D890511

The Honorable Lando W. Zech, Jr.
Chairman
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dear Chairman Zech:

SUBJECT: OPERATING LICENSE APPLICATION FOR LIMERICK GENERATING STATION, UNIT 2

During the 349th meeting of the Advisory Committee on Reactor Safeguards, May 3-6, 1989, we reviewed the application of the Philadelphia Electric Company, the Applicant, for a license to operate the Limerick Generating Station, Unit 2. Our Subcommittee on Limerick 2 toured the facility on the morning of April 25, 1989 and met in the afternoon, in Philadelphia, to consider this application. During our review, we had the benefit of discussions with representatives of the Applicant and the NRC staff. We also had the benefit of the documents referenced.

In the ACRS report, dated November 6, 1984, to then Chairman Nunzio J. Palladino, the Committee commented on the application for an operating license for Limerick Unit 1. In that report, the Committee noted that, although the Applicant had requested an operating license for both Units 1 and 2, the Committee felt that it was not appropriate to comment on Unit 2 at that time because of the uncertain schedule for construction and operation of Unit 2.

Although Unit 2 is being considered for an operating license some four-and-a-half years after the approval of an operating license for Unit 1, the two units have the same rated power level, use the same model nuclear steam supply system, and are generally very similar.

In the course of our review, we discussed management and staffing of Unit 2. Recent changes in the Applicant's management have resulted in the location on-site of a vice president responsible for the Limerick Station. A number of those individuals responsible for testing and startup of Unit 2 have gained experience on Unit 1. This experienced group appears to be conducting a well organized and effective test program and to be accomplishing a smooth transition in the turnover of responsibilities to the crew that will be responsible for operation. The most recent Systematic Assessment of Licensee Performance (SALP) rating by the NRC staff gives the management of this group an unusually high rating for its performance. We found no reason to question the experience, training, or capability of the personnel who will be responsible for operating Unit 2.

In the ACRS report, dated November 6, 1984, the Committee mentioned that a probabilistic risk assessment (PRA) had been performed for Unit 1. The Applicant now has its own staff of PRA practitioners who, with some outside assistance, have not only revised the PRA for Unit 1 to reflect changes in the plant and in operating practices, but have also performed a PRA for Unit 2. Among changes that have taken place since the earlier PRA was per-

formed are the installation of vents for the containments of both units and the adoption of Revision 3 of the Boiling Water Reactor Emergency Procedure Guidelines. The PRA group, in a 1988 update, reports a calculated core damage frequency of 6.69E-6 per year for each unit. This is slightly less than half that calculated when the original PRA was performed. It should be noted that this does not include any contribution from seismic events which have been a significant contributor in other contemporary PRAs. It appears that the Applicant's organization is using the insights from PRA in training and in planning their maintenance program. They intend to use these insights also in the formulation of their accident management program.

In the course of preparing the organization and plant for operation, the Applicant performed a Readiness Program Assessment "to assess the adequacy of existing licensee programs and processes," and retained a contractor to perform a Readiness Verification Program to provide "a comprehensive integrated process to assess the design, construction, and operational aspects of Unit 2." The NRC staff then reviewed both of these assessments. Both the Applicant and the NRC staff reported that these reviews provided convincing evidence that the plant is ready for startup.

In the ACRS report, dated November 6, 1984, the Committee recommended also that Unit 1 receive special attention in the NRC staff's resolution of the unresolved safety issue (USI) on systems interactions. We recommended also that special attention be given to the identification of any risk outliers associated with seismic events. These issues are being dealt with generically.

Limerick Unit 1 has had some difficulty with corrosion of fuel cladding; however, this does not appear to be a serious safety problem. The Applicant proposes some changes in plant equipment and operating procedures which should make the corrosion less likely. Although some insights appear to have been developed that may make the problem less severe or perhaps even eliminate it, the results of applying these insights are not yet available.

For the past several years, it has been standard NRC practice to require extended periods of plant operation at very low power before approving operation at full power. Presumably, this has been done in the belief that it is safer than going more directly to higher power operation. It appears that if Limerick 2 is approved for full power operation, the Commission will require several months of operation at less than full power and that probably two months of this will be at about five percent of full power. However, we have yet to find anyone on the staff who has done or who knows of any systematic attempt to investigate whether there are any negative effects associated with this practice. Certainly, the units are not designed for extended operation at, for example, five percent of full power. And at least one licensee representative recently referred to operation at five percent of full power as being "uneasy," although he did not believe there was anything unsafe about it. We have no evidence that it is unsafe, but do know of instances in which operation at low flow has produced excessive wear in check valves and in which operation at low power has produced excessive vibration in a feedwater pump not designed for extended operation at low flow. Our principal concern stems from the memory that the operators of the Chernobyl plant, Unit 4, were unaware of the dangers of operation at low power, whereas a careful analysis would have convinced them that this was undesirable. It appears to us that if

the practice of extended operation at low power is to be continued, some systematic search for possible harmful effects should be performed.

We believe that, subject to satisfactory completion of construction and preoperational testing, there is reasonable assurance that the Limerick Generating Station, Unit 2, can be operated at power levels up to 3293 MWt without undue risk to the health and safety of the public.

Mr. James C. Carroll did not participate in the Committee's review of this matter.

Sincerely,

Forrest J. Remick
Chairman

References:

1. U.S. Nuclear Regulatory Commission, Region I, Systematic Assessment of Licensee Performance Board Report, Philadelphia Electric Company, Limerick Generating Station, Unit 2, Inspection Report 50-353/87-99, February 22, 1989
2. U.S. Nuclear Regulatory Commission, NUREG-0991, Supplement No. 7, "Safety Evaluation Report Related to the Operation of Limerick Generating Station, Units 1 and 2," April 1989
3. Letter dated January 23, 1989 from Gus C. Lainas, U.S. Nuclear Regulatory Commission, to G. A. Hunger, Jr., Philadelphia Electric Company, Subject: Inspection of Independent Construction Assessment, Limerick Generating Station, Unit 2; Inspection Report Number 50-353/88202
4. Public Statements provided during the April 25, 1989 meeting of the ACRS' Limerick 2 Subcommittee from the following:
    a. Marvin I. Lewis, Limerick Ecology Action
    b. Richard Myers, Citizens' League for Energy Awareness and Resources
    c. Ruth Miner, Citizens for Environmental Rights
    d. Emanuel Mendelson, Citizens for Environmental Rights
    e. Phyllis Gilbert, Sierra Club, Philadelphia, Pennsylvania

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