

Docket No. 50-336
B15399

Attachment 3

Millstone Nuclear Power Station, Unit No. 2

Proposed Revision to Technical Specifications
Steam Generator Surveillance Requirement Extension

Marked-up Pages

October 1995

August 2, 1985

REACTOR COOLANT SYSTEMSURVEILLANCE REQUIREMENTS (Continued)

4.4.5.1.3 Inspection Frequencies - The above required inservice inspections of steam generator tubes shall be performed at the following frequencies:

- a. The first inservice inspection shall be performed after 6 Effective Full Power Months but within 24 calendar months of initial criticality. Subsequent inservice inspections shall be performed at intervals of not less than 12 nor more than 24 calendar months after the previous inspection. * If two consecutive inspections following service under AWT conditions, not including the preservice inspection, result in all inspection results falling into the C-1 category or if two consecutive inspections demonstrate that previously observed degradation has not continued and no additional degradation has occurred, the inspection interval may be extended to a maximum of once per 40 months.
- b. If the results of the inservice inspection of a steam generator conducted in accordance with Table 4.4-6 at 40 month intervals fall into Category C-3, the inspection frequency shall be increased to at least once per 20 months. The increase in inspection frequency shall apply until the subsequent inspections satisfy the criteria of Specification 4.4.5.1.3.a; the interval may then be extended to a maximum of once per 40 months.
- c. Additional, unscheduled inservice inspections shall be performed on each steam generator in accordance with the first sample inspection specified in Table 4.4-6 during the shutdown subsequent to any of the following conditions:
 1. Primary-to-secondary tube leaks (not including leaks originating from tube-to-tube sheet welds) in excess of the limits of Specification 3.4.6.2.
 2. A seismic occurrence greater than the Operating Basis Earthquake.
 3. A loss-of-coolant accident requiring actuation of the engineered safeguards.
 4. A main steam line or feedwater line break.

ADD

Except that the inservice inspection due no later than October 20, 1996, may be deferred until the next refueling outage (RFO 13), but no later than June 20, 1997, whichever is earlier.

April 9, 1986

TABLE 4.4-6

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 25 tubes per S.G.	C-1	None	N/A	N/A	N/A	N/A
	C-2	Repair defective tubes and inspect additional 25 tubes in this S.G.*	C-1	None	N/A	N/A
			C-2	Repair defective tubes and inspect additional 25 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	Inspect all tubes in this S.G., repair defective tubes and inspect 25 tubes in each other S.G.* Prompt notification to NRC pursuant to 10 CFR 50.72	C-3	Perform action for C-3 result of first sample	N/A	N/A
			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 10 CFR 50.72	N/A	N/A

$S = 3 - \frac{N}{n} \%$ Where N is the number of steam generators in the unit, and 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.

MILLSTONE - UNIT 2

3/4 4-7f

Amendment No. 22, 27, 52, 73, 89, 111.

2-26-95

February 15, 1995

REACTOR COOLANT SYSTEM

BASES

only intended to permit operation of the plant for a limited period of time not to exceed the next refueling outage so that maintenance can be performed on the block valve to eliminate the seat leakage condition or other similar concern. The block valve should normally be available to allow PORV operation for automatic mitigation of overpressure events. The block valves should be returned to OPERABLE status prior to entering MODE 4 after a refueling outage.

If more than one PORV is inoperable and not capable of being manually cycled, it is necessary to either restore at least one valve within the completion time of 1 hour or isolate the flow path by closing and removing the power to the associated block valve, cooldown, depressurize, and vent the RCS.

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 that 130 kW of pressurizer heaters and their associated controls be capable of being supplied electrical power from an emergency bus provides assurance that these heaters can be energized during a loss of off-site power condition to maintain natural circulation at HOT STANDBY.

3/4.4.5 STEAM GENERATORS

The Surveillance Requirements for inspection of the steam generator tubes ensure that the structural integrity of this portion of the RCS will be maintained. The program for inservice inspection of steam generator tubes is based on a modification of Regulatory Guide 1.83, Revision 1. Inservice inspection of steam generator tubing is essential in order to maintain surveillance of the conditions of the tubes in the event that there is

INSERT (A) →

2-26-95
February 15, 1995

REACTOR COOLANT SYSTEM

BASES

evidence of mechanical damage or progressive degradation due to design, manufacturing errors, or inservice conditions that lead to corrosion. 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.

INSERT A 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. If the secondary coolant chemistry is not maintained within these limits, localized corrosion may likely result in stress corrosion cracking. INSERT B

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 coolant system (primary-to-secondary leakage = 0.10 GPM, per steam generator). Cracks having a primary-to-secondary leakage less than this limit during operation will have an adequate margin of safety to withstand the loads imposed during normal operation and by postulated accidents. Operating plants have demonstrated that primary-to-secondary leakage of 0.10 gallon per minute can readily be detected by radiation monitors of steam generator blowdown. Leakage in excess of this limit will require plant shutdown and an unscheduled inspection, during which the leaking tubes will be located and plugged.

Wastage-type defects are unlikely with proper chemistry treatment of the secondary coolant. However, even if a defect should develop in service, it will be found during scheduled inservice steam generator tube examinations. Plugging or sleeving will be required for all tubes with imperfections exceeding the plugging limit of 40% of the tube nominal wall thickness. Sleeving repair will be limited to those steam generator tubes with a defect between the tube sheet and the first eggcrate support. 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 immediately reported to the Commission pursuant to 10 CFR 50.72. Such cases will be considered by the Commission on a case-by-case basis and may result in a requirement for analysis, laboratory examinations, tests, additional eddy-current inspection, and revision of the Technical Specifications, if necessary.

2-26-95

INSERT B

The inservice inspection of the steam generator tubes that was due no later than October 20, 1996, may be deferred on a one-time-only basis by up to ~~eight~~ ¹² months (~~an extension of 25%~~ beyond the maximum surveillance interval of 24 months) based on the following:

- The replacement steam generators have only been inservice for one operating cycle.
- For ^{at least} 10 months of the 36 months interval between inspections, the plant was shutdown and the steam generators were not exposed to the normal operating environment.
- The tubes in the replacement steam generator are made of thermally-treated Inconel 690 which has been demonstrated to be more corrosion resistant than the material used in the original steam generators.

Docket No. 50-336
B15399

Attachment 4

Millstone Nuclear Power Station, Unit No. 2

Proposed Revision to Technical
Specifications

Steam Generator Surveillance Requirement Extension

Retyped Version of Current Technical Specifications

October 1995

REACTOR COOLANT SYSTEM

SURVEILLANCE REQUIREMENTS (Continued)

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- a. The first inservice inspection shall be performed after 6 Effective Full Power Months but within 24 calendar months of initial criticality. Subsequent inservice inspections shall be performed at intervals of not less than 12 nor more than 24 calendar months after the previous inspection.* If two consecutive inspections following service under AVT conditions, not including the preservice inspection, result in all inspection results falling into the C-1 category or if two consecutive inspections demonstrate that previously observed degradation has not continued and no additional degradation has occurred, the inspection interval may be extended to a maximum of once per 40 months.
- b. If the results of the inservice inspection of a steam generator conducted in accordance with Table 4.4-6 at 40 month intervals fall into Category C-3, the inspection frequency shall be increased to at least once per 20 months. The increase in inspection frequency shall apply until the subsequent inspections satisfy the criteria of Specification 4.4.5.1.3.a; the interval may then be extended to a maximum of once per 40 months.
- c. Additional, unscheduled inservice inspections shall be performed on each steam generator in accordance with the first sample inspection specified in Table 4.4-6 during the shutdown subsequent to any of the following conditions:
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	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	Inspection all tubes in this S.G., repair defective tubes and inspect 2S tubes in each other S.G.* Prompt notification to NRC pursuant to 10 CFR 50.72	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
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REACTOR COOLANT SYSTEM

BASES

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REACTOR COOLANT SYSTEM

BASES

The inservice inspection of the steam generator tubes that was due no later than October 20, 1996, may be deferred on a one-time-only basis by up to 12 months (beyond the maximum surveillance interval of 24 months) based on the following:

- The replacement steam generators have only been in service for one operating cycle.
- For at least 10 months of the 36-month interval between inspections, the plant was shut down and the steam generators were not exposed to the normal operating environment.
- The tubes in the replacement steam generator are made of thermally-treated Inconel 690 which has been demonstrated to be more corrosion resistant than the material used in the original steam generators.

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