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September 12, 1988

Nuclear Regulatory Commission
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Washington, DC 20555

DOCKET 50-155 - LICENSE DPR-6 - BIG ROCK POINT PLANT -
POST-IMPLEMENTATION VERIFICATION REVIEW OF
NEUTRON MONITORING SOFTWARE

Amendment 91 to the Big Rock Point Operating License dated May 17, 1988, approved Technical Specification changes associated with the modification to the out-of-core neutron instrumentation. Included in this amendment was a request to perform an independent, post-implementation verification review of the software, as discussed in Section 4.0(2) of the safety evaluation and to report the results and findings within 120 days.

On August 11, 1988, a meeting was held with the Nuclear Regulatory Commission, General Electric and Consumers Power Company representatives in the Nuclear Regulatory Commission offices to resolve this issue. During the meeting there was a lengthy discussion about software verification and the requirements for an independent reviewer. General Electric's position, which is supported by Consumers Power Company, is that (1) an independent reviewer can be in the same functional organization as the designer as long as he was not specifically involved in the project design; (2) this is important to assure the availability of qualified technical reviewers capable of performing this type of review; and (3) the precedent has been recognized and supported by the Nuclear Regulatory Commission in 10 CFR 50, Appendix B, Regulatory Guide 1.152 and ANSI/IEEE-ANS-7.4.3.2 wherein it states:

"The verifying or checking process shall be performed by individuals or groups other than those who performed the original design, but who may be from the same organization."

The Nuclear Regulatory Commission reviewers expressed concerns that (1) they were not certain of the above interpretation of independent reviewer vis-a-vis Appendix B was correct; (2) computer software was different than hardware and needed to have verification done outside the responsible design organization

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(no common manager); and (3) companies may take "short cuts" and avoid the needed verification rigor if done within the same organization.

In the ensuing discussion, General Electric pointed out that it was commercially in the best interest of a supplier to assure that software and other design features are rigorously verified by the most qualified people, so that the commercial and safety objectives are aligned.

In mutual understanding of both positions, a compromise was reached wherein the Nuclear Regulatory Commission reviewers agreed to consider an alternate approach proposed by General Electric to accomplish verification and resolve the issue.

The attachment describes the Additional Verification Plan proposed by General Electric. As discussed in the meeting, the actions can be completed and results reported to the Nuclear Regulatory Commission within 60 days following written approval of the proposed plan.

Should additional questions or concerns be raised with respect to this Additional Verification Plan, they may be addressed to Consumers Power Company or directly to D W Reigel or C A VonDamm at General Electric in San Jose, California.

Ralph R Frisch

Ralph R Frisch
Senior Licensing Analyst

CC Administrator, Region III, NRC
NRC Resident Inspector - Big Rock Point Plant

Attachment

ATTACHMENT

Consumers Power Company
Big Rock Point Plant
Docket 50-155

BIG ROCK POINT
NUMAC DC WIDE RANGE MONITOR
ADDITIONAL VERIFICATION PLAN

September 12, 1988

BIG ROCK POINT DC WIDE RANGE MONITOR
ADDITIONAL VERIFICATION PLAN

The NRC review of the Big Rock application for Amendment 91 to the Facility Operating License covering the replacement of existing neutron monitoring equipment with NUMAC DC Wide Range Monitor included a requirement that additional independent verification of some elements of the software design was necessary prior to final acceptance. As a result of several discussions with the NRC including a meeting on August 11, 1988, on another GE NUMAC application, GE plans to perform additional verifications for the Big Rock DCWRM as described below.

The significant documents/elements to be considered are:

- 1) The DCWRM Product Performance Specification, including User's Manual (provides the functional requirements)
- 2) The Functional Software Design Specification (describes the software structure and design)
- 3) The functional software code
- 4) The module and integration test report (results of design testing, including detail testing of software paths)
- 5) The validation test report (results of formal validation testing)

Item 1) and 2) have received a comprehensive independent verification and no further verification is planned.

Item 3) received a limited verification review, but in light of the NRC concerns, will be reverified.

Item 4) was not previously verified, so it will be verified by independent code review.

Item 5) was not previously verified, so it will be verified by independent review.

For these additional verifications every effort will be made to find a qualified organizationally independent verifier. If that is not possible, GE will advise Big Rock Point prior to proceeding with the verification.

The above verifications can be completed within 60 days of notification that completion of the above planned action is satisfactory to close out the issue.