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June 24, 1994

James M. Taylor
Executive Director for Operations
U.S. Nuclear Regulatory Commission
Washington D.C. 20055

Dear Mr. Taylor:

We are writing to raise certain concerns that have arisen in connection with an NRC inspection of the Pilgrim Nuclear Power Station (PNPS) conducted in early 1994. As a result of that inspection, the NRC issued a report, dated February 24, 1994, indicating that the plant had already exceeded, during its 21 years of operation, its 40-year lifetime limits for four of six types of reactor coolant system transients specified in its design basis. The exceedances identified were not trivial: indeed, one of the categories of transients indicated transients to-date double the design basis number; another category reflected an exceedance of six times the design basis.

PNPS responded to the NRC that the records that the NRC had reviewed were not records of actual transients or cycles, but, rather, of "operating events," which could be used as a basis for calculating the true number of transients but were not themselves of any significance. Thus, neither PNPS nor the NRC was immediately able to determine whether certain plant components had experienced more fatigue than they had been designed to withstand. Nor, as we understand it, had either PNPS or the NRC systematically addressed this question in PNPS' 21 years of operation.

By this point, as you may know, this office had become involved. On May 11, 1994, the Director of the Region I's Division of Reactor Safety wrote to PNPS, presumably as a result of our inquiry, indicating confidence in the eventual outcome of PNPS' analysis of its operating event history. The NRC appears to have been unaware, as of that date, that PNPS' consultant had, at least preliminarily, completed its calculation of the true number of transient events. It had in fact done so, with the result that three of the four types of

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transients originally identified as being in excess of lifetime limits, were still at or above those limits.

Apparently the NRC's confidence that PNPS is safe to operate is based on the conservatism of the original calculation of cumulative fatigue. As we understand the situation, however, the NRC has not reviewed the preliminary analysis translating operating events into true transients; it has not reviewed any preliminary assessment of cumulative usage as it pertains to PNPS; nor has it reviewed or approved the methodology being used by PNPS' consultant to evaluate cumulative usage of reactor components. PNPS and the NRC may well both be correct that PNPS is safe; it may also be, however, also that both are flying blind, or, at least, without the visual acuity that one would expect in the context of nuclear plant operations and regulation. The NRC itself recognizes that engineering judgment cannot substitute for the application of scientific analysis, conducted pursuant to approved methodology. See, Cleveland Electric Illuminating Company (Perry Nuclear Power Plant, Unit 1), LBP - 90-25, 32 NRC 21, 26 (1990); Cleveland Electric Illuminating Company (Perry Nuclear Power Plant, Unit 1), LBP - 90-15, 31 NRC 501, 507 (1990).

We would appreciate hearing your views, both with respect to these concerns, and with respect to the question of whether PNPS is in fact operating out of compliance with its license requirements. Specifically, we would appreciate it if you would address: (1) the NRC's rationale for permitting the continued operation of PNPS, when the February 24, 1994 NRC inspection report states that operation "must be within ... cyclic operating limitations;" (2) the justification for allowing the continued operation of the plant prior to the production and review of PNPS' completed analysis of cumulative fatigue; and (3) the NRC's basis for predicting the results of the uncompleted fatigue analysis.

Thank you for your attention to this matter.

Very truly yours,

Ann G. Berwick

Ann G. Berwick, Chief
Environmental Protection Division

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