

R. E. GINNA UNIT NO. 1  
 APRIL 1980 STEAM GENERATOR INSPECTION  
 SAFETY EVALUATION REPORT

MATERIALS ENGINEERING BRANCH  
 INSERVICE INSPECTION SECTION

In response to our request, Rochester Gas and Electric Corporation (licensee) submitted a report, dated April 29, 1980, on the April 1980 inspection and an evaluation of the results. The inspection was conducted on both steam generators, during the April 1980 scheduled refueling and maintenance outage, using the multifrequency eddy current technique to better quantify the tube defects. This is the third year of multifrequency eddy current examinations for this plant. The results of these examinations are summarized in Table I:

TABLE I - R. E. GINNA UNIT NO. 1 EDDY CURRENT INSPECTION RESULTS

Steam Generator	Area of Inspection	No. of Tube Inspected	Eddy Current Indications
S/G A	Hot Leg	(100%)	1 tube - ~50%
	Cold Leg	~815 (25%)	None
S/G B	Hot Leg	(100%)	1 tube - <20% 1 tube - 30-39% 1 tube - 40-49% 1 tube - 50-59% 5 tubes - 60-69% 2 tubes - 70-79% 1 tube - 80-89% 1 tube - 90-100% 18 tubes - Under Crevice Attack
	Cold Leg	~815 (25%)	None

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It should be noted from Table I that eddy current indications from the hot leg side of the "B" steam generator are divided into two categories: the first 13 indications were identified at frequencies of 400 KHZ differential, 200 KHZ differential, 100 KHZ differential, and 100 KHZ absolute. The remaining 18 indications were detected at a frequency of 100 KHZ absolute only. These later indications appeared as abnormal vertical channel signals on the brush strip chart recorder that resembled the signals at 100 KHZ absolute of the 13 tubes found at the other frequencies. Therefore, these 18 tubes are considered to be under IGA inside the crevices.

It is also clear from Table I that crevice indications were identified only in the hot leg side of the "B" steam generator and not in the "A" steam generator. Most of the crevice indications were located 15" and 18" above the tube end. In addition, three tubes in the hot leg side of the "A" steam generator were found with defects above the tubesheet. Although the Ginna Unit No. 1 technical specification tube plugging criteria is 40%, all 31 crevice indications in Table I and the four defective tubes above the tubesheet were plugged.

The licensee believes that the four defects located above the tubesheets of both "A" and "B" steam generators are small volume defects. Eddy current tapes for these tubes from previous inspections are being re-evaluated to establish the rate of through-wall penetration. We do not attach any real safety significance to these small volume defects, particularly in view of the small number of affected tubes suggesting only a low level of activity above the tubesheet.

In view of the fact that all the crevice indications were located in the "B" steam generator, the licensee removed two tubes in the hot leg side and one

tube in the cold leg side of the "B" steam generator for further laboratory examination. The examination is being conducted in cooperation with the Steam Generators Owners Group. The final report on the results of these tube examinations will be provided in about two months. This report should give valuable information concerning the damage mechanism for future evaluation.

Based on the review of licensee's inservice inspection, remedial action, preventive tube plugging, flushing, water chemistry control, and leakage rate limit, we conclude that there is a reasonable assurance that R. E. Ginna is safe to return to power operation. However, we recommend that the proposed mid-cycle inspection be made mandatory. We also recommend that the licensee be required to submit their inspection program for comments 40 days prior to the scheduled shutdown. This action is necessary to permit closer monitoring of steam generator operation at this unit, because of the apparent increase in the rate of deep crevice corrosion.

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