GPU Nuclear

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June 12, 1985

Mr. John A. Zwolinski, Chief
Operating Reactors Branch No. 5
Division of Licensing
U.S. Nuclear Regulatory Commission
Washington, D. C. 20555

Dear Mr. Zwolinski:

Subject: Oyster Creek Nuclear Generating Station
Docket No. 50-219
Generic Letter 83-28

Reference (1) NRC Letter dated April 5, 1985, John A. Zwolinski to P. B. Fiedler, "Request For Additional Information Following Preliminary Staff Review of Licensee Responses to Generic Letter 83-28"

(2) NEDC-30844 dated January 1985, "BWR Owners' Group Response to NRC Generic Letter 83-28, Item 4.5.3"

(3) G. Apostolakis et al, "Assessment of the Frequency of Failure to Scram in Light-Water Reactors", Nuclear Safety 20(6): 690-705 (Nov - Dec 1979)

The following information is provided in response to your April 5, 1985 letter concerning Item 4.5.3 of Generic Letter 83-28. General Electric Company, on behalf of the BWR Owners Group has performed an analysis which addresses the reliability of the Reactor Protection System for Boiling Water Reactors (NEDC-30844). This analysis has evaluated the availability of the RPS for the existing intervals for on-line functional testing taking into consideration the uncertainties due to component failure rates, common cause failures, operator errors, component "wearout" and reduced redundancy due to testing.

The results of the analysis, performed using a generic availability model representative of the General Electric BWRs, show that the RPS failure frequency is low and that the existing on-line functional testing for the RPS supports this. Additional analyses performed by GE address the differences between specific plants and the generic model. The significant differences between the Oyster Creek design and the generic design analyzed by GE are the type of relays used in the sensor logic channels and in the redundancy of scram contactors.

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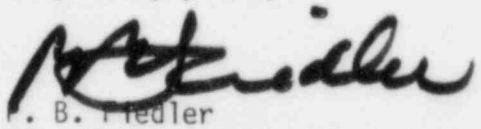
Incorporating these differences in the analysis, the results show that the RPS failure frequency is still low and approximately 1.5×10^{-5} per year. This result is comparable to results of other studies referenced in this analysis which show point estimates of the RPS failure frequency in the range of 1.9×10^{-5} to 9.0×10^{-5} per year.

Additionally the analysis (NEDC-30844) addresses two other areas to which the RPS failure frequency is sensitive; these are common cause failure and human error. At the extreme, the upper bound error factors for common cause failure and human error produce estimates of RPS failure frequency for the Oyster Creek type plant of approximately 6.1×10^{-5} and 1.4×10^{-4} per year respectively. These values are at the upper bound of the studies referenced in the analysis.

When the upper bound of both common cause and human error are taken together and translated to "failure on demand", the result is 1.8×10^{-4}. This is comparable to the upper bound of the RPS failure frequency distribution provided in Reference 3, which is 1.2×10^{-4} per demand.

Based on the foregoing discussion, GPUN endorses NEDC-30844 to the extent that it substantiates that the Oyster Creek Plant has a low RPS failure frequency and that the existing on-line functional testing supports this when the differences and sensitivities cited above are taken into consideration.

Very truly yours,



J. B. Fiedler
Vice President and Director
Oyster Creek

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cc: Administrator
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NRC Resident Inspector
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