

Docket No. 50-213

Attachment

Haddam Neck Plant
Proposed Revision to Technical Specifications

- a) A seismic occurrence greater than the operating basis earthquake.
- b) A loss of coolant accident which causes significant deviations in temperature or pressure which affect the integrity of the steam generator tubes, or requires actuation of the engineered safeguards.
- c) A major steam line or major feedwater line break.

D. Acceptance Criteria:

I. 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% of the nominal tube wall thickness, if detectable, may be considered as imperfections.
- b) Degradation means a service-induced cracking, wastage, pitting, 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 of such severity that it exceeds the plugging limit. A tube or sleeve containing a defect is defective.
- f) Plugging Limit means the imperfection depth at or beyond which the tube or sleeve shall be removed from service because it may become unserviceable prior to the next inspection and is equal to 50% of the nominal tube wall thickness for tubes.*

*The plugging limit for sleeves will be determined prior to the next refueling outage.

- 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 a Operating Basis Earthquake, a loss-of-coolant accident, or a steam line or feedwater line break as specified in Specification 4.10.1.C.3.
 - 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.
- 2. The Steam Generator may be returned to service after completing the corresponding actions (plug or sleeve all tubes exceeding the plugging limit and plug all defective sleeves) required by Table 4.10.1-2.
- E. Following each inservice inspection of steam generator tubes, the number of tubes plugged or sleeved in each steam generator shall be reported in accordance with Specification 6.9.

BASIS

The Surveillance Requirements for inspection of steam generator tubes ensure that structural integrity of this portion of the reactor coolant pressure boundary will be maintained. The program for inservice inspection of steam generator tubes is based on the following criteria.

- a) Modification of Regulatory Guide 1.83, Revision 1.
- b) On previous Eddy Current Examinations results

Inservice Inspection of steam generator tubing is essential in order to maintain surveillance of the conditions of tubes in the event that there is evidence of mechanical damage or progressive degradation due to design, manufacturing errors, or inservice conditions that lead to corrosion, or excess leakage. Inservice inspection of steam generator tubing also provides a means of characterizing the nature and cause of any tube degradation so that corrective measures can be taken.

The plant is expected to be operated in a manner such that the secondary coolant will be maintained within those chemistry limits found to result in negligible corrosion of the steam generator tubes. Specified chemistry treatment of the secondary coolant also limits the possibility of wastage - type defects. If the secondary coolant chemistry is not maintained within these limits, localized corrosion may result in stress corrosion cracking. The extent of cracking during plant operation would be limited by the limitation of steam generator tube leakage between the primary coolant system and the secondary system imposed in Specification, Section 3.14, Primary System Leakage. Operating plants have demonstrated that primary to secondary leakage specified in Specification 3.14 can readily be detected by radiation monitoring of steam generator blowdown.

If a defect should develop in service, it should be found during scheduled inservice steam generator tube examinations. Plugging or sleeving will be required for all tubes with imperfections equal to or exceeding the plugging limit of 50% of the tube nominal wall thickness. Tubes containing sleeves with imperfections exceeding the plugging limit will be plugged. Steam generator tube inspections of operating plants have demonstrated the capability to reliably detect degradation that has penetrated 20% of the original tube wall thickness.

Whenever the results of any steam generator tubing inservice inspection fall into Category C-3, these results will be promptly reported to the Commission pursuant to Specification 6.9 prior to resumption of plant operation.

TABLE 4.10.1-1

MINIMUM NUMBER OF STEAM GENERATORS TO BE
INSPECTED DURING INSERVICE INSPECTION

Preservice Inspection	None
No. of Steam Generators per Unit	Four
First Inservice Inspection ⁽²⁾	All
Second & Subsequent Inservice Inspections	One ⁽¹⁾

Table Notation:

- (1) The inservice inspection may be limited to one steam generator on a rotating schedule encompassing 12% of the tubes if the results of the first or previous inspections indicate that all steam generators are performing in a like manner. Note that under some circumstances, the operating conditions in one or more steam generators may be found to be more severe than those in other steam generators. Under such circumstances the sample sequence shall be modified to inspect the most severe conditions.
- (2) The first inservice base line inspection was performed in 1975.

TABLE 4.10.1-2

STEAM GENERATOR TUBE INSPECTION

1st SAMPLE INSPECTION			2nd SAMPLE INSPECTION		3rd SAMPLE INSPECTION	
Sample Size	Result	Action Required	Result	Action Required	Result	Action Required
A minimum of S Tubes per S.G.	C-1	None	N/A	N/A	N/A	N/A
	C-2	Repair defective tubes and inspect additional 2S tubes in this S.G.*	C-1	None	N/A	N/A
			C-2	Repair defective tubes and inspect additional 4S tubes in this S.G.*	C-1	None
					C-2	Repair defective tubes*
					C-3	Perform action for C-3 result of first sample
			C-3	Perform action for C-3 result of first sample	N/A	N/A
	C-3	Inspect all tubes in this S. G., repair defective tubes and inspect 2S tubes in each other S.G.* Prompt notification to NRC pursuant to specification 6.9	All other S.G.s are C-1	None	N/A	N/A
			Some S.G.s C-2 but no additional S.G. are C-3	Perform action for C-2 result of second sample	N/A	N/A
			Additional S.G. is C-3	Inspect all tubes in each S.G. and repair defective tubes.* Prompt notification to NRC pursuant to Specification 6.9	N/A	N/A

$S = \frac{12\%}{n}$ Where n is the number of steam generators inspected during an inspection.

*Repair of defective tubes shall be limited to plugging with the exception of those tubes which may be sleeved. Tubes with defective sleeves shall be plugged.