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SUBJECT: Forwards results of 1989 reactor vessel exam.

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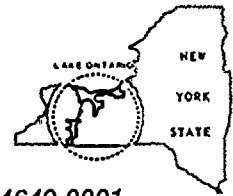
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May 4, 1989

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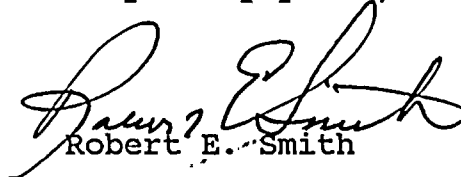
References: a) License No. DPR-18 (Docket No. 50-244)
b) 1989 Reactor Vessel Examination
R.E. Ginna Nuclear Power Plant

Gentlemen:

In accordance with the requirements of the R.E. Ginna Q.A. Manual, Appendix B, Second Interval Inspection Plan; Regulatory Guide 1.150, Revision 1; and ASME Section XI (1974 Edition including addenda through Summer 1975); enclosed are results of the 1989 Reactor Vessel Examination. Examination identified only one reportable flaw indication in the reactor vessel inlet nozzle N2B, previously described in RG&E's letter dated December 27, 1988.

Based on the attached analysis, the nozzle indication is considered to be acceptable, and RG&E does not plan to do augmented examinations.

Very truly yours,


Robert E. Smith

JPO/040
Attachment

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Reactor Vessel Inlet Nozzle (N2B) Indication

The 1989 Ginna Station Reactor Vessel Examination consisted of a visual examination of the internal surfaces, nozzles and reactor internals and an ultrasonic examination of all accessible welds. These examinations were performed in accordance with the requirements of the Ginna Station Second Interval Inspection Plan, Section XI of the ASME Boiler and Pressure Vessel Code (1974 Edition including Addenda thru Summer 1975) and Regulatory Guide 1.150, Rev.1. With the exception of the N2B inlet nozzle, no reportable indications were found.

During the 1979 Reactor Vessel Examination a flaw was first found in the N2B inlet nozzle. At that time the flaw was sized as 5.27" x .93". Beam spread correction was applied and the flaw size was corrected to 4.52" x .160". The corrected flaw size was acceptable per the ASME Code rules as shown in Attachment 1. In addition, a fracture mechanics analysis was performed by Teledyne Engineering which confirmed the acceptability of the flaw as shown in Attachment 2. At the same time, the original construction radiographs were reviewed and confirmed the presence of slag at this location. The flaw was located at the 10:30 (306°) position looking at the nozzle from the vessel I.D. The indication is at the interface of the nozzle to vessel weld preparation and was characterized as a thin planar slag inclusion near midwall.

The 1989 Examination utilized the Southwest Research Institute (SWRI) Programmed and Remote (PAR) Device just as the 1979 examination did.

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In addition, the 1989 examination utilized the SWRI Enhanced Data Acquisition System (EDAS) to present and analyze the data. The Ultrasonic Examination Scope is detailed in Attachment 3.

The flaw in the N2B nozzle was located and scanned with the same techniques and transducers as used in 1979 to obtain a comparison and to show that the flaw size had not changed. The size as measured in 1989 with the 1979 techniques was 4.04" x .78" which is very close to that as measured in 1979. Focused beam transducers were then used, which clearly characterized the flaw as an elongated slag inclusion. The slag inclusion was ultimately determined to be 4.94" x .48". The focused transducers were developed jointly by SWRI, EPRI, Wisconsin Electric (WE) and RG&E. The capabilities of these transducers were demonstrated in early 1989 at a demonstration at SWRI attended by representatives of the NRC, Hartford Steam Boiler, SWRI, WE and RG&E. The Development of the Focused Transducers is discussed in Attachment 4.

ASME Code sizing techniques were applied to the 1989 flaw size (4.94" x .48") as indicated below:

$$a = .24", 2a = .48"$$

$$l = 4.94"$$

$$a/l = .24/4.94 = .048$$

$$a/t = .24/9.25 = 2.59\%$$

$$\text{Maximum Allowable } (a/t) = 2.4\%$$

Based on Code techniques the flaw is slightly larger than allowable. If it is assumed that the length remained constant the allowable thru wall dimension (2a) would be equivalent to .444".




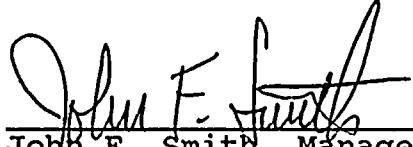
ALPHABETICALLY

This is a difference of .48" - .444" or .036" which means that the flaw is unallowable by .036".

Because the flaw is unallowable per Code rules as indicated above, the 1979 fracture mechanics analysis performed by Bill Cooper of Teledyne Engineering was reviewed by RG&E. It was determined that the 1979 Analysis bounds the current flaw. In addition, the Teledyne analysis was reviewed by Structural Integrity to verify that the results were still applicable. This review is documented in a letter from Structural Integrity, Attachment 5, and also in their analysis which is Attachment 6. Both the Teledyne analysis and the Structural Integrity analysis show the flaw to be acceptable by a large margin.

In summary, the N2B nozzle flaw is unallowable per Code rules by a very small margin, the 1979 fracture mechanics analysis showed the flaw to be acceptable, this was confirmed by the Structural Integrity Analysis. Construction radiographs confirmed the presence of slag at this location so it is therefore concluded that this flaw is actually a slag inclusion that has been present since the original construction and has not changed in size since that time. Because of this the flaw is acceptable for continued operation and RG&E plans no augmented reactor vessel examinations.


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Rev.1
05/04/89



ATTACHMENT 1

**ULTRASONIC EVALUATION OF INLET NOZZLE
INSERVICE INSPECTION INDICATION**

