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FACIL:50-244 Robert Emmet Ginna Nuclear Plant, Unit 1, Rochester G
AUTH.NAME AUTHORITY AFFILIATION
MECREDY,R.C. Rochester Gas & Electric Corp.
RECIP.NAME RECIPIENT AFFILIATION
MEYER,D.L. Rules & Directives Review Branch (Post 920323)

SUBJECT: Comment on proposed NRC Bulletin 96-001,Suppl 1, "Control Rod Insertion Problems."

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M. Chafferton
J. Spangler
W. Burton



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ROBERT C. MECREDDY
Vice President
Nuclear Operations

June 19, 1997

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U.S. Nuclear Regulatory Commission
David L. Meyer
Chief, Rules Review and Directives Branch
Mail Stop T-6 D69
Washington, D.C. 20555

Subject: Comments on Proposed NRC Bulletin 96-01 Supplement 1
R.E. Ginna Nuclear Power Plant
Docket No. 50-244

The proposed bulletin supplement provides three options to respond to the incomplete rod insertion issue:

1. Restrict rodded assembly burnup to 35,000 MWD/MTU (for fuel without intermediate flow mixing grids); or
2. Shutdown and perform rod drop testing at 35,000 MWD/MTU, and every 2500 MWD/MTU (approximately every 70 days) thereafter; or
3. Provide a "rigorous engineering analysis" to justify individual fuel designs.

RG&E believes that there are significant concerns with options 1 and 2, which were not properly accounted for in the subject correspondence. For example, compliance with option 1 may present other concerns whose safety significance must be compared to the perceived benefit of limiting burnups to 35,000 MWD/MTU (or any other non-substantiated value). Cores designed to meet such a limit would most likely require more new fuel assemblies and consequently result in more discharged assemblies. This will increase the generation of high level radioactive waste in the form of spent fuel assemblies. This high level waste will ultimately have to be handled, transported and stored at a U.S. government repository. Not only does this impose a significant financial burden upon a utility but it creates an unnecessary increase in future fuel handling and high level waste transportation activities.

Additionally, it is possible that reload designs which are constrained by burnup limits in rodded locations will require design tradeoffs that may reduce operating margin in other areas (e.g., peaking factors, rod internal pressure). Potential reductions in operating margins such as those described in INPO

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SOER 96-02, "Design and Operating Consideration for Reactor Cores" should be closely scrutinized, since the imposition of such rodded assembly burnup restrictions may not necessarily result in a net safety benefit if operating margins must be reduced in other areas. For example, such loading restrictions would, of necessity, increase rod worth by placing control rods in fresh fuel assemblies. This would increase severity of other postulated accidents and transients, such as control rod ejection and rod withdrawal.

The net safety benefit associated with option 2 is also questionable. Unnecessary plant shutdowns have been shown through Probabilistic Safety Assessment (PSA) techniques to be a risk contributor since they can increase the probability of an unplanned plant trip. This fact was acknowledged by the NRC recently in Generic Letter 97-02, "Revised Contents of the Monthly Operating Report", which states in part that plants with high availability and capacity factors "...are less likely to experience transients which challenge safety systems." From the Ginna Station PSA, it is estimated that the suggested testing would increase core damage frequency by about 2% per year. Furthermore, mid cycle rod drop testing to date has not been shown to provide a strong safety benefit with respect to rod insertion capability as at least one plant has restarted after confirming a less than complete rod insertion with no corrective action. Thus, it appears that these actions are being taken to provide research data. We do not believe research should be the main thrust of this regulatory correspondence, when the potential for increased risk exists. This could be considered a test or experiment not described in the UFSAR and as such could constitute an USQ requiring a license amendment. Previous generic analyses have shown acceptable shutdown margin for postulated degrees of incomplete rod insertion. For example, such analyses have shown that all rods in high burnup assemblies could be postulated to be stuck at the top of the dashpot, with most reactive rod completely withdrawn, and sufficient shutdown margin would be maintained under all design basis conditions. This provides assurance that the safety function of the control rods is met and could be combined with either continued testing such as performed under the original issuance of this bulletin, or the ongoing analytical structural assembly growth studies being performed to resolve the issue.

The basis for a 2500 MWD/MTU interval for testing is also not clear. Since this figure has a significant impact on the number of plant shutdowns would have to be performed, its basis, or any other basis, should be clearly established.

RG&E believes that option 3 provides the most desirable and cost effective solution to this issue. However, it is unclear from the proposed supplement what constitutes a "rigorous engineering analysis" by regulatory standards, especially in light of the vast amount of data already collected under the original bulletin

issuance. For example, drag testing data and previous operating history specific to our plant and fuel design at burnup levels beyond 35,000 MWD/MTU provides a strong basis for not performing the required rod drop testing but the proposed supplement implies that this is not a sufficient enough engineering justification for exemption from mid-cycle shutdowns and testing. Specifically, over the last 8 cycles, there have been 16 rodded assemblies with greater than 45,000 MWD/MTU and 63 rodded assemblies with greater than 35,000 MWD/MTU.

There are other considerations that the proposed supplement does not consider. The impact of primary system temperature is neglected even though it has been shown to be a strong contributor to fuel assembly growth. For plants with low operating temperatures such as Ginna Station this imposes unnecessary testing which has little or no safety benefit. A similar argument can be made for plants (again, such as Ginna Station) which have extra grids in the fuel assembly design. No allowance is made for such a design characteristic in the proposed supplement.

In addition to the above technical arguments which need to be addressed by the NRC prior to the issuance of (a modified version of) the proposed guidance, backfitting issues must also be addressed.

The backfit discussion in this proposed supplement is incomplete, and thus severely flawed. A statement implying that this intense level of control rod testing is necessary to ensure compliance with 10 CFR 50, Appendix B, Section XI is specious in extreme. There are many ways that plants can demonstrate adequate shutdown margin and control rod drop times without resorting to multiple interim cycle shutdowns. For example, as noted above, the drag testing performed at Ginna Station in response to Bulletin 96-01 demonstrated no such safety concerns. There has been no historical evidence at Ginna Station of control rod binding issues (and with Ginna's digital rod position indication system, any problems above 6 steps would have been apparent). Based on a "rigorous engineering analysis" used to develop the Westinghouse analytical fuel assembly model for Ginna Station, control rod binding is not considered of concern to RG&E at this time.

References within the proposed bulletin supplement indicate that the NRC cannot rule out control rod incomplete rod insertion problems for any Westinghouse or B&W plant, even if no indication of problems (or realistic mechanistic failure modes to induce such problems) exist. We are thus effectively being asked to prove a negative, a daunting task given that no objective acceptance criteria exist. We do not believe that a safety concern has been shown to exist for the type of fuel assembly designs at Ginna Station.

As noted earlier in our comments, we believe that the testing being

"requested" in this supplement is inconsistent with the interests of greater safety for Ginna Station, balancing the risks and economic penalties against the perceived benefit for our particular reactor. We will continue to work with the WOG in determining the type and extent of further actions which would be of benefit (e.g., more drag testing in the spent fuel pool) and also in ensuring that the Westinghouse analytical fuel assembly model is fully representative of Ginna Station, to submit for NRC review. We suggest that the WOG and NRC continue their dialogue to define a reasonable safety-and cost-effective decision, and that a revised supplement to Bulletin 96-01 be issued for comment, incorporating the resultant plan of action.

Very truly yours,



Robert C. Mecredy

GJW/467

xc: Mr. Guy Vissing (Mail Stop 14B2)
Project Directorate I-1
Washington, D.C. 20555

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

Ginna Senior Resident Inspector

