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 AUTH. NAME AUTHOR AFFILIATION
 MECREDY, R.C. Rochester Gas & Electric Corp.
 RECIP. NAME RECIPIENT AFFILIATION
 JOHNSON, A.R. Project Directorate I-3

SUBJECT: Submits 90-day response to GL-93-04, "Rod Control Sys
 Failure & Withdrawal of Rod Control Cluster Assemblies."
 Westinghouse performed safety analysis using three-
 dimensional techniques re uncontrolled asymmetric rod.

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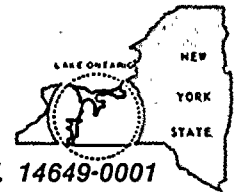
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ROBERT C. MECREDY
Vice President
Ginna Nuclear Production

TELEPHONE
AREA CODE 716 546-2700

September 20, 1993

U.S. Nuclear Regulatory Commission
Document Control Desk
Attn: Allen R. Johnson
Project Directorate I-3
Washington, D.C. 20555

Subject: Transmittal of 90-day Response to Generic Letter 93-04
R.E. Ginna Nuclear Power Plant
Docket No. 50-244

Ref.(a): Letter from R. C. Mecredy (RG&E) to A. R. Johnson (NRC),
"Response to Generic Letter 93-04," dated August 5, 1993

Dear Mr. Johnson:

Generic Letter 93-04, "Rod Control System Failure and Withdrawal of Rod Control Cluster Assemblies," issued on June 21, 1993, requires that, within 45 days from the date of the generic letter, each addressee provide an assessment of whether or not the licensing basis for each facility is still satisfied with regard to the requirements for system response to a single failure in the Rod Control System (GDC 25 or equivalent). If the assessment (Required Response 1.(a)) indicates that the licensing basis is not satisfied, then the licensee is requested to describe compensatory short-term actions consistent with the guidelines contained in the generic letter, and within 90 days, provide a plan and schedule for long-term resolution (Required Response 1.(b) and 2). Subsequent correspondence between the Westinghouse Owners Group and the NRC resulted in schedular relief for Required Response 1.(a) and 1.(b) Part 1 (NRC Letter to Mr. Roger Newton dated July 26, 1993).

Reference (a) provided our 45 day response to the Generic Letter as it applies to Ginna Station. The response summarized the compensatory actions taken in response to the Salem rod control system failure event (the second part of Required Response 1.(b)). It also provided a summary of the results of the generic safety analysis program conducted by the Westinghouse Owners Group and its applicability to Ginna Station.

Rochester Gas and Electric hereby submits its 90-day response to the Generic Letter as it applies to Ginna Station. The Attachment A response concludes that the licensing basis is satisfied for GDC 25 (or equivalent) (Required Response 1.(a)) and also provides additional information for long-term clarification of this issue.

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The safety assessment that was provided in the 45 day response confirmed that there is no safety significance for any asymmetric RCCA withdrawal by using three-dimensional safety analysis.

I declare that the statements and matters set forth herein are true and correct to the best of my knowledge, information, and belief.

Very truly yours,


Robert C. Mecredy

Subscribed and sworn to before me
on this 20th day of September, 1993



MARIE C. VILLENEUVE
Notary Public, State of New York
Monroe County
Commission Expires October 31, 1994

GAH/302
Attachment

xc: Mr. Allen R. Johnson (Mail Stop 14D1)
Project Directorate I-3
Washington, D.C. 20555

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

Ginna Senior Resident Inspector

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ATTACHMENT A

Response to NRC GL 93-04

Assessment of Licensing Basis Compliance

The purpose of this response is to provide an assessment of whether or not the licensing basis for Ginna Station is still satisfied with regard to the requirements for system response to a single failure in the rod control system and to provide supporting discussions for this assessment in light of the information generated as a result of the Salem event (Required Response 1.(a)).

The Westinghouse Owners Group (WOG) has undertaken the following initiatives to support the response to NRC Generic Letter 93-04: 1) conducting Rod Control System testing in the Salem training center, 2) examining the existing Rod Control System Failure Modes and Effects Analysis (FMEA), 3) analyzing the worst-case asymmetric RCCA withdrawal combinations with three-dimensional analytical methods, and 4) performing an equipment survey of Westinghouse plants to determine the frequency and significance of control system circuit card failures.

After this extensive investigation, the WOG has concluded that GDC 25 continues to be met, but also recognizes that there are questions as to the interpretation of not only the intent of GDC 25 but also the appropriate definition of the specified acceptable fuel design limit as well.

Based on previous communications, the NRC has conservatively interpreted the GDC 25 fuel design limit to be the DNB design basis. The WOG believes that this is a conservative definition if applied to all events. The equipment survey conducted by the WOG demonstrated that the failure rate of card failures that could result in the movement of less than a whole group is on the order of 4×10^{-8} /critical reactor hours. This would indicate that the likelihood of a Salem-type event is extremely remote. With this in mind, the WOG would propose that a Condition III (or IV) specified acceptable fuel design limit would be applicable.

Based on the WOG's understanding of GDC 25, the purpose of this criterion is to ensure that the appropriate limits (commensurate with the probability of occurrence) are not violated for a "worst-case" stand-alone single failure. The test program conducted at the Salem training center demonstrated that all the rods within a given group would receive the same signals. The corrupted current orders generated by the logic cabinet failures at Salem were transmitted identically to all 8 RCCAs in Shutdown Bank A. The fact that only one RCCA withdrew in the plant was due to a second unrelated effect. Had all the rods in SBA responded, as predicted in the existing FMEA, all the rods would have withdrawn uniformly and have been enveloped by the existing FSAR accident analyses. In

addition, existing rod motion surveillance requirements would detect the type of rod motion failure observed at Salem. Thus, the requirement that one single failure not result in a specified acceptable fuel design limit being exceeded, in this case the DNB design basis, would remain satisfied.

Assessment of the Safety Significance of Potential Asymmetric Rod Motion in the Rod Control System

Westinghouse has also performed a safety analysis using three-dimensional (non-licensed method) safety analysis techniques to assist the WOG in its determination of the safety significance of an uncontrolled asymmetric rod withdrawal. WCAP-13803, Revision 1 documented the safety analysis program and concluded that the generic analysis and their plant-specific application demonstrate that DNB does not occur for a worst-case asymmetric rod withdrawal for all affected Westinghouse plants. As such, the analysis program concluded that there is no safety significance for affected Westinghouse plants for a Salem-type rod withdrawal.

Reference (a) provided RG&E's 45 day response to the Generic Letter as it applies to Ginna Station. The response provided a summary of the results of the generic safety analysis program conducted by the Westinghouse Owners Group and its applicability to Ginna Station.

Long-term Enhancements

While the assessment indicates that the licensing basis is currently satisfied, the WOG believes that there are measures that can be taken by utilities to make compliance with GDC 25 more clear. Those recommended modifications include a combination of (option 1) rod control system logic cabinet changes (current order timing adjustments) and an additional plant surveillance, or (option 2) additional FSAR safety analyses analyzing asymmetric rod withdrawal and an additional plant surveillance.

Ginna Station will implement option 1 above consisting of a new current order surveillance (such as current order traces from each group following each refueling outage) to ensure detectability and modify the rod control system current order timing to prevent any uncontrolled, asymmetric rod withdrawal in the event of the failure identified at Salem. If corrupted current orders are present, none of the rods will move (with a high degree of certainty) once the current order timing adjustments are made.

Implementation of the proposed long-term actions will be made prior to start up from the next refueling outage which is at least 4 months following the successful demonstration of the timing adjustments at an operating plant and receipt of the official technical bulletin from Westinghouse. Assuming the 4 month lead time, it is our intent to complete these enhancements during the March 1994 outage where reasonably possible. Otherwise, we would complete the implementation in the Spring 1995 outage. The basis for allowing this time period is that existing rod motion

surveillance tests provide assurance that the failure scenarios of an uncontrolled asymmetric rod withdrawal will be detected and the analysis program performed and documented in WCAP-13803, Revision 1, concluded that there was no safety significance for affected Westinghouse plants for a Salem-type rod withdrawal.

