Enclosure 3

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4.4.6.4 Acceptance Criteria

a. As used in this Specification:

1. Imperfection means an exception to the dimensions, finish or contour of a tube or sleeve from that required by fabrication drawings or specifications. Eddy-current testing indications below 20% of the nominal wall thickness, if detectable, may be considered as imperfections.

2. Degradation means a service-induced cracking, wastage, wear or general corrosion occurring on either inside or outside of a tube or sleeve.

3. Degraded Tube means a tube, including the sleeve if the tube has been repaired, that contains imperfections greater than or equal to 20% of the nominal wall thickness caused by degradation.

4. % Degradation means the percentage of the tube or sleeve wall thickness affected or removed by degradation.

5. Defect means an imperfection of such severity that it exceeds the plugging or repair limit. A tube or sleeve containing a defect is defective.

For a tube with an imperfection or flaw in the tubesheet below the lower joint of an installed elevated laser welded sleeve, no repair or plugging is required provided the installed sleeve meets all sleeved tube inspection requirements

6. Plugging or Repair Limit means the imperfection depth at or beyond which the tube shall be repaired (i.e., sleeved) or removed from service by plugging and is greater than or equal to 40% of the nominal tube wall thickness. For a tube that has been sleeved with a mechanical joint sleeve, through wall penetration of greater than or equal to 31% of sleeve nominal wall thickness in the sleeve requires the tube to be removed from service by plugging. For a tube that has been sleeved with a welded joint sleeve, through wall penetration greater than or equal to 37% of sleeve nominal wall thickness in the sleeve between the weld joints requires the tube to be removed from service by plugging. This definition does not apply to tube support plate intersections for which the voltage-based plugging criteria are being applied. Refer to 4.4.6.4.a.11 for the plugging limit applicable to these intersections.

7. Unserviceable describes the condition of a tube or sleeve if it leaks or contains a defect large enough to affect its structural integrity in the event of an Operating Basis Earthquake, a loss-of-coolant accident, or a steam line or feedwater line break as specified in 4.4.6.3.c, above.

For a tube with a tube sheet sleeve installed, the point of entry is the bottom of the tube sheet sleeve below the lower sleeve joint.

8. Tube Inspection means an inspection of the steam generator tube from the point of entry (hot leg side) completely around the U-bend to the top support of the cold leg. For a tube that has been repaired by sleeving, the tube inspection should include the sleeved portion of the tube.

9. Tube Repair refers to mechanical sleeving, as described by Westinghouse report WCAP-11178, Rev. 1, or laser welded sleeving, as described by Westinghouse report WCAP-12672, which is used to maintain a tube in service or return a tube to service. This includes the removal of plugs that were installed as a corrective or preventive measure.

10. Preservice Inspection means an inspection of the full length of each tube in each steam generator performed by eddy current techniques prior to service to establish a baseline condition of the tubing. This inspection shall be performed after the field hydrostatic test and prior to initial POWER OPERATION using the equipment and techniques expected to be used during subsequent inservice inspections.

or, for elevated sleeves, Southern Nuclear letter dated August, 1996)

11. Tube Support Plate Plugging Limit is used for the disposition of a steam generator tube for continued service that is experiencing outside diameter stress corrosion cracking confined within the thickness of the tube support plates. These criteria are applicable for the Fourteenth operating cycle only. At tube support plate intersections, the repair limit is based on maintaining steam generator tube serviceability as described below:

    a. Degradation attributed to outside diameter stress corrosion cracking within the bounds of the tube support plate with bobbin voltage less than or equal to 2.0 volts will be allowed to remain in service.

    b. Degradation attributed to outside diameter stress corrosion cracking within the bounds of the tube support plate with a bobbin voltage greater than 2.0 volts will be repaired or plugged except as noted in 4.4.6.4.a.11.c below.

    c. Indications of potential degradation attributed to outside diameter stress corrosion cracking within the bounds of the tube support plate with a bobbin voltage greater than 2.0 volts but less than or equal to 5.6 volts may remain in service if a rotating pancake coil inspection does not detect degradation. Indications of outside diameter stress corrosion cracking degradation with a bobbin voltage greater than 5.6 volts will be plugged or repaired.

6. Plugging or Repair Limit means the imperfection depth at or beyond which the tube shall be repaired (i.e., sleeved) or removed from service by plugging and is greater than or equal to 40% of the nominal tube wall thickness. This definition does not apply to tubes that meet the F*/L* criteria. For a tube that has been sleeved with a mechanical joint sleeve, through wall penetration of greater than or equal to 31% of sleeve nominal wall thickness in the sleeve requires the tube to be removed from service by plugging. For a tube that has been sleeved with a welded joint sleeve, through wall penetration greater than or equal to 37% of sleeve nominal wall thickness in the sleeve between the weld joints requires the tube to be removed from service by plugging. This definition does not apply to tube support plate intersections for which the voltage-based repair criteria are being applied. Refer to 4.4.6.4.a.14 for the repair limit applicable to these intersections.

For a tube with an imperfection or flaw in the tubesheet below the lower joint of an installed elevated laser welded sleeve, no repair or plugging is required provided the installed sleeve meets all sleeved tube inspection requirements.

7. Unserviceable describes the condition of a tube or sleeve if it leaks or contains a defect large enough to affect its structural integrity in the event of an Operating Basis Earthquake, a loss-of-coolant accident, or a steam line or feedwater line break as specified in 4.4.6.3.c, above.

For a tube with a tube sheet sleeve installed, the point of entry is the bottom of the tube sheet sleeve below the lower sleeve joint.

8. Tube Inspection means an inspection of the steam generator tube from the point of entry (hot leg side) completely around the U-bend to the top support of the cold leg. For a tube that has been repaired by sleeving, the tube inspection should include the sleeved portion of the tube.

9. Tube Repair refers to mechanical sleeving, as described by Westinghouse report WCAP-11178, Rev. 1, or laser welded sleeving as described by Westinghouse report WCAP-12672, which is used to maintain a tube in service or return a tube to service. This includes the removal of plugs that were installed as a corrective or preventive measure.

10. Preservice Inspection means an inspection of the full length of each tube in each steam generator performed by eddy current techniques prior to service to establish a baseline condition of the tubing. This inspection shall be performed after the field hydrostatic test and prior to initial POWER OPERATION using the equipment and techniques expected to be used during subsequent inservice inspections.

Or, for elevated sleeves, Southern Nuclear letter dated August , 1996.

SURVEILLANCE REQUIREMENTS (Continued)

11. F* Distance is the distance of the expanded portion of a tube which provides a sufficient length of undegraded tube expansion to resist pullout of the tube from the tubesheet. The F* distance is equal to 1.54 inches plus allowance for eddy current uncertainty measurement and is measured down from the top of the tubesheet or the bottom of the roll transition, whichever is lower in elevation. The allowance for eddy current uncertainty is documented in the steam generator eddy current inspection procedure.

12. F* Tube is a tube:

a) with degradation equal to or greater than 40% below the F* distance, and b) which has no indication of imperfections greater than or equal to 20% of nominal wall thickness within the F* distance, and c) that remains inservice.

If the above criteria cannot be met, then the L* tube criteria may be applied or the tube must be plugged or repaired.

13. L* Length is the length of the expanded portion of the tube into the tube sheet from the bottom of the rolled transition or the top of the tube sheet, which ever is lower, that has been determined to be 0.5 inch plus allowance for eddy current measurement uncertainty.

14. L* Tube: a) is a tube with degradation equal or greater than 40% below the L* length and not degraded within the L* length; b) the eddy current indication of degradation below the L* length must be determined to be the result of cracks with an orientation no greater than 30 degrees from axial; c) the L* criteria shall be limited to a maximum of 600 tube ends per steam generator; d) tubes qualifying as F* tubes are not classified as L* tubes; e) a minimum of 3.1 inches of the tube into the tubesheet from the top of tubesheet or bottom of the rolled transition, which ever is lower, shall be inspected using rotating pancake coil eddy current technique or an inspection method shown to give equivalent or better information on the orientation and length of axial cracks; f) a minimum aggregate of 1.74 inches plus allowance for eddy current measurement uncertainty, of sound roll expanded tube distance with no more that 1 band of tube degradation in the form of axial cracking must be found in the inspected portion of the tube; or a minimum of aggregate 1.87 inches plus allowance for eddy current uncertainty, sound roll expanded tube distance with no more than 2 bands of tube degradation in the form of axial cracking must be found in the inspected portion of the tube; and g) that remains in service.

15. Tube Expansion is that portion of a tube which has been increased in diameter by a rolling process such that no crevice exists between the outside diameter of the tube and the hole in the tubesheet.

Tube expansion also refers to that portion of a sleeve which has been increased in diameter by a rolling process such that no crevice exists between the outside diameter of the sleeve and the parent steam generator tube

16. Tube Support Plate Repair Limit is used for the disposition of an alloy 600 steam generator tube for continued service that is experiencing predominately axially oriented outside diameter stress corrosion cracking confined within the thickness of the tube support plates. At tube support plate intersections, the repair limit is based on maintaining steam generator tube serviceability as described below:

a. Steam generator tubes, whose degradation is attributed to outside diameter stress corrosion cracking within the bounds of the tube support plate with bobbin voltages less than or equal to the lower voltage repair limit [2.0 volts], will be allowed to remain in service.

4.4.6.4 Acceptance Criteria

a. As used in this Specification:

1. Imperfection means an exception to the dimensions, finish or contour of a tube or sleeve from that required by fabrication drawings or specifications. Eddy-current testing indications below 20% of the nominal wall thickness, if detectable, may be considered as imperfections.

2. Degradation means a service-induced cracking, wastage, wear or general corrosion occurring on either inside or outside of a tube or sleeve.

3. Degraded Tube means a tube, including the sleeve if the tube has been repaired, that contains imperfections greater than or equal to 20% of the nominal wall thickness caused by degradation.

4. % Degradation means the percentage of the tube or sleeve wall thickness affected or removed by degradation.

5. Defect means an imperfection of such severity that it exceeds the plugging or repair limit. A tube or sleeve containing a defect is defective.

6. Plugging or Repair Limit means the imperfection depth at or beyond which the tube shall be repaired (i.e., sleeved) or removed from service by plugging and is greater than or equal to 40% of the nominal tube wall thickness. For a tube that has been sleeved with a mechanical joint sleeve, through wall penetration of greater than or equal to 31% of sleeve nominal wall thickness in the sleeve requires the tube to be removed from service by plugging. For a tube that has been sleeved with a welded joint sleeve, through wall penetration greater than or equal to 37% of sleeve nominal wall thickness in the sleeve between the weld joints requires the tube to be removed from service by plugging. This definition does not apply to tube support plate intersections for which the voltage-based plugging criteria are being applied. Refer to 4.4.6.4.a.11 for the plugging limit applicable to these intersections. For a tube with an imperfection or flaw in the tube sheet below the lower joint of an installed elevated laser welded sleeve, no repair or plugging is required provided the installed sleeve meets all sleeved tube inspection requirements.

7. Unserviceable describes the condition of a tube or sleeve if it leaks or contains a defect large enough to affect its structural integrity in the event of an Operating Basis Earthquake, a loss-of-coolant accident, or a steam line or feedwater line break as specified in 4.4.6.3.c, above.

SURVEILLANCE REQUIREMENTS (Continued)

8. Tube Inspection means an inspection of the steam generator tube from the point of entry (hot leg side) completely around the U-bend to the top support of the cold leg. For a tube with a tubesheet sleeve installed, the point of entry is the bottom of the tube sheet sleeve below the lower sleeve joint. For a tube that has been repaired by sleeving, the tube inspection should include the sleeved portion of the tube.

9. Tube Repair refers to mechanical sleeving, as described by Westinghouse report WCAP-11178, Rev. 1, or laser welded sleeving, as described by Westinghouse report WCAP-12672, or for elevated sleeves, Southern Nuclear letter dated August xx, 1996 which is used to maintain a tube in service or return a tube to service. This includes the removal of plugs that were installed as a corrective or preventive measure.

10. Preservice Inspection means an inspection of the full length of each tube in each steam generator performed by eddy current techniques prior to service to establish a baseline condition of the tubing. This inspection shall be performed after the field hydrostatic test and prior to initial POWER OPERATION using the equipment and techniques expected to be used during subsequent inservice inspections.

11. Tube Support Plate Plugging Limit is used for the disposition of a steam generator tube for continued service that is experiencing outside diameter stress corrosion cracking confined within the thickness of the tube support plates. These criteria are applicable for the Fourteenth operating cycle only. At tube support plate intersections, the repair limit is based on maintaining steam generator tube serviceability as described below:

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    b. Degradation attributed to outside diameter stress corrosion cracking within the bounds of the tube support plate with a bobbin voltage greater than 2.0 volts will be repaired or plugged except as noted in 4.4.6.4.a.11.c below.

    c. Indications of potential degradation attributed to outside diameter stress corrosion cracking within the bounds of the tube support plate with a bobbin voltage greater than 2.0 volts but less than or equal to 5.6 volts may remain in service if a rotating pancake coil inspection does not detect degradation. Indications of outside diameter stress corrosion cracking degradation with a bobbin voltage greater than 5.6 volts will be plugged or repaired.

6. Plugging or Repair Limit means the imperfection depth at or beyond which the tube shall be repaired (i.e., sleeved) or removed from service by plugging and is greater than or equal to 40% of the nominal tube wall thickness. This definition does not apply to tubes that meet the F*/L* criteria. For a tube that has been sleeved with a mechanical joint sleeve, through wall penetration of greater than or equal to 31% of sleeve nominal wall thickness in the sleeve requires the tube to be removed from service by plugging. For a tube that has been sleeved with a welded joint sleeve, through wall penetration greater than or equal to 37% of sleeve nominal wall thickness in the sleeve between the weld joints requires the tube to be removed from service by plugging. This definition does not apply to tube support plate intersections for which the voltage-based repair criteria are being applied. Refer to 4.4.6.4.a.14 for the repair limit applicable to these intersections. For a tube with an imperfection or flaw in the tube sheet below the lower joint of an installed elevated laser welded sleeve, no repair or plugging is required provided the installed sleeve meets all sleeved tube inspection requirements.

7. Unserviceable describes the condition of a tube or sleeve if it leaks or contains a defect large enough to affect its structural integrity in the event of an Operating Basis Earthquake, a loss-of-coolant accident, or a steam line or feedwater line break as specified in 4.4.6.3.c, above.

8. Tube Inspection means an inspection of the steam generator tube from the point of entry (hot leg side) completely around the U-bend to the top support of the cold leg. For a tube with a tube sheet sleeve installed, the point of entry is the bottom of the tube sheet sleeve below the lower sleeve joint. For a tube that has been repaired by sleeving, the tube inspection should include the sleeved portion of the tube.

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11. F* Distance is the distance of the expanded portion of a tube which provides a sufficient length of undegraded tube expansion to resist pullout of the tube from the tubesheet. The F* distance is equal to 1.54 inches plus allowance for eddy current uncertainty measurement and is measured down from the top of the tubesheet or the bottom of the roll transition, whichever is lower in elevation. The allowance for eddy current uncertainty is documented in the steam generator eddy current inspection procedure.

12. F* Tube is a tube: a) with degradation equal to or greater than 40% below the F* distance, and b) which has no indication of imperfections greater than or equal to 20% of nominal wall thickness within the F* distance, and c) that remains inservice. If the above criteria cannot be met, then the L* tube criteria may be applied or the tube must be plugged or repaired.

13. L* Length is the length of the expanded portion of the tube into the tube sheet from the bottom of the rolled transition or the top of the tube sheet, which ever is lower, that has been determined to be 0.5 inch plus allowance for eddy current measurement uncertainty.

14. L* Tube: a) is a tube with degradation equal or greater than 40% below the L* length and not degraded within the L* length; b) the eddy current indication of degradation below the L* length must be determined to be the result of cracks with an orientation no greater than 30 degrees from axial; c) the L* criteria shall be limited to a maximum of 600 tube ends per steam generator; d) tubes qualifying as F* tubes are not classified as L* tubes; e) a minimum of 3.1 inches of the tube into the tubesheet from the top of tubesheet or bottom of the rolled transition, which ever is lower, shall be inspected using rotating pancake coil eddy current technique or an inspection method shown to give equivalent or better information on the orientation and length of axial cracks; f) a minimum aggregate of 1.74 inches plus allowance for eddy current measurement uncertainty, of sound roll expanded tube distance with no more that 1 band of tube degradation in the form of axial cracking must be found in the inspected portion of the tube; or a minimum of aggregate 1.87 inches plus allowance for eddy current uncertainty, sound roll expanded tube distance with no more than 2 bands of tube degradation in the form of axial cracking must be found in the inspected portion of the tube; and g) that remains in service.

15. Tube Expansion is that portion of a tube which has been increased in diameter by a rolling process such that no crevice exists between the outside diameter of the tube and the hole in the tubesheet. Tube expansion also refers to that portion of a sleeve which has been increased in diameter by a rolling process such that no crevice exists between the outside diameter of the sleeve and the parent steam generator tube.

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    a. Steam generator tubes, whose degradation is attributed to outside diameter stress corrosion cracking within the bounds of the tube support plate with bobbin voltages less than or equal to the lower voltage repair limit [2.0 volts], will be allowed to remain in service.