ATTACHMENT 2

Proposed Changes Marked Up on Existing Technical Specification Page

D. Acceptance Criteria

1. As used in this Specification:

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

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

(c) Degraded Tube means a tube containing imperfections ≥20% of the nominal wall thickness caused by degradation.

(d) % Degradation means the percentage of the tube wall thickness affected or removed by degradation.

(e) Defect means an imperfection depth at or beyond exceeds the repair limit. A tube containing a defect is defective.

(f) Repair Limit means the imperfection depth at or beyond which the tube shall be removed from service by plugging or repaired by sleeving because it may become unserviceable prior to the next inspection and is equal to 50% of the nominal tube wall thickness. If significant general tube thinning occurs, this criteria will be reduced to 40% wall penetration. This definition does not apply to the portion of the tube in the tubesheet below the F* distance provided the tube is no degraded (i.e., no indications of cracks) within the F* distance for F* tubes. The repair limit for the pressure boundary region of any sleeve is 31% of the nominal sleeve wall thickness.

(g) Unserviceable describes the condition of a tube 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.

(h) 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.

(i) Sleeving ~~means that tube sleeving is permitted only in areas where the sleeve spans the tubesheet area and whose lower joint is at the primary fluid tubesheet face~~ is the repair of degraded tube regions using a new Alloy 690 tubing sleeve inserted inside the parent tube and sealed at each end by welding or by replacing the lower weld in a full depth tubesheet sleeve with a hard rolled joint. The new sleeve becomes the pressure boundary spanning the original degraded tube region.

(j) F* Distance is the distance from the bottom of the hardroll transition toward the bottom of the tubesheet that has been conservatively determined to be 1.07 inches (not including eddy current uncertainty).

(k) F* Tube is a tube with degradation, below the F* distance, equal to or greater than 40%, and not degraded (i.e., no indications or cracking) within the F* distance.

Attachment 3

Revised Technical Specification Page

D. Acceptance Criteria

1. As used in this Specification:

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

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

(c) Degraded Tube means a tube containing imperfections ≥20% of the nominal wall thickness caused by degradation.

(d) % Degradation means the percentage of the tube wall thickness affected or removed by degradation.

(e) Defect means an imperfection depth at or beyond exceeds the repair limit. A tube containing a defect is defective.

(f) Repair Limit means the imperfection depth at or beyond which the tube shall be removed from service by plugging or repaired by sleeving because it may become unserviceable prior to the next inspection and is equal to 50% of the nominal tube wall thickness. If significant general tube thinning occurs, this criteria will be reduced to 40% wall penetration. This definition does not apply to the portion of the tube in the tubesheet below the F* distance provided the tube is not degraded (i.e., no indications of cracks) within the F* distance for F* tubes. The repair limit for the pressure boundary region of any sleeve is 31% of the nominal sleeve wall thickness.

(g) Unserviceable describes the condition of a tube 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.

(h) 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.

(i) Sleeving is the repair of degraded tube regions using a new Alloy 690 tubing sleeve inserted inside the parent tube and sealed at each end by welding or by replacing the lower weld in a full depth tubesheet sleeve with a hard rolled joint. The new sleeve becomes the pressure boundary spanning the original degraded tube region.

(j) F* Distance is the distance from the bottom of the hardroll transition toward the bottom of the tubesheet that has been conservatively determined to be 1.07 inches (not including eddy current uncertainty).

(k) F* Tube is a tube with degradation, below the F* distance, equal to or greater than 40%, and not degraded (i.e., no indications or cracking) within the F* distance.

Attachment 5

Combustion Engineering Report

CEN-629-P, Addendum 1
Revision 1

Repair of Westinghouse Series 44 and 51 Steam Generator Tubes Using Leak Tight Sleeves

FINAL REPORT

August 1997

Non-Proprietary Version