References: 1) Letter dated February 16, 2000, W.D. Beckner (NRC) to J. Davis (NEI), "Information on decisions on changes to Standard Technical Specifications NUREGs proposed by NEI Technical Specification Task Force."
- 2) Letter dated December 6, 2005, T.H. Boyce (NRC) to TSTF, "Status of TSTF 343, 479, 482, and 485."

Dear Sir or Madam:

Pursuant to 10 CFR 50.90, Energy Northwest hereby requests an amendment to the Columbia Generating Station (Columbia) Operating License (NFP-21). The proposed changes modify Technical Specifications (TSs) 1.4, "Frequency," 3.1.5, "Control Rod Scram Accumulators," 3.4.1, "Recirculation Loops Operating," 3.5.1, "ECCS – Operating," 3.5.2, "ECCS – Shutdown," 3.7.1, "Standby Service Water (SW) System and Ultimate Heat Sink (UHS)," 3.8.1, "AC Sources – Operating," 3.8.2, "AC Sources – Shutdown," and 5.5.6, "In-service Testing Program." The proposed changes are administrative in nature and include changes to adopt TS Task Force (TSTF) Travelers 284-A, Revision 3; 479, Revision 0; and 485, Revision 0. TSTF-284 was approved by the NRC by letter dated February 16, 2000 (Reference 1) while TSTF-479, Revision 0 and 485, Revision 0 were approved by letter dated December 6, 2005 (Reference 2).

A001

KRR

**LICENSE AMENDMENT REQUEST FOR PROPOSED CHANGES TO COLUMBIA
TECHNICAL SPECIFICATIONS: MISCELLANEOUS ADMINISTRATIVE CHANGES
INCLUDING ADOPTION OF APPROVED TSTF TRAVELERS 284, 479, AND 485**

Page 2

Attachment 1 provides a description of the proposed change and the regulatory basis for the change. Attachment 2 provides the affected TS pages marked up to show the proposed change. Attachment 3 provides the proposed TS Bases changes for information only. Upon approval of the requested amendment, these TS Bases changes will be implemented concurrently with the TS change in accordance with the Columbia TS Bases Control Program.

Energy Northwest requests approval of these changes prior to March 31, 2008. Once approved, the amendment will be implemented within 90 days. This implementation period will provide adequate time for station documents to be revised using the appropriate change control mechanisms.

Energy Northwest has determined there are no significant hazards considerations associated with the proposed change and the TS change qualifies for a categorical exclusion from environmental review pursuant to the provision of 10 CFR 51.22(c)(9).

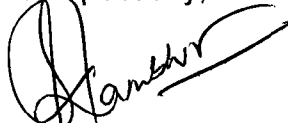
In accordance with 10 CFR 50.91, a copy of this application, with attachments, is being provided to the designated Washington State Official.

As the proposed changes are administrated in nature this communication does not contain any new regulatory commitments.

Should you have any questions or require additional information regarding this matter, please contact Mr. GV Cullen, Licensing Supervisor, at (509) 377-6105.

I declare under penalty of perjury that the foregoing is true and correct. Executed on the date of this letter.

Respectfully,



SK Gambhir
Vice President, Technical Services
Mail Drop PE04

Attachments: 1. Evaluation of Proposed Changes
2. Proposed Technical Specification Changes (mark-up)
3. Proposed Technical Specification Bases Changes (mark-up)

cc:	BS Mallett - NRC RIV	RN Sherman -BPA - 1399
	CF Lyon - NRC NRR	WA Horin - Winston & Strawn
	NRC Sr. Resident Inspector - 988C	RR Cowley - WDOH
	JO Luce - EFSEC	

**LICENSE AMENDMENT REQUEST FOR PROPOSED CHANGES TO COLUMBIA
TECHNICAL SPECIFICATIONS: MISCELLANEOUS ADMINISTRATIVE CHANGES
INCLUDING ADOPTION OF APPROVED TSTF TRAVELERS 284, 479, AND 485**

Attachment 1

Page 1 of 14

Evaluation of Proposed Changes

1.0 DESCRIPTION

Pursuant to 10 CFR 50.90, "Application for Amendment of License or Construction Permit," Energy Northwest hereby requests an amendment to the Technical Specifications (TSs) for Columbia Generating Station (Columbia) Operating License NPF-21. The proposed changes modify TS 1.4, "Frequency," 3.1.5, "Control Rod Scram Accumulators," 3.4.1, "Recirculation Loops Operating," 3.5.1, "ECCS – Operating," 3.5.2, "ECCS – Shutdown," 3.7.1, "Standby Service Water (SW) System and Ultimate Heat Sink (UHS)," 3.8.1, "AC Sources – Operating," 3.8.2, "AC Sources – Shutdown," and 5.5.6, "In-service Testing Program." These changes are administrative in nature and include updates to adopt approved TS Task Force (TSTF) Travelers 284, Revision 3, "Add 'Met' vs. 'Perform' to Specification 1.4, Frequency" (Reference 1), 479, Revision 0, "Changes to Reflect Revision of 10 CFR 50.55a" (Reference 2), and 485, Revision 0, "Correct Example 1.4-1"(Reference 3).

2.0 PROPOSED CHANGE

Each of the changes associated with this amendment request are discussed in this section. A detailed markup of the changes discussed is provided as Attachment 2. Attachment 3 provides changes to affected TS Bases pages and is provided for information only. Energy Northwest has also reviewed the proposed changes for impact on previous submittals awaiting Nuclear Regulatory Commission (NRC) approval for Columbia, and has determined there is no technical impact.

2.1 Technical Specification 1.4, "Frequency"

This proposed amendment would adopt approved TSTFs 284, Revision 3 and 485, Revision 0, for Columbia.

Add "Met vs. Perform" to Specification 1.4, Frequency

TS 1.4 contains language regarding the use of "met" and "performed" in Surveillance Requirement (SR) Notes. Consistent with approved TSTF-284, Revision 3, the proposed change would revise the current language of TS 1.4 to include a discussion paragraph and new examples to facilitate the use and application of SR Notes that utilize "met" and "perform."

Correct Example 1.4-1

Example 1.4-1 of TS 1.4 contains discussion that is inconsistent with the new language adopted within SR 3.0.4 as part implementing approved TSTF-359, Revision 9 "Increase Flexibility in MODE Restraints" (Reference 4). This amendment proposes to

**LICENSE AMENDMENT REQUEST FOR PROPOSED CHANGES TO COLUMBIA
TECHNICAL SPECIFICATIONS: MISCELLANEOUS ADMINISTRATIVE CHANGES
INCLUDING ADOPTION OF APPROVED TSTF TRAVELERS 284, 479, AND 485**

Attachment 1

Page 2 of 14

correct this inconsistency by revising Example 1.4-1 consistent with approved TSTF-485, Revision 0.

2.2 Technical Specification 3.1.5, "Control Rod Scram Accumulators"

TS 3.1.5 requires that each rod scram accumulator be operable. Condition B on the action table stipulates that if two or more control rod scram accumulators are inoperable with reactor steam dome pressure greater than or equal to 900 psig then action must be taken. This proposed change would correct the formatting associated with Condition B Actions B.2.1 and B.2.2 by indenting the logic operator "OR" to appropriately align with the action logic.

2.3 Technical Specification 3.4.1, "Recirculation Loops Operating"

TS 3.4.1 requires that either two recirculation loops with matched flows be in operation or one recirculation loop be in operation, provided certain limits are applied, or the plant must enter an action statement. This proposed change would modify the logic associated with Limiting Condition of Operation (LCO) 3.4.1 by changing the entry for Condition C to include a failure to complete the required actions associated with Condition A or B in the allotted completion time. This proposed change would also require an update of the TS Bases.

2.4 Technical Specification 3.5.1, "ECCS — Operating"

TS 3.5.1 requires that each Emergency Core Cooling System (ECCS) injection/spray subsystem and the Automatic Depressurization System (ADS) function of six safety/relief valves be operable. SR 3.5.1.4 requires the verification of ECCS pump performance in accordance with specified criteria. The language in SR 3.5.1.4 uses the terms "Developed Head" and "Total Developed Head." This proposed change would replace "Developed Head" and "Total Developed Head" with "Differential Pressure between Reactor and Suction Source."

2.5 Technical Specification 3.5.2, "ECCS — Shutdown"

TS 3.5.2 requires that two ECCS injection/spray subsystems be operable during plant shutdown. Similar to SR 3.5.1.4, SR 3.5.2.5 uses the terms "Developed Head" and "Total Developed Head." This proposed change would replace "Developed Head" and "Total Developed Head" with "Differential Pressure between Reactor and Suction Source."

**LICENSE AMENDMENT REQUEST FOR PROPOSED CHANGES TO COLUMBIA
TECHNICAL SPECIFICATIONS: MISCELLANEOUS ADMINISTRATIVE CHANGES
INCLUDING ADOPTION OF APPROVED TSTF TRAVELERS 284, 479, AND 485**

Attachment 1

Page 3 of 14

2.6 Technical Specification 3.7.1, "Standby Service Water (SW) System and Ultimate Heat Sink (UHS)"

TS 3.7.1 carries an obsolete note resulting from refurbishment/replacement of the 1B SW pump (SW-P-1B) during Cycle 18. This proposed change would eliminate this obsolete note from TS 3.7.1.

2.7 Technical Specification 3.8.1, "AC Sources – Operating"

Similar to TS 3.7.1, TS 3.8.1 also carries an obsolete note resulting from refurbishment/replacement of SW-P-1B during Cycle 18. This proposed change would eliminate this obsolete note from TS 3.8.1.

2.8 Technical Specification 3.8.2, "AC Sources – Shutdown"

TS 3.8.2 requires that certain AC electrical power sources be available while in Modes 4 and 5. The proposed change would correct a typographical error in the Note for SR 3.8.2.1 by replacing "SR 2.8.1.11" with "SR 3.8.1.11."

2.9 Technical Specification 5.5.6, "Inservice Testing Program"

This proposed amendment would adopt approved TSTF-479, Revision 0 and delete an obsolete note from the TS 5.5.6.

Changes to Reflect Revision of 10 CFR 50.55a

TS 5.5.6 makes reference to Section XI of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel (B&PV) Code for Inservice Testing (IST) requirements. This proposed change would adopt approved TSTF-479, Revision 0 and revise TS 5.5.6 by replacing references to Section XI of the ASME B&PV code with the ASME Code for Operation and Maintenance of Nuclear Power Plants (OM Code). In addition, TS 5.5.6 would be revised to indicate that there may be some non-standard frequencies utilized in the IST program in which the provisions of SR 3.0.2 are applicable. These changes are consistent with approved TSTF-479, Revision 0 and would require an update of the TS Bases.

Change to Remove Obsolete Note

TS 5.5.6 carries an obsolete note resulting from a missed IST event during a 1997 refueling outage. This proposed change would eliminate this obsolete note from TS 5.5.6.

**LICENSE AMENDMENT REQUEST FOR PROPOSED CHANGES TO COLUMBIA
TECHNICAL SPECIFICATIONS: MISCELLANEOUS ADMINISTRATIVE CHANGES
INCLUDING ADOPTION OF APPROVED TSTF TRAVELERS 284, 479, AND 485**

Attachment 1

Page 4 of 14

3.0 BACKGROUND

This section documents the history and associated bases supporting each of the proposed changes within this amendment.

3.1 Technical Specification 1.4, "Frequency"

Add "Met vs. Perform" to Specification 1.4, Frequency

TSTF 284, Revision 3 modifies TS 1.4 to clarify the use of the terms "met" and "performed" to facilitate the application of SR Notes. Additionally, Example 1.4-5 and 1.4-6 are added to illustrate the application of the terms. TSTF-284, Revision 3 was approved by the NRC in a letter dated February 16, 2000 (Reference 5).

Adoption of TSTF-284, Revision 3 is an administrative change and serves to improve TS usefulness by clarifying terminology and providing additional examples for the application of SR Notes. No changes in the application of any TS are involved.

Adoption of TSTF-284, Revision 3 has been approved for other nuclear facilities. Amendment No. 226, 239, and 266 to Browns Ferry Units 1, 2 and 3, respectively were approved by the NRC in a letter dated November 21, 2000 (Reference 6). In these amendments, TS 1.4 was revised to clarify the usage of the terms "met" and "performed" to facilitate the application of SR Notes. These amendments are considered suitable precedents and this proposed TS change involves no structure, system, or component (SSC) at Browns Ferry that might be different from a SSC at Columbia.

Correct Example 1.4-1

TSTF 359, Revision 9 was implemented at Columbia as part of Amendment No. 187 of the facility operating license and revised LCO 3.0.4 and SR 3.0.4 (Reference 7). The changes made in TSTF-359 to SR 3.0.4 made certain statements in Example 1.4-1 of TS 1.4 incorrect.

Example 1.4-1 states that if the interval as specified by SR 3.0.2 is exceeded while the unit is not in a MODE or other specified condition in the Applicability of the LCO for which performance of the SR is required, the Surveillance must be performed within the Frequency requirements of SR 3.0.2 prior to entry into the MODE or other specified condition. Failure to do so would result in a violation of SR 3.0.4.

TSTF-359, Revision 9 implementation modified SR 3.0.4 to state that when an LCO is not met due to Surveillances not having been met, entry into a MODE or other specified condition in the Applicability shall only be made in accordance with LCO 3.0.4. TSTF-359, Revision 9 modified LCO 3.0.4 to provide conditions under which it is acceptable to

**LICENSE AMENDMENT REQUEST FOR PROPOSED CHANGES TO COLUMBIA
TECHNICAL SPECIFICATIONS: MISCELLANEOUS ADMINISTRATIVE CHANGES
INCLUDING ADOPTION OF APPROVED TSTF TRAVELERS 284, 479, AND 485**

Attachment 1

Page 5 of 14

enter the Applicability of the LCO with the LCO not met. Therefore, it is possible to enter the Mode or other specified condition in the Applicability of an LCO with a Surveillance not performed within the Frequency requirements of SR 3.0.2 and this does not result in a violation of SR 3.0.4.

TSTF 485, Revision 0 revises Example 1.4-1 to be consistent with the current requirements of SR 3.0.4. In order to do this, the second paragraph of Example 1.4-1 is modified to parallel the discussion in the previous paragraph. The previous paragraph discusses Surveillances that exceed the interval without being performed while in the Applicability. The second paragraph would be modified to make a similar statement regarding Surveillances that exceed the interval while not being in the Applicability.

The second sentence of the second paragraph is modified to reference the provisions of SR 3.0.3. This is necessary as TSTF-359, Revision 9 modified SR 3.0.4 to recognize the possibility that performance of a missed Surveillance may have been extended and prior to performance of the missed Surveillance, but within the time permitted under SR 3.0.3, a MODE change occurs.

The statement that failure to perform a Surveillance prior to entering the Applicability would constitute a violation of SR 3.0.4 is deleted and a statement is inserted to state the LCO would not be met and LCO 3.0.4 becomes applicable and is consistent with the revised SR 3.0.4.

TSTF-485, Revision 0 was approved by the NRC in a letter dated December 6, 2005 (Reference 8). Implementation of TSTF-485, Revision 0 is administrative and simply serves to ensure consistency between Example 1.4-1 and the remainder of the TS. No changes in the application of any TS are involved.

3.2 Technical Specification 3.1.5, "Control Rod Scram Accumulators"

TS 1.2, "Logic Connectors," states that several levels of logic may be used to state Required Actions. These levels are identified by the placement (or nesting) of the logical connectors and by the number assigned to each Required Action. The first level of logic is identified by the first digit of the number assigned to a Required Action and the placement of the logical connector in the first level of nesting (i.e., left justified with the number of the Required Action). The successive levels of logic are identified by additional digits of the Required Action number and by successive indentions of the logical connectors.

TS 3.1.5 requires that each rod scram accumulator be operable. Condition B on the action table stipulates that if two or more control rod scram accumulators are inoperable with reactor steam dome pressure greater than or equal to 900 psig then two Required Actions must be taken. Action B.1 states that charging water header pressure must be restored to greater than or equal to 940 psig. Action B.2 is a two part action denoted as Required Action B.2.1 and B.2.2. B.2.1 requires that the rod scram time of all of the

**LICENSE AMENDMENT REQUEST FOR PROPOSED CHANGES TO COLUMBIA
TECHNICAL SPECIFICATIONS: MISCELLANEOUS ADMINISTRATIVE CHANGES
INCLUDING ADOPTION OF APPROVED TSTF TRAVELERS 284, 479, AND 485**

Attachment 1

Page 6 of 14

control rods associated with the inoperable accumulator be declared slow if they were within the limits of Table 3.1.4-1 during the last scram time Surveillance. Action B.2.2 states that the control rods associated with the inoperable accumulator be declared inoperable. Actions B.2.1 and B.2.2 are placed in an OR relationship; however, the logic designator is not indented in a manner consistent with the requirements of TS 1.2.

Indenting the logic operator OR between B.2.1 and B.2.2 is an administrative change and serves to ensure that the logic is consistent with TS 1.2. No changes in the application of TS 3.1.5 are involved.

3.3 Technical Specification 3.4.1, "Recirculation Loops Operating"

TS 3.4.1 requires that, while in Mode 1 or 2, either two recirculation loops with matched flows be in operation or one recirculation loop in operation provided that the certain limits are applied. Condition A stipulates that action be taken if recirculation loop flow mismatch is not within acceptable limits. Condition B requires that action be taken if LCO 3.4.1 is not met for any reason other than that identified in Condition A.

The current language for Condition C states that action must be taken to transition the plant into Mode 3 within 12 hours if the completion time of actions associated with Condition B is not met. As Condition C remains silent relative to a failure to complete Required Action A.1, Condition A would be covered by LCO 3.0.3 and would require that the plant be transitioned to Mode 3 within 13 hours.

Excluding from Condition C the failure to complete Required Actions within the associated completion time of Condition A is inconsistent with the general form of Columbia TS. The proposed change to TS 3.4.1 would revise Condition C to require that this condition be entered if the Required Action associated with Condition A or B is not completed. This would eliminate the need to enter LCO 3.0.3 upon failure to complete the actions associated with Condition A and subject it to the Mode transition associated with the Required Action of Condition C. Therefore, when the plant is in the adverse condition of having mismatched recirculation flow outside of acceptable limits and it cannot be corrected within 2 hours, the plant would transition into Mode 3 within 12 hours as opposed to the 13 hours required by LCO 3.0.3. This change enhances the clarity of TS 3.4.1 and biases operator action in the direction of safety.

3.4 Technical Specification 3.5.1, "ECCS — Operating"

TS 3.5.1 requires each ECCS injection/spray subsystem and the ADS function of the six safety/relief valves to be operable in Modes 1 through 3, except ADS valves are not required to be operable with reactor steam dome pressure less than 150 psig. SR 3.5.1.4 requires the verification of ECCS pump performance in accordance with specified criteria. Specifically, SR 3.5.1.4 states that each ECCS pump be verified to demonstrate a specified flow rate and developed head consistent with expressed acceptance criteria.

**LICENSE AMENDMENT REQUEST FOR PROPOSED CHANGES TO COLUMBIA
TECHNICAL SPECIFICATIONS: MISCELLANEOUS ADMINISTRATIVE CHANGES
INCLUDING ADOPTION OF APPROVED TSTF TRAVELERS 284, 479, AND 485**

Attachment 1

Page 7 of 14

SR 3.5.1.4 uses the terms "Developed Head" and "Total Developed Head" (TDH). The usage of these terms is somewhat misleading within the context of this SR. TDH is the total resistance against which a pump is working and comprises the dynamic, static, and velocity head of the system. Therefore, TDH includes parameters such as flow resistance created by friction in system piping, valves, fittings and liquid viscosity, the elevation to which a liquid must be raised, as well as the pressure required to accelerate the liquid to its flow velocity.

TS Bases for SR 3.5.1.4 states that ECCS pump flow rates are verified against a system pressure difference. For the Low Pressure Core Spray (LPCS) and Low Pressure Coolant Injection (LPCI) pumps the pressure difference is equivalent to that between the reactor and the suppression pool air volume. For the High Pressure Core Spray (HPCS) pump the pressure difference is equivalent to the differential between the reactor and the air volume above the suction source (suppression pool or condensate storage tank). Under these conditions, the total system pump outlet pressure is adequate to overcome the elevation head pressure between the pump suction and the vessel discharge, the piping frictional losses, and reactor pressure vessel (RPV) pressure present during an event requiring ECCS. Therefore, TDH is a misleading term for the pressure value given.

Replacing "Developed Head" and "Total Developed Head" with "Differential Pressure between Reactor and Suction Source" is administrative in nature and would serve to appropriately characterize the subject condition. No changes in the application of any TS are involved.

3.5 Technical Specification 3.5.1, "ECCS — Shutdown"

TS 3.5.1.2 requires two ECCS injection/spray subsystems to be operable in Modes 4 and 5 except with the spent fuel storage pool gates removed and water level > 22 ft over the top of the RPV flange. SR 3.5.2.5 requires the verification of ECCS pump performance in accordance with specified criteria. Similar to SR 3.5.1.4, SR 3.5.2.5 uses the terms "Developed Head" and "Total Developed Head." This proposed change would replace "Developed Head" and "Total Developed Head" with "Differential Pressure between Reactor and Suction Source." The circumstances associated with this proposed change are identical to those outlined in Section 3.4.

Replacing "Developed Head" and "Total Developed Head" with "Differential Pressure between Reactor and Suction Source" is administrative in nature and would serve to appropriately characterize the subject condition. No changes in the application of any TS are involved.

**LICENSE AMENDMENT REQUEST FOR PROPOSED CHANGES TO COLUMBIA
TECHNICAL SPECIFICATIONS: MISCELLANEOUS ADMINISTRATIVE CHANGES
INCLUDING ADOPTION OF APPROVED TSTF TRAVELERS 284, 479, AND 485**

Attachment 1

Page 8 of 14

**3.6 Technical Specification 3.7.1, "Standby Service Water (SW) System and
Ultimate Heat Sink (UHS)"**

TS 3.7.1 currently carries an obsolete note resulting from refurbishment/replacement of SW-P-1B during Cycle 18. On June 15, 2005 a step change in the flow rate and discharge pressure was observed during routine testing of the SW-P-1A. Based on this unexpected change in performance, SW-P-1A was declared inoperable and an investigation of the cause was initiated. Disassembly of the pump resulted in the discovery of two failed shaft end flanges. The pump, pump shafts, and shaft couplings were replaced and SW-P-1A was restored to operable status.

During the replacement of SW-P-1A, the plant tripped due to an unrelated event. Prior to restarting, an extent of condition evaluation concluded SW-P-1B was susceptible to the same failure mechanism that caused SW-P-1A to be declared inoperable. An operability evaluation determined that SW-P-1B was operable and the plant resumed power operation. Nonetheless, Energy Northwest considered it prudent to inspect and refurbish SW-P-1B at the earliest opportunity. As part of the inspection process, shaft couplings were to be destroyed during disassembly and replaced with parts that had been ordered. Based on the work planning package it was determined the 72-hour outage time allowed by TS 3.7.1 was insufficient and that an extension was necessary.

In a letter dated August 17, 2005 (Reference 15), as supplemented by letters dated November 15 and 30, 2005, Energy Northwest requested a TS amendment to allow a one-time extension of the completion times associated with TS 3.7.1 and TS 3.8.1. License Amendment No. 195 was issued on December 5, 2005 (Reference 16) and revised TS 3.7.1 and TS 3.8.1 by adding a note that extended the allowable outage time for SW train B and diesel generator 2 (DG-2) from 72 to 144 hours. After issuance of the amendment, refurbishment/replacement activities were conducted for SW-P-1B. Removing this expired note is administrative in nature and would not change the application of any TS.

3.7 Technical Specification 3.8.1, "AC Sources – Operating"

The circumstances surrounding the original inclusion of the note associated with the completion time of Required Action B.4.1 are identical to those of TS 3.7.1 discussed in Section 3.6. Removing this expired note is administrative in nature and would not change the application of any TS.

3.8 Technical Specification 3.8.2, "AC Sources – Shutdown"

In a letter dated November 27, 2006, the NRC issued Amendment No. 199 to the Columbia operating license [17]. The amendment consisted of changes in response to Energy Northwest's proposal to adopt an alternative source term to be used in design-

**LICENSE AMENDMENT REQUEST FOR PROPOSED CHANGES TO COLUMBIA
TECHNICAL SPECIFICATIONS: MISCELLANEOUS ADMINISTRATIVE CHANGES
INCLUDING ADOPTION OF APPROVED TSTF TRAVELERS 284, 479, AND 485**

Attachment 1

Page 9 of 14

basis radiological analyses pursuant to 10 CFR 50.67, "Accident Source Term." These changes included modification of TS 3.8.2.

TS 3.8.2 requires that certain AC electrical power sources be available while in Modes 4 and 5. SR 3.8.2.1 states that for AC sources required to be Operable, the SRs for TS 3.8.1 except SR 3.8.1.8, SR 3.8.1.17, and SR 3.8.1.20, are applicable. This SR is modified by a Note which states that the following SRs are not required to be performed: SR 3.8.1.3, SR 3.8.1.9 through SR 2.8.1.11, SR 3.8.1.13 through SR 3.8.1.16, SR 3.8.1.18, and SR 3.8.1.19. The inclusion of SR 2.8.1.11 is a typographical error and should be SR 3.8.1.11. Correcting the typographical error is administrative and does not change the application of any associated TS.

3.9 Technical Specification 5.5.6, "Inservice Testing Program"

Changes to Reflect Revision of 10 CFR 50.55a

Section XI of the ASME Code, "Rules for Inservice Inspection of Nuclear Power Plant Components," has been revised on a continuing basis over the years to provide updated requirements for the ISI and IST of components. Until 1990, the ASME Code requirements addressing the IST of pumps and valves were contained in Section XI, Subsections IWP (pumps) and IWV (valves). In 1990, ASME published the initial edition of the OM Code that provides the rules for the IST of pumps and valves. The ASME intended that the ASME OM Code replace Section XI of the B&PV Code for IST of pumps and valves. Since the establishment of the 1990 Edition of the OM Code, the rules for the IST of pumps are no longer being updated in Section XI.

TS 5.5.6 makes reference to Section XI of the ASME B&PV Code for IST requirements. ASME Section XI had been the appropriate code of reference for the Columbia IST Program through the second 10-year interval. The Columbia IST program for the third 10-year interval was transmitted to the NRC in a letter dated October 10, 2005 and implemented on December 13, 2005 (Reference 9). The code of reference for the Columbia third 10-year IST program is the 2001 Edition and the 2003 Addenda of the ASME OM code.

10 CFR 50.55a(f)(4)(ii) requires that IST testing conducted during successive 10-year intervals comply with the latest edition and addenda of the code incorporated by reference in 10 CFR 50.55a(b) 12 months prior to the start of the interval. As the current interval started December 13, 2005, the IST Program must comply with the requirements of the code incorporated by reference on December 13, 2004. Therefore, the latest approved edition of the ASME OM Code would be the 2001 Edition and the 2002 and 2003 Addenda. As a result the code referenced in TS 5.5.6 would conflict with the code on which the current IST Program is based. 10 CFR 50.55a(f)(5)(ii) states that if a revised IST program conflicts with the TS, the licensee shall apply to amend the TS to conform with the revised program.

**LICENSE AMENDMENT REQUEST FOR PROPOSED CHANGES TO COLUMBIA
TECHNICAL SPECIFICATIONS: MISCELLANEOUS ADMINISTRATIVE CHANGES
INCLUDING ADOPTION OF APPROVED TSTF TRAVELERS 284, 479, AND 485**

Attachment 1

Page 10 of 14

This TS update is governed by TSTF-479, Revision 0 which was approved by the NRC in a letter dated December 6, 2005 (Reference 8). Adopting TSTF-479, Revision 0 would revise TS 5.5.6 to reflect the industry change from ASME Section XI to the ASME OM Code. Implementation would also revise the language of TS 5.5.6 to indicate that there may be some non-standard Frequencies used in the IST program in which the provisions of SR 3.0.2 are applicable. Various sections of the TS Bases would also be revised for consistency.

Adopting TSTF-479, Revision 0 for Columbia is administrative and maintains consistency between the TS and associated programmatic activities without changing the application of any TS involved.

Adoption of TSTF-479, Revision 0 has been approved at other nuclear facilities. Amendment No. 223 to Cooper Nuclear Station (CNS) was approved by the NRC in a letter dated September 6, 2006 (Reference 10). In this amendment, TS 5.5.6, was revised by replacing reference to Section XI of the ASME B&PV Code with reference to ASME OM. This amendment is considered suitable precedent because Columbia and CNS must comply with 10 CFR 50.55a, and the IST program for both must be written to the requirements of the latest edition and addenda of the ASME OM code referenced in 10 CFR 50.55a(b). This proposed TS change involves no SSC at CNS that might be different from a SSC at Columbia.

Change to Remove Obsolete Note

TS 5.5.6 currently carries an obsolete note resulting from a missed IST test during a 1997 refueling outage. On July 17, 1997, Energy Northwest identified a failure to perform the required full stroke testing of the inboard primary containment isolation valve (PCIV) on the transversing in-core probe (TIP) system nitrogen purge line, or TIP-V-6. It was determined that because of the failure to complete the required testing, the TIP penetration was required to be isolated per TS Required Action 3.6.1.3.A. However, isolation of the nitrogen purge to the TIP System would allow moisture intrusion into the TIP indexers and tubing, potentially degrading the lubricant and causing obstructions to TIP probe travel.

In a letter dated August 15, 1997 (Reference 11), the NRC exercised discretion not to enforce compliance with the specific Required Action in TS 3.6.1.3.A until September 27, 1997, or until a license amendment request changing the technical specifications could be issued, or until the first outage of sufficient duration occurs which would allow performance of the Surveillance on TIP-V-6, whichever was sooner.

On August 14, 1997, Energy Northwest filed an exigent request for amendment to the IST program full stroke testing requirements (Reference 12). License Amendment No. 152 was issued on September 18, 1997 (Reference 13) and revised TS 5.5.6 by adding a note that extended the interval requirement to perform the full stroke exercise testing of TIP-V-6 until the 1998 refueling outage, until a plant shutdown of sufficient duration

**LICENSE AMENDMENT REQUEST FOR PROPOSED CHANGES TO COLUMBIA
TECHNICAL SPECIFICATIONS: MISCELLANEOUS ADMINISTRATIVE CHANGES
INCLUDING ADOPTION OF APPROVED TSTF TRAVELERS 284, 479, AND 485**

Attachment 1

Page 11 of 14

occurs to allow TIP-V-6 testing, or until May 15, 1998, whichever came first. As noted in NRC Inspection Report 50-397/98-21, dated October 27, 1998, inspectors followed up on the missed test interval and found that testing had been completed on TIP-V-6 on March 13, 1998 (Reference 14). Therefore, removing this expired note is administrative in nature and would not change the application of any TS.

4.0 TECHNICAL ANALYSIS

The proposed changes addressed in this license amendment request are administrative in nature and in most cases do not change the application of any TS. The only exception is the proposed change to TS 3.4.1 discussed in Sections 2.3 and 3.3. This change would eliminate the need to enter LCO 3.0.3 upon failure to complete the Required Action associated with Condition A and subject it to the Mode transition associated with the Required Action of Condition C. Therefore, when the plant is in the adverse condition of having mismatched recirculation flow outside of acceptable limits and it cannot be corrected within 2 hours, the plant would transition to Mode 3 within 12 hours as opposed to the 13 hours required by LCO 3.0.3. This change enhances the clarity of TS 3.4.1 and also biases operator action in the direction of safety by requiring that the plant be out of the Mode where LCO 3.4.1 is applicable 1 hour sooner than currently required. Other proposed changes within the scope of this amendment do not change the application of any TS, and therefore, do not require any technical analyses to support their justification outside of the basis for the proposed change provided in Section 3.

5.0 REGULATORY ANALYSIS

Energy Northwest is submitting an amendment request to the TS for Columbia Operating License NPF-21. The proposed changes modify TS Sections 1.4, "Frequency," 3.1.5, "Control Rod Scram Accumulators," 3.4.1, "Recirculation Loops Operating," 3.5.1, "ECCS – Operating," 3.7.1, "Standby Service Water (SW) System and Ultimate Heat Sink (UHS)," 3.8.1, "AC Sources – Operating," and 5.5.6, "Inservice Testing Program."

5.1 No Significant Hazards Consideration

Energy Northwest has evaluated the proposed changes to the TS for Columbia using the criteria in 10 CFR 50.92, and has determined that the proposed changes do not involve a significant hazards consideration. The following information is provided to support a finding of no significant hazards consideration.

1. The proposed amendment does not involve a significant increase in the probability or consequences of an accident previously evaluated.

The proposed amendment is administrative in nature and does not affect analysis inputs or mitigation of analyzed accidents and transients. Therefore, the proposed

**LICENSE AMENDMENT REQUEST FOR PROPOSED CHANGES TO COLUMBIA
TECHNICAL SPECIFICATIONS: MISCELLANEOUS ADMINISTRATIVE CHANGES
INCLUDING ADOPTION OF APPROVED TSTF TRAVELERS 284, 479, AND 485**

Attachment 1

Page 12 of 14

amendment does not involve a significant increase in the probability or consequences of an accident previously evaluated.

- 2. The proposed amendment does not create the possibility of a new or different kind of accident from any accident previously evaluated.**

The proposed change does not involve a physical alteration of the plant, add any new equipment, or require any existing equipment to be operated in a manner different from the present design. The proposed change does not introduce any new modes of plant operation or make any changes to system setpoints. Therefore, the proposed amendment does not create the possibility of a new or different kind of accident from any accident previously evaluated.

- 3. The proposed amendment does not involve a significant reduction in a margin of safety.**

The proposed amendment is administrative in nature and does not involve physical changes to plant SSCs, or the manner in which these SSCs are operated, maintained, modified, tested, or inspected. The proposed amendment does not involve a change to any safety limit, limiting safety system setting, limiting condition for operation, or design parameters for any SSC. The only minor alteration to the plant design basis is relative to the application of TS 3.4.1. However, as discussed in Section 4, this alteration biases the operation of the plant in the direction of safety. The proposed amendment does not impact any safety analysis assumptions and does not involve a change in initial conditions, system response times, or other parameters affecting any accident analysis. For these reasons, the proposed amendment does not involve a significant reduction in the margin of safety.

5.2 Applicable Regulatory Requirements/Criteria

The proposed changes would change certain Columbia TS to ensure consistency and enhance clarity. These proposed changes are administrative in nature and, except as previously noted in Section 4, would not change the application of any TS. The only change would bias application of TS 3.4.1 in the direction of safety. Based on these considerations, (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendment will not be inimical to the common defense and security or the health and safety of the public.

6.0 ENVIRONMENTAL CONSIDERATION

The proposed changes to the Columbia TS do not involve (i) a significant hazards consideration, (ii) a significant change in the types or significant increase in the amounts of any effluent that may be released offsite, or (iii) a significant increase in individual or

**LICENSE AMENDMENT REQUEST FOR PROPOSED CHANGES TO COLUMBIA
TECHNICAL SPECIFICATIONS: MISCELLANEOUS ADMINISTRATIVE CHANGES
INCLUDING ADOPTION OF APPROVED TSTF TRAVELERS 284, 479, AND 485**

Attachment 1

Page 13 of 14

cumulative occupational radiation exposure. Accordingly, the proposed amendment meets the eligibility criterion for categorical exclusion set forth in 10 CFR 51.22(c)(9). Therefore, pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the proposed amendment.

7.0 REFERENCES

1. TSTF-284, Revision 3, "Add "Met vs. Perform" to Specification 1.4, Frequency," January 11, 2000.
2. TSTF-479, Revision 0, "Changes to Reflect Revision of 10 CFR 50.55a," December 2, 2004.
3. TSTF-485, Revision 0, "Correct Example 1.4-1," May 31, 2005.
4. TSTF-359, Revision 9, "Increase Flexibility in MODE Restraints," April 28, 2003.
5. Letter dated February 16, 2000, W.D. Beckner (NRC) to J. Davis (NEI), "Information on decisions on changes to Standard Technical Specifications NUREGs proposed by NEI Technical Specification Task Force."
6. Letter dated November 21, 2000, W.O. Long (NRC) to J.A. Scalice (TVA), "Browns Ferry Nuclear Plant Units 1, 2 and 3 - Issuance of Amendments Regarding Administrative Technical Specifications Changes (TAC Nos. MA9423, MA9424 and MA9425)."
7. Letter GI2-04-100 dated June 4, 2004, W.A. Macon (NRC) to J.V. Parrish (EN), "Columbia Generating Station - Issuance of Amendment Re: Increasing Flexibility in Mode Restraints (TAC No. MC1324)."
8. Letter dated December 6, 2005, T.H. Boyce (NRC) to TSTF, "Status of TSTF 343, 479, 482, 485."
9. Letter GO2-05-166, dated October 10, 2005, WS Oxenford (EN) to NRC, "Columbia Generating Station, Docket No. 50-397 Submittal of the Third Ten-Year Interval Pump and Valve Inservice Testing (IST) Program Plan."
10. Letter dated September 6, 2006, B. Benney (NRC) to R.K. Edington (NPPD), "Cooper Nuclear Station - Issuance of Amendment Re: Technical Specification (TS) Changes Associated with Inservice Testing Program, Section 5.5.6, Under TS Programs and Manuals (TAC No. MD0335)"

**LICENSE AMENDMENT REQUEST FOR PROPOSED CHANGES TO COLUMBIA
TECHNICAL SPECIFICATIONS: MISCELLANEOUS ADMINISTRATIVE CHANGES
INCLUDING ADOPTION OF APPROVED TSTF TRAVELERS 284, 479, AND 485**

Attachment 1

Page 14 of 14

11. Letter GI2-97-187 dated August 15, 1997, W.H. Bateman (NRC) to J.V. Parrish (EN), "Notice of Enforcement Discretion for Washington Public Power Supply System Regarding Washington Nuclear Project No. 2 (WNP-2) - NOED No. 97-6-012 (TAC No. M99391)."
12. Letter GO2-97-156 dated August 14, 1997, R.L. Webring (EN) to NRC, "WNP-2 Operating License NPF-21 Exigent Request for Amendment for IST Program Full Stroke Testing Requirements."
13. Letter GI2-97-203 dated September 18, 1997, T.G. Colbrun (NRC) to J.V. Parrish (EN), "Issuance of Amendment for the Washington Public Power Supply System (WPPSS) Nuclear Project No. 2 (WNP-2) (TAC No. M99413)."
14. Letter GI2-98-208, G.A. Pick (NRC) to J.V. Parrish (EN), "NRC Inspection Report 50-397/98-21."
15. Letter GO2-05-184 dated August 17, 2005, W.S. Oxenford (EN) to NRC, "Columbia Generating Station, Docket No. 50-397 License Amendment Request for one-time Extension of the Completion Time for Condition B of Technical Specification 3.7.1 and Exemption from Note 1 of Required Action B.1."
16. Letter GI2-05-202 dated December 8, 2005, "Columbia Generating Station – Issuance of Amendment Re: One-time Extension of the Completion Time for Technical Specification 3.7.1 and 3.8.1 (TAC No. MC8241)."
17. Letter GI2-06-186 dated November 27, 2006, "Columbia Generating Station – Issuance of Amendment Re: Alternative Source Term (TAC No. MC4570)."

**LICENSE AMENDMENT REQUEST FOR PROPOSED CHANGES TO COLUMBIA
TECHNICAL SPECIFICATIONS: MISCELLANEOUS ADMINISTRATIVE CHANGES
INCLUDING ADOPTION OF APPROVED TSTF TRAVELERS 284, 479, AND 485**
Attachment 2

Proposed Technical Specification Changes (mark-up)

REVISED TECHNICAL SPECIFICATION PAGES

1.4-1
1.4-2
1.4-3
1.4-5
3.1.5-2
3.4.1-2
3.5.1-5
3.5.2-4
3.7.1-2
3.8.1-3
3.8.2-3
5.5-5
5.5-6

1.0 USE AND APPLICATION

1.4 Frequency

PURPOSE	The purpose of this section is to define the proper use and application of Frequency requirements.
---------	--

DESCRIPTION	Each Surveillance Requirement (SR) has a specified Frequency in which the Surveillance must be met in order to meet the associated Limiting Conditions for Operation (LCO). An understanding of the correct application of the specified Frequency is necessary for compliance with the SR.
-------------	---

The "specified Frequency" is referred to throughout this section and each of the Specifications of Section 3.0, "Surveillance Requirement (SR) Applicability." The "specified Frequency" consists of the requirements of the Frequency column of each SR, as well as certain Notes in the Surveillance column that modify performance requirements.

Sometimes special situations dictate when the requirements of a Surveillance are to be met. They are "otherwise stated" conditions allowed by SR 3.0.1. They may be stated as clarifying Notes in the Surveillance, as part of the Surveillance, or both. ~~Example 1.4-4 discusses these special situations.~~

Situations where a Surveillance could be required (i.e., its Frequency could expire), but where it is not possible or not desired that it be performed until sometime after the associated LCO is within its Applicability, represent potential SR 3.0.4 conflicts. To avoid these conflicts, the SR (i.e., the Surveillance or the Frequency) is stated such that it is only "required" when it can be and should be performed. With an SR satisfied, SR 3.0.4 imposes no restriction.

The use of "met" or "performed" in these instances conveys specified meanings. A Surveillance is "met" only when the acceptance criteria are satisfied. Known failure of the requirements of a Surveillance, even without a Surveillance specifically being "performed," constitutes a Surveillance not "met." "Performance" refers only to the requirement to specifically determine the ability to meet the acceptance criteria. ~~SR 3.0.4 restrictions would not apply if both the following conditions are satisfied:~~

Insert TS-1

(continued)

1.4 Frequency

DESCRIPTION
(continued)

- a. ~~The Surveillance is not required to be performed; and~~
b. ~~The Surveillance is not required to be met or, even if required to be met, is not known to be failed.~~

EXAMPLES

The following examples illustrate the various ways that Frequencies are specified. In these examples, the Applicability of the LCO (LCO not shown) is MODES 1, 2, and 3.

EXAMPLE 1.4-1

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
Perform CHANNEL CHECK.	12 hours

Example 1.4-1 contains the type of SR most often encountered in the Technical Specifications (TS). The Frequency specifies an interval (12 hours) during which the associated Surveillance must be performed at least one time. Performance of the Surveillance initiates the subsequent interval. Although the Frequency is stated as 12 hours, an extension of the time interval to 1.25 times the interval specified in the Frequency is allowed by SR 3.0.2 for operational flexibility. The measurement of this interval continues at all times, even when the SR is not required to be met per SR 3.0.1 (such as when the equipment is inoperable, a variable is outside specified limits, or the unit is outside the Applicability of the LCO). If the interval specified by SR 3.0.2 is exceeded while the unit is in a MODE or other specified condition in the Applicability of the LCO, and the performance of the Surveillance is not otherwise modified (refer to Examples 1.4-3 and 1.4-4), then SR 3.0.3 becomes applicable.

(continued)

1.4 Frequency

EXAMPLES

EXAMPLE 1.4-1 (continued)

Insert TS-2

If the interval as specified by SR 3.0.2 is exceeded while the unit is not in a MODE or other specified condition in the Applicability of the LCO for which performance of the SR is required, the Surveillance must be performed within the Frequency requirements of SR 3.0.2 prior to entry into the MODE or other specified condition. Failure to do so would result in a violation of SR 3.0.4.

EXAMPLE 1.4-2

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
Verify flow is within limits.	Once within 12 hours after ≥ 25% RTP <u>AND</u> 24 hours thereafter

Example 1.4-2 has two Frequencies. The first is a one time performance Frequency, and the second is of the type shown in Example 1.4-1. The logical connector "AND" indicates that both Frequency requirements must be met. Each time reactor power is increased from a power level < 25% RTP to ≥ 25% RTP, the Surveillance must be performed within 12 hours.

The use of "once" indicates a single performance will satisfy the specified Frequency (assuming no other Frequencies are connected by "AND"). This type of Frequency does not qualify for the extension allowed by SR 3.0.2.

(continued)

1.4 Frequency

EXAMPLES

EXAMPLE 1.4-3 (continued)

Once the unit reaches 25% RTP, 12 hours would be allowed for completing the Surveillance. If the Surveillance were not performed within this 12 hour interval, there would then be a failure to perform a Surveillance within the specified Frequency, and the provisions of SR 3.0.3 would apply.

EXAMPLE 1.4-4

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
-----NOTE----- Only required to be met in MODE 1. -----	
Verify leakage rates are within limits.	24 hours

Example 1.4-4 specifies that the requirements of this Surveillance do not have to be met until the unit is in MODE 1. The interval measurement for the Frequency of this Surveillance continues at all times, as described in Example 1.4-1. However, the Note constitutes an "otherwise stated" exception to the Applicability of this Surveillance. Therefore, if the Surveillance were not performed within the 24 hour interval (plus the extension allowed by SR 3.0.2), but the unit was not in MODE 1, there would be no failure of the SR nor failure to meet the LCO. Therefore, no violation of SR 3.0.4 occurs when changing MODES, even with the 24 hour Frequency exceeded, provided the MODE change was not made into MODE 1. Prior to entering MODE 1 (assuming again that the 24 hour Frequency were not met), SR 3.0.4 would require satisfying the SR.

Insert TS-3
Insert TS-4

Control Rod Scram Accumulators

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	A.2 Declare the associated control rod inoperable.	8 hours
B. Two or more control rod scram accumulators inoperable with reactor steam dome pressure ≥ 900 psig.	<p>B.1 Restore charging water header pressure to ≥ 940 psig.</p> <p><u>AND</u></p> <p>B.2.1 -----NOTE----- Only applicable if the average scram times of the two-by-two arrays associated with the control rod with the inoperable accumulator are within the limits of Table 3.1.4-1 during the last scram time Surveillance. -----</p> <p>Declare the average scram time in all two-by-two arrays associated with the control rod with the inoperable accumulator not within the limits of Table 3.1.4-1 and declare the associated control rod "slow."</p>	<p>20 minutes from discovery of Condition B concurrent with charging water header pressure < 940 psig</p> <p>1 hour</p>

(OR) →

(continued)

Recirculation Loops Operating
3.4.1

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>C. Required Action and associated Completion Time of Condition B not met.</p> <p style="margin-left: 150px;">A or</p> <p>OR</p> <p>No recirculation loops in operation.</p>	C.1 Be in MODE 3.	12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.4.1.1 -----NOTE-----</p> <p>Not required to be performed until 24 hours after both recirculation loops are in operation.</p> <p>-----</p> <p>Verify recirculation loop drive flow mismatch with both recirculation loops in operation is:</p> <p>a. $\leq 10\%$ of rated recirculation loop drive flow when operating at $< 70\%$ of rated core flow; and</p> <p>b. $\leq 5\%$ of rated recirculation loop drive flow when operating at $\geq 70\%$ of rated core flow.</p>	24 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE			FREQUENCY
SR 3.5.1.4	Verify each ECCS pump develops the specified flow rate with the specified developed head.		In accordance with the Inservice Testing Program Insert TS-5
	TOTAL DEVELOPED HEAD		
	SYSTEM	FLOW RATE	
	LPCS	≥ 6350 gpm	
	LPCI	≥ 7450 gpm	
HPCS	≥ 6350 gpm		
SR 3.5.1.5	-----NOTE----- Vessel injection/spray may be excluded. -----		24 months
	Verify each ECCS injection/spray subsystem actuates on an actual or simulated automatic initiation signal.		
SR 3.5.1.6	-----NOTE----- Valve actuation may be excluded. -----		24 months
	Verify the ADS actuates on an actual or simulated automatic initiation signal.		

(continued)

SURVEILLANCE REQUIREMENTS

SURVEILLANCE			FREQUENCY
<div>SR 3.5.2.5</div> <div>Differential pressure between reactor and suction source →</div>	Verify each required ECCS pump develops the specified flow rate with the specified developed head.		<div>In accordance with the Inservice Testing Program</div> <div>← Insert TS-5</div>
	SYSTEM	FLOW RATE	
	LPCS	≥ 6350 gpm	
	LPCI	≥ 7450 gpm	
	HPCS	≥ 6350 gpm	
		TOTAL DEVELOPED HEAD ←	
		≥ 128 psid	
		≥ 26 psid	
		≥ 200 psid	
-----NOTE-----			24 months
Vessel injection/spray may be excluded.			

SR 3.5.2.6	Verify each required ECCS injection/spray subsystem actuates on an actual or simulated automatic initiation signal.		

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. One SW subsystem inoperable.	<p>B.1 -----NOTES-----</p> <ol style="list-style-type: none"> 1. Enter applicable Conditions and Required Actions of LCO 3.8.1, "AC Sources - Operating," for diesel generator made inoperable by SW System. 2. Enter applicable Conditions and Required Actions of LCO 3.4.9, "Residual Heat Removal (RHR) Shutdown Cooling System - Hot Shutdown," for RHR shutdown cooling subsystem made inoperable by SW System. <p>-----</p> <p>Restore SW subsystem to OPERABLE status.</p>	72 hours 0

(continued)

* On a one-time basis during the refurbishment/replacement of the 1B Service Water Pump during Cycle 18, the Completion Time for an inoperable service water subsystem is extended to 144 hours.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. (continued)	B.2 Declare required feature(s), supported by the inoperable DG, inoperable when the redundant required feature(s) are inoperable.	4 hours from discovery of Condition B concurrent with inoperability of redundant required feature(s)
	<u>AND</u>	
	B.3.1 Determine OPERABLE DG(s) are not inoperable due to common cause failure.	24 hours
	<u>OR</u>	
	B.3.2 Perform SR 3.8.1.2 for OPERABLE DG(s).	24 hours if not performed within the past 24 hours
	<u>AND</u>	
	B.4.1 Restore required DG to OPERABLE status.	72 hours 2 from discovery of an inoperable DG
	<u>AND</u>	6 days from discovery of failure to meet LCO
	<u>OR</u>	(continued)

* On a one-time basis, during the refurbishment/replacement of the 1B Service Water Pump during Cycle 18, the Completion Time for the Division 2 DG is extended to 144 hours.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Required Division 3 DG inoperable.	C.1 Declare High Pressure Core Spray System inoperable.	72 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.8.2.1</p> <p>-----NOTE----- The following SRs are not required to be performed: SR 3.8.1.3, SR 3.8.1.9 through SR 3.8.1.11, SR 3.8.1.13 through SR 3.8.1.16, SR 3.8.1.18, and SR 3.8.1.19.</p> <p>-----</p> <p>For AC sources required to be OPERABLE, the SRs for Specification 3.8.1 except SR 3.8.1.8, SR 3.8.1.17, and SR 3.8.1.20, are applicable</p>	<p>In accordance with applicable SRs</p>

5.5 Programs and Manuals (continued)

5.5.4 Radioactive Effluent Controls Program (continued)

1. The provisions of SR 3.0.2 and SR 3.0.3 are applicable to the Radioactive Effluent Controls Program surveillance frequency.

5.5.5 Component Cyclic or Transient Limit

This program provides controls to track the FSAR, Table 3.9-1, Note 1, cyclic and transient occurrences to ensure that components are maintained within the design limits.

5.5.6 Inservice Testing Program

This program provides controls for inservice testing of ASME Code Class 1, 2, and 3 pumps and valves. (X)

Applicable to the ASME Code for operations and maintenance of Nuclear Power Plants (ASME OM Code)

- a. Testing Frequencies specified in Section XI of the ASME Boiler and Pressure Vessel Code and applicable Addenda as follows:

ASME Boiler and Pressure Vessel Code and applicable Addenda terminology for inservice testing activities

Required Frequencies for performing inservice testing activities

Weekly	At least once per 7 days
Monthly	At least once per 31 days
Quarterly or every 3 months	At least once per 92 days
Semiannually or every 6 months	At least once per 184 days
Every 9 months	At least once per 276 days
Yearly or annually	At least once per 366 days
Biennially or every 2 years	At least once per 731 days

(continued)

* The Inservice Testing Program requirement for full stroke exercise testing at each refueling outage for TIP-V-6 shall not be required for the refueling outage conducted in the Spring, 1997. This exception shall expire upon reaching MODE 4 for a plant shutdown of sufficient duration to allow TIP-V-6 testing, or May 15, 1998, whichever occurs first.

5.5 Programs and Manuals

5.5.6 Inservice Testing Program (continued)

and other normal
and accelerated
frequencies specified
in the Inservice
Testing Program

- b. The provisions of SR 3.0.2 are applicable to the above required Frequencies for performing inservice testing activities;
- c. The provisions of SR 3.0.3 are applicable to inservice testing activities; and
- d. Nothing in the ASME Boiler and Pressure Vessel Code shall be construed to supersede the requirements of any TS.

OM

5.5.7 Ventilation Filter Testing Program (VFTP)

The VFTP shall establish the required testing of Engineered Safety Feature (ESF) filter ventilation systems.

Tests described in Specification 5.5.7.a and 5.5.7.b shall be performed once per 24 months; after each complete or partial replacement of the HEPA filter train or charcoal adsorber filter; after any structural maintenance on the system housing; and, following significant painting, fire, or chemical release in any ventilation zone communicating with the system while it is in operation.

Tests described in Specification 5.5.7.c shall be performed once per 24 months; after 720 hours of system operation; after any structural maintenance on the system housing; and, following significant painting, fire, or chemical release in any ventilation zone communicating with the system while it is in operation.

Tests described in Specification 5.5.7.d and 5.5.7.e shall be performed once per 24 months.

The provisions of SR 3.0.2 and SR 3.0.3 are applicable to the VFTP test Frequencies.

- a. Demonstrate for each of the ESF systems that an inplace test of the high efficiency particulate air (HEPA) filters shows a penetration and system bypass < 0.05% when tested in accordance with Regulatory Guide 1.52, Revision 2, and ASME N510-1989 at the system flowrate specified below:

(continued)

INSERT TS-1

Some Surveillances contain notes that modify the Frequency of performance or the conditions during which the acceptance criteria must be satisfied. For these Surveillances, the MODE-entry restrictions of SR 3.0.4 may not apply. Such a Surveillance is not required to be performed prior to entering a MODE or other specified condition in the Applicability of the associated LCO if any of the following three conditions are satisfied:

- a. The Surveillance is not required to be met in the MODE or other specified condition to be entered; or
- b. The Surveillance is required to be met in the MODE or other specified condition to be entered, but has been performed within the specified Frequency (i.e., it is current) and is known not to be failed; or
- c. The Surveillance is required to be met, but not performed, in the MODE or other specified condition to be entered, and is known not to be failed.

Examples 1.4-3, 1.4-4, 1.4-5, and 1.4-6 discusses these special situations.

INSERT TS-2

If the interval as specified by SR 3.0.2 is exceeded while the unit is not in a MODE or other specified condition in the Applicability of the LCO for which performance of the SR is required, then SR 3.0.4 becomes applicable. The Surveillance must be performed within the Frequency requirements of SR 3.0.2, as modified by SR 3.0.3, prior to entry into the MODE or other specified condition or the LCO is considered not met (in accordance with SR 3.0.1) and LCO 3.0.4 becomes applicable.

INSERT TS-3

EXAMPLE 1.4-5

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
-----NOTE----- Only required to be performed in MODE 1. ----- Perform complete cycle of the valve.	7 days

The interval continues, whether or not the unit operation is in MODE 1, 2, or 3 (the assumed Applicability of the associated LCO) between performances.

As the Note modifies the required performance of the Surveillance, the Note is construed to be part of the "specified Frequency." Should the 7 day interval be exceeded while operation is not in MODE 1, this Note allows entry into and operation in MODES 2 and 3 to perform the Surveillance. The Surveillance is still considered to be performed within the "specified Frequency" if completed prior to entering MODE 1.

Therefore, if the Surveillance was not performed within the 7 day (plus the extension allowed by SR 3.0.2) interval, but operation was not in MODE 1, it would not constitute a failure of the SR or failure to meet the LCO. Also, no violation of SR 3.0.4 occurs when changing MODES, even with the 7 day Frequency not met, provided operation does not result in entry into MODE 1.

Once the unit reaches MODE 1, the requirement for the Surveillance to be performed within its specified Frequency applies and would require that the Surveillance had been performed. If the Surveillance was not performed prior to entering MODE 1, there would then be a failure to perform a Surveillance within the specified Frequency, and the provisions of SR 3.0.3 would apply.

INSERT TS-4

EXAMPLE 1.4-6

SURVEILLANCE REQUIREMENTS	
SURVEILLANCE	FREQUENCY
-----NOTE----- Not required to be met in MODE 3. ----- Verify parameter is within limits.	24 hours

Example 1.4-6 specifies that the requirements of this Surveillance do not have to be met while the unit is in MODE 3 (the assumed Applicability of the associated LCO is MODES 1, 2, and 3). The interval measurement for the Frequency of this Surveillance continues at all times, as described in Example 1.4-1. However, the Note constitutes an "otherwise stated" exception to the Applicability of this Surveillance. Therefore, if the Surveillance were not performed within the 24 hour interval (plus the extension allowed by SR 3.0.2), and the unit was in MODE 3, there would be no failure of the SR nor failure to meet the LCO. Therefore, no violation of SR 3.0.4 occurs when changing MODES to enter MODE 3, even with the 24 hour Frequency exceeded, provided the MODE change does not result in entry into MODE 2. Prior to entering MODE 2 (assuming again that the 24 hour Frequency were not met), SR 3.0.4 would require satisfying the SR.

INSERT TS-5

DIFFERENTIAL PRESSURE BETWEEN REACTOR AND SUCTION SOURCE

**LICENSE AMENDMENT REQUEST FOR PROPOSED CHANGES TO COLUMBIA
TECHNICAL SPECIFICATIONS: MISCELLANEOUS ADMINISTRATIVE CHANGES
INCLUDING ADOPTION OF APPROVED TSTF TRAVELERS 284, 479, AND 485**
Attachment 3

Proposed Technical Specification Bases Changes (mark-up)

REVISED TECHNICAL SPECIFICATION BASES PAGES

B 3.4.1-5
B 3.4.3-4
B 3.4.3-5
B 3.4.4-4
B 3.4.6-5
B 3.5.1-11
B 3.6.2.3-4
B 3.7.1-5
B 3.8.1-12
B 3.8.1-23
B 3.8.1-38

BASES

ACTIONS

A.1 and B.1 (continued)

With the requirements of the LCO not met for reasons other than Condition A (e.g., one loop is "not in operation"), the recirculation loops must be restored to operation with matched flows within 4 hours. A recirculation loop is considered not in operation when the pump in that loop is idle or when the mismatch between total jet pump flows of the two loops is greater than required limits for greater than 2 hours (i.e., Required Action A.1 has been taken). Should a LOCA occur with one recirculation loop not in operation, the core flow coastdown and resultant core response may not be bounded by the LOCA analyses. Therefore, only a limited time is allowed to restore the inoperable loop to operating status.

Alternatively, if the single loop requirements of the LCO are applied to operating limits, operation with only one recirculation loop would satisfy the requirements of the LCO and the initial conditions of the accident sequence.

The 2 and 4 hour Completion Times are based on the low probability of an accident occurring during this time period, on a reasonable time to complete the Required Action, and on frequent core monitoring by operators allowing abrupt changes in core flow conditions to be quickly detected.

C.1

A or

With the Required Action and associated Completion Time of Condition B not met, the unit is required to be brought to a MODE in which the LCO does not apply. To achieve this status, the plant must be brought to MODE 3 within 12 hours. In this condition, the recirculation loops are not required to be operating because of the reduced severity of DBAs and minimal dependence on the recirculation loop coastdown characteristics. The allowed Completion Time of 12 hours is reasonable, based on operating experience, to reach MODE 3 from full power conditions in an orderly manner and without challenging plant systems.

(continued)

BASES (continued)

SURVEILLANCE
REQUIREMENTS

SR 3.4.3.1

This Surveillance demonstrates that the required SRVs will open at the pressures assumed in the safety analysis of Reference 2. The demonstration of the SRV safety function lift settings is in accordance with the Inservice Testing Program. The lift setting pressure shall correspond to ambient conditions of the valves at nominal operating temperatures and pressures.

SR 3.4.3.2

A manual actuation of each required SRV is performed to verify that, mechanically, the valve is functioning properly and no blockage exists in the valve discharge line. This can be demonstrated by the response of the turbine governor valves or bypass valves, by a change in the measured steam flow, or any other method suitable to verify steam flow. If the valve fails to actuate due only to the failure of the solenoid but is capable of opening on overpressure, the safety function of the SRV is not considered inoperable.

The 24 month Frequency was developed based on the SRV tests required by the ASME ~~Boiler and Pressure Vessel Code~~ ^{OM} ~~Section XI~~ (Ref. 7). Operating experience has shown that these components usually pass the Surveillance when performed at the 24 month Frequency. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.

REFERENCES

1. ASME, Boiler and Pressure Vessel Code, Section III.
2. FSAR, Section 15.2.4.
3. FSAR, Chapter 15.
4. GE-NE-187-24-0992, "WPPSS Nuclear Project 2 SRV Setpoint Tolerance and Out-of-Service Analysis," Revision 2, July 1993.
5. NEDC-32115P, Columbia Generating Station, "SAFER/GESTR-LOCA Loss-of-Coolant Accident Analysis," Revision 2, July 1993.

(continued)

BASES

REFERENCES
(continued)

6. 10 CFR 50.36(c)(2)(ii).

7. ASME, Boiler and Pressure Vessel Code, Section XI.

Insert TSB-1

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.4.4.2 (continued)

requirements, prior to reactor startup. Therefore, this SR is modified by a Note that states the Surveillance is not required to be performed until 12 hours after reactor steam pressure and flow are adequate to perform the test. The 12 hours allowed for manual actuation after the required pressure and flow are reached is sufficient to achieve stable conditions for testing and provides a reasonable time to complete the SR. If the valve fails to actuate due only to the failure of the solenoid but is capable of opening on overpressure, the safety function of the SRV is not considered inoperable.

The 24 month Frequency was developed ^{OM} based on the SRV tests required by the ASME ~~Boiler and Pressure Vessel Code~~ ^{Section XI} (Ref. 7). Operating experience has shown that these components usually pass the Surveillance when performed at the 24 month Frequency. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.

REFERENCES

1. FSAR, Section 15.2.4.
2. Columbia Generating Station Calculation NE-02-94-66, Revision 0, November 13, 1995.
3. ASME, Boiler and Pressure Vessel Code, Section III.
4. FSAR, Chapter 15.
5. GE-NE-187-24-0992, "WPPSS Nuclear Project 2 SRV Setpoint Tolerance and Out-of-Service Analysis," Revision 2, July 1993.
6. 10 CFR 50.36(c)(2)(ii).
7. ^{Insert TSB-1} ~~ASME, Boiler and Pressure Vessel Code, Section XI.~~

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.4.6.1 (continued)

failed completely and not be detected if the other valve in series meets the leakage requirement. In this situation, the protection provided by redundant valves would be lost.

The Frequency required by the Inservice Testing Program is within the ASME Code Section XI, Frequency requirement and is based on the need to perform this Surveillance under the conditions that apply during an outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power.

Therefore, this SR is modified by a Note that states the leakage Surveillance is only required to be performed in MODES 1 and 2. Entry into MODE 3 is permitted for leakage testing at high differential pressures with stable conditions not possible in the lower MODES.

REFERENCES

1. 10 CFR 50.2.
2. 10 CFR 50.55a(c).
3. 10 CFR 50, Appendix A, GDC 55.
4. ASME, Boiler and Pressure Vessel Code, Section XI.
5. NUREG-0677, "The Probability of Intersystem LOCA: Impact Due to Leak Testing and Operational Changes," May 1980.
6. Licensee Controlled Specifications Manual.
7. 10 CFR 50.36(c)(2)(ii).
8. NEDC-31339, "BWR Owners' Group Assessment of Emergency Core Cooling System Pressurization in Boiling Water Reactors," November 1986.

Insert T5B-1

BASES

SURVEILLANCE
REQUIREMENTS
(continued)

SR 3.5.1.4

OM

The performance requirements of the ECCS pumps are determined through application of the 10 CFR 50, Appendix K, criteria (Ref. 8). This periodic Surveillance is performed (in accordance with the ASME Code, Section XI, requirements for the ECCS pumps) to verify that the ECCS pumps will develop the flow rates required by the respective analyses. The ECCS pump flow rates ensure that adequate core cooling is provided to satisfy the acceptance criteria of 10 CFR 50.46 (Ref. 10).

The pump flow rates are verified against a system pressure difference. For the LPCS and LPCI pumps the pressure difference is equivalent to that between the reactor and the suppression pool air volume. For the HPCS pump it is equivalent to the differential above the suction source (suppression pool or condensate storage tank). Under these conditions the total system pump outlet pressure is adequate to overcome the elevation head pressure between the pump suction and the vessel discharge, the piping friction losses, and RPV pressure present during LOCAs. A 92 day Frequency for this Surveillance is in accordance with the Inservice Testing Program requirements.

SR 3.5.1.5

The ECCS subsystems are required to actuate automatically to perform their design functions. This Surveillance test verifies that, with a required system initiation signal (actual or simulated), the automatic initiation logic of HPCS, LPCS, and LPCI will cause the systems or subsystems to operate as designed, including actuation of the system throughout its emergency operating sequence, automatic pump startup, and actuation of all automatic valves to their required positions. This Surveillance also ensures that the HPCS System will automatically restart on an RPV low water level (Level 2) signal received subsequent to an RPV high water level (Level 8) trip and that the suction is automatically transferred from the CST to the suppression pool. The LOGIC SYSTEM FUNCTIONAL TEST performed in LCO 3.3.5.1 overlaps this Surveillance to provide complete testing of the assumed safety function.

(continued)

BASES

SURVEILLANCE
REQUIREMENTS
(continued)

SR 3.6.2.3.2

Verifying each RHR pump develops a flow rate ≥ 7100 gpm, while operating in the suppression pool cooling mode with flow through the associated heat exchanger, ensures that the primary containment peak pressure and temperature can be maintained below the design limits during a DBA (Ref. 2).

OM Code

The normal test of centrifugal pump performance required by ASME ~~Section XI~~ (Ref. 4) is covered by the requirements of LCO 3.5.1, "ECCS—Operating." Such inservice tests confirm component OPERABILITY, and detect incipient failures by indicating abnormal performance. The Frequency of this SR is in accordance with the Inservice Testing Program.

the

REFERENCES

1. FSAR, Section 6.2.1.1.3.3.
 2. FSAR, Section 6.2.2.3.
 3. 10 CFR 50.36(c)(2)(ii).
 4. ASME, Boiler and Pressure Vessel Code, Section XI.
-

BASES (continued)

ACTIONS

A.1

With average sediment depth in either or both spray ponds ≥ 0.5 and < 1.0 ft, water inventory is reduced such that the combined cooling capability of both spray ponds may be less than required for 30 days of operation after a LOCA. Therefore, action must be taken to restore average sediment depth to < 0.5 ft. The Completion Time of 30 days is based on engineering judgement and plant operating experience and takes into consideration the low probability of a design basis accident occurring in this time period.

B.1

If one SW subsystem is inoperable, it must be restored to OPERABLE status within 72 hours. With the unit in this condition, the remaining OPERABLE SW subsystem is adequate to perform the heat removal function. However, the overall reliability is reduced because a single failure in the OPERABLE SW subsystem could result in loss of SW function. The 72 hour Completion Time was developed taking into account the redundant capabilities afforded by the OPERABLE subsystem and the low probability of a DBA occurring during this period.

On a one-time basis, during the refurbishment/replacement of the 1B Service Water Pump during Cycle 18, the Completion Time for an inoperable service water subsystem is extended to 144 hours. The one-time extension is based upon a risk assessment performed in accordance with Regulatory Guides 1.174 and 1.177. During this extended Completion Time, administrative controls must be implemented to enhance the reliability of required electrical sources and to minimize plant activities that might challenge other safety-related equipment. This one-time extension expires at the end of Cycle 18.

The Required Action is modified by two Notes indicating that the applicable Conditions of LCO 3.8.1, "AC Sources - Operating," and LCO 3.4.9, "Residual Heat Removal (RHR) Shutdown Cooling System - Hot Shutdown," be entered and the Required Actions taken if the inoperable SW subsystem results in an inoperable DG or RHR shutdown cooling

(continued)

BASES

ACTIONS B.3.1 and B.3.2 (continued)

According to Generic Letter 84-15 (Ref. 10), 24 hours is a reasonable time to confirm that the OPERABLE DG(s) are not affected by the same problem as the inoperable DG.

B.4

In Condition B, the remaining OPERABLE DGs and offsite circuits are adequate to supply electrical power to the onsite Class 1E distribution system. The 72 hour Completion Time for Required Action B.4.1 takes into account the capacity and capability of the remaining AC sources, a reasonable time for repairs, and the low probability of a DBA occurring during this period.

~~On a one-time basis, during the refurbishment/replacement of the 1B Service Water Pump during Cycle 18, the Completion Time for the Division 2 DG is extended to 144 hours. The one-time extension is based upon a risk assessment performed in accordance with Regulatory Guides 1.174 and 1.177. During this extended Completion Time, administrative controls must be implemented to enhance the reliability of required electrical sources and to minimize plant activities that might challenge other safety-related equipment. This one-time extension expires at the end of Cycle 18.~~

The second Completion Time for Required Action B.4.1 established a limit on the maximum time allowed for any combination of required AC power sources to be inoperable during any single contiguous occurrence of failing to meet the LCO. If Condition B is entered while, for instance, an offsite circuit is inoperable and that circuit is subsequently restored OPERABLE, the LCO may already have been not met for up to 72 hours. This situation could lead to a total of 144 hours, since initial failure to meet the LCO, to restore the DG. At this time, an offsite circuit could again become inoperable, the DG restored OPERABLE, and an additional 72 hours (for a total of 9 days) allowed prior to complete restoration of the LCO. The 6 day Completion Time provides a limit on the time allowed in a specified condition after discovery of failure to meet the LCO when the required risk management action of B.4.2.1 is not in place. This limit is considered reasonable for situations

(continued)

BASES

SURVEILLANCE
REQUIREMENTS
(continued)

SR 3.8.1.6

This Surveillance demonstrates that each required fuel oil transfer pump operates and automatically transfers fuel oil from its associated storage tank to its associated day tank. It is required to support the continuous operation of standby power sources. This Surveillance provides assurance that the fuel oil transfer pump is OPERABLE, the fuel oil piping system is intact, the fuel delivery piping is not obstructed, and the controls and control systems for automatic fuel transfer systems are OPERABLE.

The Frequency for this SR corresponds to the testing requirements for pumps as contained in the ASME Boiler and Pressure Vessel Code, Section XI (Ref. 17). (OM)

SR 3.8.1.8

Transfer of Division 1 and 2 4.16 kV ESF buses (SM-7 and SM-8) power supply from the startup offsite circuit to the backup offsite circuit demonstrates the OPERABILITY of the alternate circuit distribution network to power the Division 1 and 2 shutdown loads. The 24 month Frequency of the Surveillance is based on engineering judgment taking into consideration the plant conditions required to perform the Surveillance, and is intended to be consistent with expected fuel cycle lengths. Operating experience has shown that these components usually pass the SR when performed on the 24 month Frequency. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.

This SR is modified by a Note which applies to verification of the automatic transfer function. The reason for the Note is that, during operation with the reactor critical, performance of this SR could cause perturbations to the electrical distribution systems that could challenge continued steady state operation and, as a result, plant safety systems.

The Note is not applicable to verification of manual transfer of the unit power supply from the preferred offsite circuit to the alternate offsite circuit, since this evolution does not cause perturbations of the electrical distribution systems.

(continued)

BASES

REFERENCES
(continued)

14. Regulatory Guide 1.137, Revision 1, October 1979.
 15. Calculations Nos. E/I-02-87-07 and 2-12-58.
 16. FSAR, Section 15.F.6.
 17. ~~ASME, Boiler and Pressure Vessel Code, Section XI.~~
 18. IEEE Standard 308-1974.
 19. ANSI C84.1, 1982.
-

Insert TSB-1

INSERT TSB-1

ASME Code for Operation and Maintenance of Nuclear Power Plants.