

May 29, 2003

Mr. Robert L. Clark  
Office of Nuclear Regulatory Regulation  
U.S. Nuclear Regulatory Commission  
ATTN: Document Control Desk  
Washington, D.C. 20555-0001

Subject: Response to Request for Additional Information Associated with the 2002 Steam Generator Inservice Inspection Report  
Rochester Gas and Electric Corporation  
R.E. Ginna Nuclear Power Plant  
Docket No. 50-244

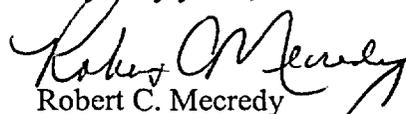
References: (1) Letter from R.L. Clark, NRC, to R.C. Mecredy, RG&E, Subject: *Request for Additional Information Regarding R.E. Ginna Nuclear Power Plant 2002 Steam Generator Inservice Inspection Report (TAC No. MB6467)*, dated May 1, 2003.

Dear Mr. Clark:

By the above reference, the NRC staff requested additional information regarding the results of the 2002 steam generator inservice inspection at the R. E. Ginna Nuclear Power Plant. Attachment 1 of this letter provides the requested information. There are no commitments associated with this response.

If you should have any questions regarding this submittal, please contact Mr. Tom Harding, 585-771-3384.

Very truly yours,

  
Robert C. Mecredy

Attachments: 1. Response to NRC Request for Additional Information (RAI) Dated May 1, 2003

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89 East Avenue | Rochester, NY 14649

tel (585) 546-2700

www.rge.com

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xc: Mr. Robert Clark (Mail Stop O-8-C2)  
Project Directorate I  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation  
U.S. Nuclear Regulatory Commission  
11555 Rockville Pike  
Rockville, MD 20852

Regional Administrator, Region 1  
U.S. Nuclear Regulatory Commission  
475 Allendale Road  
King of Prussia, PA 19406

U.S. NRC Ginna Senior Resident Inspector

## Attachment 1

### Response to NRC Request for Additional Information (RAI) Dated May 1, 2003

The response to the RAI will be structured as follows. The items in bold italics below are the questions provided by the NRC in the RAI dated May 1, 2003. A response to each item is then provided by RG&E.

1. ***In Section 8.2 of Attachment 1 to your October 17, 2002, submittal it was indicated that some thermally treated alloy 690 tubes were plugged for preventive reasons such as proximity to baffle plate edges. Please clarify the concern with respect to the baffle plate edges.***

Response:

Section 8.2 of Attachment 1 to the October 17, 2002 submittal was a discussion of the Rochester Gas & Electric (RG&E) review of industry experience with Alloy 690TT tubing performed as part of the degradation assessment process.

The referenced tube was in a replacement steam generator manufactured by another vendor at a plant belonging to another utility. This tube was not considered to be relevant to the Ginna degradation assessment since there are no flow distribution baffle plates in the Ginna steam generators. Potential mechanical degradation mechanisms specific to the Ginna replacement steam generators are addressed in detail in Section 10 of Attachment 1 to our October 17, 2002, submittal.

RG&E is unable to comment further on this issue since we do not have detailed information on the design of this specific steam generator or the information that was used to make the plugging decision.

2. ***Section 9.2.1 of Attachment 1 to your October 17, 2002, letter discusses a tube proximity issue. From the description provided, it appears that the outermost tube in a column and the tube below it may be in close proximity as a result of the fabrication procedure. However, in other sections (Section 2.4 and Section 9.2.3) the report appears to be discussing the potential for wear to occur as a result of the tube proximity issue in all tubes in a given column. Provide information that would clarify if the tube proximity issue is one that would be applicable to all tubes in a column or a subset of tubes in a column. Also, provide information clarifying whether the wear observed in McGuire 1 and St. Lucie 1 occurred only in the outermost columns, the tube in an adjacent column, or along the entire column and how this information applies to Ginna.***

Response:

The "tube proximity" issue discussed in section 9.2.1 is different from the "localized typical" wear discussed in section 9.2.3 of Attachment 1 to our October 17, 2002, submittal.

The tube proximity issue is only applicable to peripheral tubes and is a result of not properly establishing the profile of the outermost tube prior to setting and welding "J-tabs" in the u-bend structure, as discussed in section 9.2.1. This can result in a shift in the outermost tube profile when the generator is upended, and potential reduction in the gap between the outermost tube and the tube below it. As discussed in section 10.2.4 of Attachment 1 to our October 17, 2002, submittal, several tubes at Ginna are known to exhibit this phenomenon. These were inspected during the 1997, 1999, and 2002 refueling outages using bobbin and rotating probes, and no wear has been detected.

The localized typical wear discussed in section 9.2.3, and the additional expansion criterion discussed in section 2.4, address a different potential degradation mode. This is the wear that has been seen at St. Lucie and McGuire, which have replacement steam generators from the same vendor as Ginna. This wear afflicts multiple tubes within the columns adjacent to a specific u-bend fan bar, possibly as a result of some local distortion in the bar or how it is attached at the u-bend superstructure which results in an increased tube-to-support gap. This wear can occur deep within the bundle and is not associated with the tube proximity issue at the bundle periphery. The main reason for calling this out as a different mechanism is because of the potential to afflict the columns adjacent to a column where wear indications are found. Because Ginna samples every other column to achieve 50% bobbin coverage, it was considered prudent to expand the inspection to adjacent uninspected column(s) if any u-bend wear indications were found.

No wear of any kind was found in the Ginna replacement steam generators during the 2002 inspection.

3. ***In Section 10.6.5.a of Attachment 1 to your October 17, 2002, letter there was some discussion about "hot-leg accessible indications." Please clarify what is meant by that statement, especially if it has any implications that some tubes cannot be inspected because they are not accessible.***

Response:

The statement does not mean that there are tubes that cannot be inspected. Every in-service tube in each Ginna steam generator is accessible.

RG&E currently uses a single manipulator per steam generator for inspections to minimize schedule, dose, and inspection cost. This manipulator is located in the hot leg channel head since any temperature-driven degradation mechanism would be expected to be seen in the hot leg first. For rotating probes, the motor unit cannot be passed over the

u-bend and therefore extension units must be used. These limit the ability to effectively inspect the entire leg opposite the leg in which the manipulator is mounted using rotating probes.

The referenced statement is intended to communicate that a 20% sample of manufacturing burnish mark (MBM) calls greater than five volts, accessible using rotating probes from the hot leg, is performed. Since any potential degradation at MBM sites is very likely to be temperature driven, hot leg degradation would be expected prior to cold leg degradation.

There is nothing to prevent performance of rotating probe inspections in the cold leg, although this would require relocation of the manipulator from the hot leg channel head to the cold leg channel head.

Ginna used array coil probes on a limited number of tubes during the 2002 inspection outage and may use these more extensively in the future. These probes are capable of providing an enhanced inspection and can access the entire tube from a single channel head.

4. ***Concerning the scored tube hole discussed in Section 10.2.2 of Attachment 1 to your October 17, 2002, letter, please clarify whether any special examination requirements have been, or will be, implemented for this tube.***

Response:

The subject tube was inspected using a +Point rotating probe during the 2002 outage to obtain a baseline for future comparison. The eddy-current data indicated a benign tube geometry along the length of the tube within the tubesheet. As a potential precursor to future degradation, it is expected that this tube will be inspected in the area of interest at each subsequent inspection.

A recent peer-review of the Ginna steam generator program recommended that all potential degradation precursors, including the scored tube hole, be addressed consistently in the degradation assessment, similar to the way in which MBMs are currently treated. This recommendation is currently being tracked for inclusion in the degradation assessment to be performed prior to the next inspection.

5. ***On page 9 of Attachment 2 to your October 17, 2002, letter there was reference to rotating probe examinations of "gripper locations." Please clarify what gripper locations are.***

Response:

During a pre-mobilization meeting prior to the 2002 outage, RG&E reviewed the vendor equipment, including the grippers used to secure the inspection manipulator into the tube sheet. Each gripper has a mandrel which spreads metal fingers when retracted. These fingers grip the inside of the tube and may possibly mark the inside diameter surface.

The manipulator gripper tube locations have been consistent from outage to outage, with two grippers on the manipulator and two manipulator locations required for complete tubesheet coverage. RG&E inspected the subject tubes, and the vendor now uses an elastomeric ring around the gripper as a precaution to further minimize the possibility of marking the tube inside diameter surface.