Dominion Nuclear Connecticut, Inc.
5000 Dominion Boulevard, Glen Allen, VA 23060
Web Address: www.dom.com

Dominion®

July 31, 2012

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

Serial No.	12-483
NSSL/MLC	R0
Docket No.	50-336
License No.	DPR-65

DOMINION NUCLEAR CONNECTICUT, INC.
MILLSTONE POWER STATION UNIT 2
PROPOSED TECHNICAL SPECIFICATIONS TO ADOPT TSTF-510, "REVISION TO STEAM GENERATOR PROGRAM INSPECTION FREQUENCIES AND TUBE SAMPLE SELECTION," USING THE CONSOLIDATED LINE ITEM IMPROVEMENT PROCESS

Pursuant to 10 CFR 50.90, Dominion Nuclear Connecticut, Inc. (DNC) requests an amendment, in the form of changes to the Technical Specifications (TS) for Facility Operating License DPR-65 for Millstone Power Station Unit 2 (MPS2). The proposed amendment would modify TS requirements regarding steam generator tube inspections and reporting as described in Technical Specifications Task Force (TSTF) Traveler TSTF-510, Revision 2, "Revision to Steam Generator Program Inspection Frequencies and Tube Sample Selection."

The availability of this Traveler was announced in the Federal Register on October 27, 2011 (72 FR 66763) as part of the consolidated line item improvement process (CLIIP). Because MPS2 has not adopted Standard Technical Specifications (STS), DNC is proposing minor variations and/or deviations from the TS changes described in TSTF-510, Revision 2, to provide consistent terminology and format with the MPS2 TSs. The minor variations and/or deviations from the specific wording/format provided in TSTF-510, Revision 2, are considered administrative and do not change the meaning, intent, or applicability of the CLIIP.

Attachment 1 provides a description and assessment of the proposed changes including: the requested plant-specific licensing basis that demonstrates compliance with the 10 CFR 50, Appendix A General Design Criteria referenced in the Traveler, as well as the plant-specific administrative variations from the TS changes described in TSTF-510, Revision 2. Attachments 2 and 3 contain the marked-up TS and TS Bases pages, respectively. The marked-up TS Bases pages are provided for information only. The changes to the affected TS Bases pages will be incorporated in accordance with the TS Bases Control Program when this amendment is approved.

A001
NRR

The proposed amendment does not involve a Significant Hazards Consideration pursuant to the provisions of 10 CFR 50.92. The Facility Safety Review Committee has reviewed and concurred with the determinations herein.

Issuance of this amendment is requested no later than July 31, 2013, with the amendment to be implemented within 60 days of issuance.

In accordance with 10 CFR 50.91(b), a copy of this license amendment request is being provided to the State of Connecticut.

If you have any questions or require additional information, please contact Ms. Wanda Craft at (804) 273-4687.

Very truly yours,

J. Alan Price
Vice President – Nuclear Engineering

VICKI L. HULL
Notary Public
Commonwealth of Virginia
140542
My Commission Expires May 31, 2014

COMMONWEALTH OF VIRGINIA)
)
COUNTY OF HENRICO)

The foregoing document was acknowledged before me, in and for the County and Commonwealth aforesaid, today by J. Alan Price, who is Vice President – Nuclear Engineering of Dominion Nuclear Connecticut, Inc. He has affirmed before me that he is duly authorized to execute and file the foregoing document in behalf of that Company, and that the statements in the document are true to the best of his knowledge and belief.

Acknowledged before me this 31ST day of July, 2012.

My Commission Expires: May 31, 2014. Vicki L. Hull
Notary Public

Commitments made in this letter: None

Attachments:

1. Description and Assessment
2. Marked-Up Technical Specification Changes
3. Marked-Up Technical Specification Bases Changes (For Information Only)

cc: U. S. Nuclear Regulatory Commission
Region I
2100 Renaissance Blvd., Suite 100
King of Prussia, PA 19406-2713

Mr. J. S. Kim
NRC Project Manager, Millstone
U. S. Nuclear Regulatory Commission,
One White Flint North - Mail Stop 08 C2A
11555 Rockville Pike
Rockville, MD 20852-2738

NRC Senior Resident Inspector
Millstone Power Station

Director
Bureau of Air Management
Monitoring and Radiation Division
Department of Environmental Protection
79 Elm Street
Hartford, CT 06106-5127

ATTACHMENT 1

Description and Assessment

Dominion Nuclear Connecticut, Inc.
Millstone Power Station Unit 2

DESCRIPTION AND ASSESSMENT

1.0 DESCRIPTION

The proposed change revises Technical Specification (TS) 6.26, "Steam Generator (SG) Program" and 6.9.1.9, "Steam Generator Tube Inspection Report." The proposed changes are needed to address implementation issues associated with the inspection periods, and address other administrative changes and clarifications. For consistency, additional administrative changes are being made to TS 3.4.5 "Steam Generator Tube Integrity."

The proposed license amendment is consistent with Technical Specification Task Force (TSTF) traveler, TSTF-510, Revision 2, "Revision to Steam Generator Program Inspection Frequencies and Tube Sample Selection."

2.0 ASSESSMENT

2.1 Applicability of Published Safety Evaluation

Dominion Nuclear Connecticut, Inc. (DNC) has reviewed TSTF-510, Revision 2, "Revision to Steam Generator Program Inspection Frequencies and Tube Sample Selection" (ADAMS Accession No. ML110610350) and the model safety evaluation dated October 19, 2011 (ADAMS Accession No. ML112101513), as identified in the Federal Register Notice of Availability, dated October 27, 2011 (76 FR 66763). As described in the subsequent paragraphs, DNC has concluded that the justifications presented in TSTF-510, Revision 2 and the model safety evaluation prepared by the Nuclear Regulatory Commission (NRC) staff are applicable to Millstone Power Station Unit 2 (MPS2) and justify this amendment for incorporation of the changes to the MPS2 TSs.

2.2 Optional Changes and Variations

DNC is not proposing any technical variations or deviations from the TS changes described in TSTF-510, Revision 2, or the applicable parts of the NRC staff's model safety evaluation. However, DNC is proposing the following administrative variations from the TS changes described in TSTF-510, Revision 2.

The MPS2 TS numbering system is different than the Improved Technical Specifications (ITS) on which TSTF-510 was based. Specifically, the "Steam Generator (SG) Program" in the MPS2 TS is numbered 6.26 rather than 5.5.9, the "Steam Generator Tube Integrity" TS is numbered 3.4.5 rather than 3.4.17, and the "Steam Generator Tube Inspection Report" is numbered 6.9.1.9 rather than 5.6.7. These differences are administrative and do not affect the applicability of TSTF-510, Revision 2 to the MPS2 TSs.

In addition, the proposed change corrects an administrative inconsistency in TSTF-510, Paragraph d.2 of the Steam Generator Tube Inspection Program. In Section 2.0, "Proposed Change," TSTF-510 states that references to "tube repair criteria" in Paragraph d.2 is revised to "tube plugging [or repair] criteria." However, in the following sentence in Paragraph d.2, this change was inadvertently omitted,

> "If a degradation assessment indicates the potential for a type of degradation to occur at a location not previously inspected with a technique capable of detecting this type of degradation at this location and that may satisfy the applicable tube repair criteria, the minimum number of locations inspected with such a capable inspection technique during the remainder of the inspection period may be prorated" (emphasis added).

The underlined phrase should state "tube plugging [or repair] criteria," consistent with the other changes made in TSTF-510. DNC is changing the phrase to "tube plugging criteria." This change is administrative and should not result in this application being removed from the Consolidated Line Item Improvement Process.

This administrative error was identified in a February NRC-TSTF meeting and documented in a letter from the TSTF to the NRC dated March 28, 2012 (TSTF Letter No. 12-09).

3.0 REGULATORY ANALYSIS

3.1 No Significant Hazards Consideration Determination

Dominion Nuclear Connecticut, Inc. (DNC) requests adoption of an approved change to the standard technical specifications (STS) into the plant specific technical specifications (TS) for Millstone Power Station Unit 2, to revise TS 6.26, "Steam Generator (SG) Program," TS 6.9.1.9, "Steam Generator Tube Inspection Report," and TS 3.4.5, "Steam Generator Tube Integrity," to address inspection periods and other administrative changes and clarifications.

As required by 10 CFR 50.91(a), an analysis of the issue of no significant hazards consideration is presented below:

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

   Response: No.

   The proposed change revises the Steam Generator (SG) Program to modify the frequency of verification of SG tube integrity and SG tube sample selection. A steam generator tube rupture (SGTR) event is one of the design basis accidents that are analyzed as part of a plant's licensing basis. The proposed SG tube inspection frequency and sample selection criteria will continue to ensure that the SG tubes are inspected such that the probability of a SGTR is not increased. The consequences of a SGTR are bounded by the conservative assumptions in the design basis accident

analysis. The proposed change will not cause the consequences of a SGTR to exceed those assumptions. The proposed change to reporting requirements and clarifications of the existing requirements have no affect on the probability or consequences of SGTR.

Therefore, it is concluded that this change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

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

   Response: No.

   The proposed changes to the SG Program will not introduce any adverse changes to the plant design basis or postulated accidents resulting from potential tube degradation. The proposed change does not affect the design of the SGs or their method of operation. In addition, the proposed change does not impact any other plant system or component.

   Therefore, it is concluded that this change does not create the possibility of a new or different kind of accident from any accident previously evaluated.

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

   Response: No.

   The SG tubes in pressurized water reactors are an integral part of the reactor coolant pressure boundary and, as such, are relied upon to maintain the primary system's pressure and inventory. As part of the reactor coolant pressure boundary, the SG tubes are unique in that they are also relied upon as a heat transfer surface between the primary and secondary systems such that heat can be removed from the primary system. In addition, the SG tubes also isolate the radioactive fission products in the primary coolant from the secondary system. In summary, the safety function of a SG is maintained by ensuring the integrity of its tubes.

   Steam generator tube integrity is a function of the design, environment, and the physical condition of the tube. The proposed change does not affect tube design or operating environment. The proposed change will continue to require monitoring of the physical condition of the SG tubes such that there will not be a reduction in the margin of safety compared to the current requirements.

   Therefore, it is concluded that the proposed change does not involve a significant reduction in a margin of safety.

Based on the above, DNC concludes that the proposed change presents no significant hazards consideration under the standards set forth in 10 CFR 50.92(c), and, accordingly, a finding of "no significant hazards consideration" is justified.

3.2 Applicable Regulatory Requirements/Criteria

During the initial plant licensing of MPS2, it was demonstrated that the design of the reactor coolant pressure boundary (RCPB) met the regulatory requirements in place at that time. The General Design Criteria (GDC) included in Appendix A to 10 CFR Part 50 did not become effective until May 21, 1971. The construction permit for MPS2 was issued prior to May 21, 1971; consequently, this unit was not subject to GDC requirements (Reference SECY-92-223 dated September 18, 1992.). However, the following information demonstrates compliance with GDC 14, 15, 30, 31, and 32 of 10 CFR 50, Appendix A. Specifically, Section 1, Appendix 1A of the Updated Final Safety Analysis Report (UFSAR) discusses the design of the station relative to the design criteria published in 1971. The GDC state that the RCPB shall have "an extremely low probability of abnormal leakage . . . . . and gross rupture" (GDC 14/UFSAR, Appendix 1A Criterion 14), "shall be designed with sufficient margin" (GDCs 15/ UFSAR, Appendix 1A Criterion 15 and 31/UFSAR, Appendix 1A Criterion 31), shall be of "the highest quality standards practical" (GDC 30/UFSAR, Appendix 1A Criterion 30), and shall be designed to permit "periodic inspection and testing . . . to assess . . . structural and leak tight integrity" (GDC 32/UFSAR, Appendix 1A Criterion 32). Structural integrity refers to maintaining adequate margins against burst, and collapse of the SG tubing. There are no changes to the SG design that impact these GDC.

The TS plugging limits ensure that tubes accepted for continued service will retain adequate structural and leakage integrity during normal operating, transient, and postulated accident conditions. The RCPB is designed, fabricated and constructed so as to have an exceedingly low probability of gross rupture or significant uncontrolled leakage throughout its design lifetime. RCPB components have provisions for the inspection, testing, and surveillance of critical areas by appropriate means to assess the structural and leak tight integrity of the RCPB components during their service lifetime. Structural integrity refers to maintaining adequate margins against burst, and collapse of the SG tubing. Leakage integrity refers to limiting primary-to-secondary leakage during all plant conditions to within acceptable limits.

10 CFR 50, Appendix B, establishes quality assurance requirements for the design, construction, and operation of safety-related components. The pertinent requirements of this appendix apply to all activities affecting the safety-related functions of these components. These requirements are described in Criteria IX, XI, and XVI of Appendix B and include control of special processes, inspection, testing, and corrective action.

Under 10 CFR 50.65, the Maintenance Rule, licensees classify SGs as risk significant components because they are relied upon to remain functional during and after design basis events. SGs are to be monitored under 10 CFR 50.65(a)(2) against industry established performance criteria. Meeting the performance criteria of NEI 97-06, Revision 3, provides reasonable assurance that the SG tubing remains capable of fulfilling its specific safety function of maintaining the RCPB.

4.0 ENVIRONMENTAL EVALUATION

The proposed change would change a requirement with respect to installation or use of a facility component located within the restricted area, as defined in 10 CFR 20, or would change an inspection or surveillance requirement. However, the proposed change does 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 cumulative occupational radiation exposure. Accordingly, the proposed change 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 change.

Attachment 2

Marked-up Technical Specifications Changes

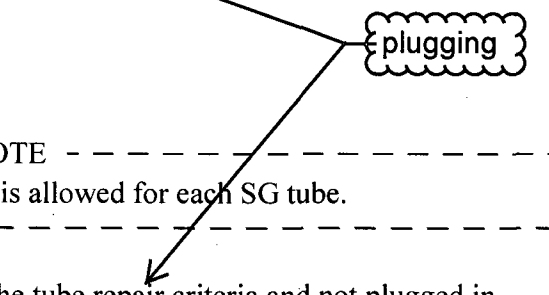
Dominion Nuclear Connecticut, Inc.
Millstone Power Station Unit 2

LIMITING CONDITION FOR OPERATION

3.4.5 Steam Generator (SG) tube integrity shall be maintained.

AND

All SG tubes satisfying the tube ~~repair~~ criteria shall be plugged in accordance with the Steam Generator Program.



APPLICABILITY: MODES 1, 2, 3, and 4.

ACTION:

NOTE

Separate ACTION entry is allowed for each SG tube.

a. With one or more SG tubes satisfying the tube ~~repair~~ criteria and not plugged in accordance with the Steam Generator Program:

1. Verify tube integrity of the affected tube(s) is maintained until the next refueling outage or SG tube inspection within 7 days, and

2. Plug the affected tube(s) in accordance with the Steam Generator Program prior to entering HOT SHUTDOWN following the next refueling outage or SG tube inspection.

b. With required ACTION and associated completion time of ACTION a. not met or SG tube integrity not maintained:

1. Be in HOT STANDBY within 6 hours, and

2. Be in COLD SHUTDOWN within 36 hours.

4.4.5.1 Verify SG tube integrity in accordance with the Steam Generator Program.

4.4.5.2 Verify that each inspected SG tube that satisfies the tube ~~repair~~ criteria is plugged in accordance with the Steam Generator Program prior to entering HOT SHUTDOWN following a SG tube inspection.

STEAM GENERATOR TUBE INSPECTION REPORT

6.9.1.9 A report shall be submitted within 180 days after initial entry into MODE 4 following completion of an inspection performed in accordance with TS 6.26, Steam Generator (SG) Program. The report shall include:

a. The scope of inspections performed on each SG,

b. ~~Active~~ Degradation mechanisms found,

c. Nondestructive examination techniques utilized for each degradation mechanism,

d. Location, orientation (if linear), and measured sizes (if available) of service induced indications,

e. Number of tubes plugged during the inspection outage for each ~~active~~ degradation mechanism,

f. ~~Total number and percentage of tubes plugged to date, and~~

g. The results of condition monitoring, including the results of tube pulls and in-situ testing.

The number and percentage of tubes plugged to date, and the effective plugging percentage in each steam generator.

SPECIAL REPORTS

6.9.2 Special reports shall be submitted to the U.S. Nuclear Regulatory Commission, Document Control Desk, Washington, D.C. 20555, one copy to the Regional Administrator, Region I, and one copy to the NRC Resident Inspector within the time period specified for each report. These reports shall be submitted covering the activities identified below pursuant to the requirements of the applicable reference specification:

a. Deleted

b. Deleted

c. Deleted

d. ECCS Actuation, Specifications 3.5.2 and 3.5.3.

e. Deleted

f. Deleted

a. RCS Overpressure Mitigation, Specification 3.4.9.3.

6.26 STEAM GENERATOR (SG) PROGRAM

A Steam Generator Program shall be established and implemented to ensure that SG tube integrity is maintained. In addition, the Steam Generator Program shall include the following ~~provisions~~:

a. Provisions for condition monitoring assessments: Condition monitoring assessment means an evaluation of the "as found" condition of the tubing with respect to the performance criteria for structural integrity and accident induced leakage. The "as found" condition refers to the condition of the tubing during a SG inspection outage, as determined from the inservice inspection results or by other means, prior to the plugging of tubes. Condition monitoring assessments shall be conducted during each outage during which the SG tubes are inspected or plugged to confirm that the performance criteria are being met.

b. Provisions for performance criteria for SG tube integrity: SG tube integrity shall be maintained by meeting the performance criteria for tube structural integrity, accident induced leakage, and operational LEAKAGE.

1. Structural integrity performance criterion: All in-service steam generator tubes shall retain structural integrity over the full range of normal operating conditions (including STARTUP, operation in the power range, HOT STANDBY, and cool down ~~and~~ all anticipated transients included in the design specification, and design basis accidents. This includes retaining a safety factor of 3.0 against burst under normal steady state full power operation primary-to-secondary pressure differential and a safety factor of 1.4 against burst applied to the design basis accident primary-to-secondary pressure differentials. Apart from the above requirements, additional loading conditions associated with the design basis accidents, or combination of accidents in accordance with the design and licensing basis, shall also be evaluated to determine if the associated loads contribute significantly to burst or collapse. In the assessment of tube integrity, those loads that do significantly affect burst or collapse shall be determined and assessed in combination with the loads due to pressure with a safety factor of 1.2 on the combined primary loads and 1.0 on axial secondary loads.

2. Accident induced leakage performance criterion: The primary to secondary accident induced leakage rate for any design basis accident, other than a SG tube rupture, shall not exceed the leakage rate assumed in the accident analysis in terms of total leakage rate for all SGs and leakage rate for an individual SG. Leakage is not to exceed 150 gpd per SG.

3. The operational LEAKAGE performance criterion is specified in LCO 3.4.6.2, "Reactor Coolant System Operational LEAKAGE."

6.26 STEAM GENERATOR (SG) PROGRAM (Continued)

plugging

c. Provisions for SG tube ~~repair~~ criteria: Tubes found by inservice inspection to contain flaws with a depth equal to or exceeding 40% of the nominal tube wall thickness shall be plugged.

d. Provisions for SG tube inspections: Periodic SG tube inspections shall be performed. The number and portions of the tubes inspected and methods of inspection shall be performed with the objective of detecting flaws of any type (e.g., volumetric flaws, axial and circumferential cracks) that may be present along the length of the tube, from the tube-to-tubesheet weld at the tube inlet to the tube-to-tubesheet weld at the tube outlet, and that may satisfy the applicable tube ~~repair~~ criteria. The tube-to-tubesheet weld is not part of the tube. In addition to meeting the requirements of d.1., d.2, and d.3 below, the inspection scope, inspection methods, and inspection intervals shall be such as to ensure that SG tube integrity is maintained until the next SG inspection. An assessment ~~of degradation~~ shall be performed to determine the type and location of flaws to which the tubes may be susceptible and, based on this assessment, to determine which inspection methods need to be employed and at what locations.

degradation

1. Inspect 100% of the tubes in each SG during the first refueling outage following SG ~~replacement~~ installation

2. Insert A

Inspect 100% of the tubes at sequential periods of 144, 108, 72, and, thereafter, 60 effective full power months. The first sequential period shall be considered to begin after the first inservice inspection of the SGs. In addition, inspect 50% of the tubes by the refueling outage nearest the midpoint of the period and the remaining 50% by the refueling outage nearest the end of the period. No SG shall operate for more than 72 effective full power months or three refueling outages (whichever is less) without being inspected.

3. If crack indications are found in any SG tube, then the next inspection for each SG for the degradation mechanism that caused the crack indication shall not exceed 24 effective full power months or one refueling outage (whichever ~~is less~~). If definitive information, such as from examination of a pulled tube, diagnostic non-destructive testing, or engineering evaluation indicates that a crack-like indication is not associated with a crack(s), then the indication need not be treated as a crack.

e. Provisions for monitoring operational primary to secondary LEAKAGE.

results in more frequent inspections

affected and potentially affected

Insert A for MPS2 TS 6.26 - SG Program (690 TT tubes)

2. After the first refueling outage following SG installation, inspect each SG at least every 72 effective full power months or at least every third refueling outage (whichever results in more frequent inspections). In addition, the minimum number of tubes inspected at each scheduled inspection shall be the number of tubes in all SGs divided by the number of SG inspection outages scheduled in each inspection period as defined in a, b, c, and d below. If a degradation assessment indicates the potential for a type of degradation to occur at a location not previously inspected with a technique capable of detecting this type of degradation at this location and that may satisfy the applicable plugging criteria, the minimum number of locations inspected with such a capable inspection technique during the remainder of the inspection period may be prorated. The fraction of locations to be inspected for this potential type of degradation at this location at the end of the inspection period shall be no less than the ratio of the number of times the SG is scheduled to be inspected in the inspection period after the determination that a new form of degradation could potentially be occurring at this location divided by the total number of times the SG is scheduled to be inspected in the inspection period. Each inspection period defined below may be extended up to 3 effective full power months to include a SG inspection outage in an inspection period and the subsequent inspection period begins at the conclusion of the included SG inspection outage.

   a) After the first refueling outage following SG installation, inspect 100% of the tubes during the next 144 effective full power months. This constitutes the first inspection period;

   b) During the next 120 effective full power months, inspect 100% of the tubes. This constitutes the second inspection period;

   c) During the next 96 effective full power months, inspect 100% of the tubes. This constitutes the third inspection period; and

   d) During the remaining life of the SGs, inspect 100% of the tubes every 72 effective full power months. This constitutes the fourth and subsequent inspection periods.

Attachment 3

Marked-up Technical Specifications Bases Changes

(For Information Only)

Dominion Nuclear Connecticut, Inc.
Millstone Power Station Unit 2

3/4.4.4 PRESSURIZER

An OPERABLE pressurizer provides pressure control for the reactor coolant system during operations with both forced reactor coolant flow and with natural circulation flow. The minimum water level in the pressurizer assures the pressurizer heaters, which are required to achieve and maintain pressure control, remain covered with water to prevent failure, which occurs if the heaters are energized uncovered. The maximum water level in the pressurizer ensures that this parameter is maintained within the envelope of operation assumed in the safety analysis. The maximum water level also ensures that the RCS is not a hydraulically solid system and that a steam bubble will be provided to accommodate pressure surges during operation. The steam bubble also protects the pressurizer code safety valves and power operated relief valve against water relief. The requirement that a minimum number of pressurizer heaters be OPERABLE enhances the capability of the plant to control Reactor Coolant System pressure and establish and maintain natural circulation.

The requirement for two groups of pressurizer heaters, each having a capacity of 130 kW, is met by verifying the capacity of the pressurizer proportional heater groups 1 and 2. Since the pressurizer proportional heater groups 1 and 2 are supplied from the emergency 480V electrical buses, there is reasonable assurance that these heaters can be energized during a loss of offsite power to maintain natural circulation at HOT STANDBY.

3/4.4.5 STEAM GENERATOR TUBE INTEGRITY

plugging

LCO

The LCO requires that steam generator (SG) tube integrity be maintained. The LCO also requires that all SG tubes that satisfy the ~~repair~~ criteria be plugged in accordance with the Steam Generator Program.

During a SG inspection, any inspected tube that satisfies the Steam Generator Program ~~repair~~ criteria is removed from service by plugging. If a tube was determined to satisfy the ~~repair~~ criteria but was not plugged, the tube may still have tube integrity.

In the context of this Specification, a SG tube is defined as the entire length of the tube, including the tube wall between the tube-to-tubesheet weld at the tube inlet and the tube-to-tubesheet weld at the tube outlet. The tube-to-tubesheet weld is not considered part of the tube.

3/4.4.5 STEAM GENERATOR TUBE INTEGRITY (Continued)

ACTIONS (Continued)

a.1 and a.2

plugging

ACTION a. applies if it is discovered that one or more SG tubes examined in an inservice inspection satisfy the tube ~~repair~~ criteria but were not plugged in accordance with the Steam Generator Program as required by TS 4.4.5.2. An evaluation of SG tube integrity of the affected tube(s) must be made. Steam generator tube integrity is based on meeting the SG performance criteria described in the Steam Generator Program. The SG ~~repair~~ criteria define limits on SG tube degradation that allow for flaw growth between inspections while still providing assurance that the SG performance criteria will continue to be met. In order to determine if a SG tube that should have been plugged has tube integrity, an evaluation must be completed that demonstrates that the SG performance criteria will continue to be met until the next refueling outage or SG tube inspection. The tube integrity determination is based on the estimated condition of the tube at the time the situation is discovered and the estimated growth of the degradation prior to the next SG tube inspection. If it is determined that tube integrity is not being maintained, ACTION b. applies.

A Completion Time of 7 days is sufficient to complete the evaluation while minimizing the risk of plant operation with a SG tube that may not have tube integrity.

If the evaluation determines that the affected tube(s) have tube integrity, ACTION a.2 allows plant operation to continue until the next refueling outage or SG inspection provided the inspection interval continues to be supported by an operational assessment that reflects the affected tube(s). However, the affected tube(s) must be plugged prior to entering HOT SHUTDOWN following the next refueling outage or SG inspection. This Completion Time is acceptable since operation until the next inspection is supported by the operational assessment.

b.1 and b.2

If the ACTIONS and associated Completion Times of ACTION a. are not met or if SG tube integrity is not being maintained, the reactor must be brought to HOT STANDBY within 6 hours and COLD SHUTDOWN within 36 hours.

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

3/4.4.5 STEAM GENERATOR TUBE INTEGRITY (Continued)

SURVEILLANCE REQUIREMENTS

TS 4.4.5.1

During shutdown periods the SGs are inspected as required by this SR and the Steam Generator Program. NEI 97-06, Steam Generator Program Guidelines (Ref. 1), and its referenced EPRI Guidelines, establish the content of the Steam Generator Program. Use of the Steam Generator Program ensures that the inspection is appropriate and consistent with accepted industry practices.

During SG inspections a condition monitoring assessment of the SG tubes is performed. The condition monitoring assessment determines the "as found" condition of the SG tubes. The purpose of the condition monitoring assessment is to ensure that the SG performance criteria have been met for the previous operating period.

The Steam Generator Program determines the scope of the inspection and the methods used to determine whether the tubes contain flaws satisfying the tube ~~repair~~ plugging criteria. Inspection scope (i.e., which tubes or areas of tubing within the SG are to be inspected) is a function of existing and potential degradation locations. The Steam Generator Program also specifies the inspection methods to be used to find potential degradation. Inspection methods are a function of degradation morphology, non-destructive examination (NDE) technique capabilities, and inspection locations.

The Steam Generator Program defines the Frequency of TS 4.4.5.1. The Frequency is determined by the operational assessment and other limits in the SG examination guidelines (Reference 6). The Steam Generator Program uses information on existing degradations and growth rates to determine an inspection Frequency that provides reasonable assurance that the tubing will meet the SG performance criteria at the next scheduled inspection. In addition, Specification 6.26 contains prescriptive requirements concerning inspection intervals to provide added assurance that the SG performance criteria will be met between scheduled inspections.

Insert B

REACTOR COOLANT SYSTEM

BASES

3/4.4.5 STEAM GENERATOR TUBE INTEGRITY (Continued)

SURVEILLANCE REQUIREMENTS (Continued)

plugging

TS 4.4.5.2

During a SG inspection, any inspected tube that satisfies the Steam Generator Program ~~repair~~ criteria is removed from service by plugging. The tube ~~repair~~ criteria delineated in Specification 6.26 are intended to ensure that tubes accepted for continued service satisfy the SG performance criteria with allowance for error in the flaw size measurement and for future flaw growth. In addition, the tube ~~repair~~ criteria, in conjunction with other elements of the Steam Generator Program, ensure that the SG performance criteria will continue to be met until the next inspection of the subject tube(s). Reference 1 provides guidance for performing operational assessments to verify that the tubes remaining in service will continue to meet the SG performance criteria.

The Frequency of prior to entering MODE 4 following a SG inspection ensures that the Surveillance has been completed and all tubes meeting the ~~repair~~ criteria are plugged prior to subjecting the SG tubes to significant primary to secondary pressure differential.

BACKGROUND

SG tubes are small diameter, thin walled tubes that carry primary coolant through the primary to secondary heat exchangers. The SG tubes have a number of important safety functions. SG tubes are an integral part of the reactor coolant pressure boundary (RCPB) and, as such, are relied on to maintain the primary system's pressure and inventory. The SG tubes isolate the radioactive fission products in the primary coolant from the secondary system. In addition, as part of the RCPB, the SG tubes are unique in that they act as the heat transfer surface between the primary and secondary systems to remove heat from the primary system. This Specification addresses only the RCPB integrity function of the SG. The SG heat removal function is addressed by LCO 3.4.1.1, "RCS STARTUP AND POWER OPERATION," LCO 3.4.1.2, "RCS HOT STANDBY," LCO 3.4.1.3, "RCS HOT SHUTDOWN," and LCO 3.4.1.4, "RCS COLD SHUTDOWN-LOOPS FILLED."

SG tube integrity means that the tubes are capable of performing their intended RCPB safety function consistent with the licensing basis, including applicable regulatory requirements.

SG tubing is subject to a variety of degradation mechanisms. Steam generator tubes may experience tube degradation related to corrosion phenomena, such as wastage, pitting, intergranular attack, and stress corrosion cracking, along with other mechanically induced phenomena such as denting and wear. These degradation mechanisms can impair tube integrity if they are not managed effectively. The SG performance criteria are used to manage SG tube degradation.

Insert B for MPS2 TS Bases 4.4.5.1 – SG Tube Integrity Surveillance Requirements

If crack indications are found in any SG tube, the maximum inspection interval for all affected and potentially affected SGs is restricted by Specification 6.26 until subsequent inspections support extending the inspection interval.