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November 13, 1985

Honorable Nunzio J. Palladino
Chairman
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Dear Dr. Palladino:

SUBJECT: ACRS REPORT ON BEAVER VALLEY POWER STATION, UNIT 2

During its 307th meeting, November 7-9, 1985, the Advisory Committee on Reactor Safeguards reviewed the application of Duquesne Light Company (Applicant), acting on behalf of itself and as agent for Ohio Edison Company, The Cleveland Electric Illuminating Company, and The Toledo Edison Company, for a license to operate the Beaver Valley Power Station, Unit 2. The ACRS commented on the construction permit application for the Beaver Valley Power Station, Unit 2 in a report dated December 11, 1973. Members of the ACRS Subcommittee on Beaver Valley toured the facility on October 31, 1985 and met in Coraopolis, Pennsylvania on November 1, 1985 to discuss the application. During our review, we had the benefit of discussions with representatives and consultants of the Applicant, Stone and Webster Engineering Corporation (SWECO), Westinghouse Electric Corporation, and the NRC Staff. We also had the benefit of the documents referenced.

Beaver Valley, Unit 2 is adjacent to Beaver Valley, Unit 1 and the Shippingport Atomic Power Station (the latter terminated operations in 1982 and is scheduled for decommissioning by the Department of Energy).

Beaver Valley, Unit 1 uses a three-loop pressurized water reactor (PWR) supplied by Westinghouse with a net output of 810 MWe; it was licensed to operate in January 1976. Beaver Valley, Unit 2 is similar in design to Unit 1 with a number of improvements and will also use a three-loop PWR with a net output of 836 MWe. SWECO is the architect-engineer-constructor for both units. Construction of Unit 2 is about 90 percent complete and the Applicant currently estimates the fuel load date to be April 1987.

The reinforced concrete containment is maintained during normal operation at a subatmospheric pressure. The containment depressurization systems are designed to reduce the containment temperature and return the containment pressure to a subatmospheric level following a break in either the primary or secondary system piping within the containment.

Redundancy and diversity in the feedwater systems for Unit 2 are provided by two electric motor driven main feedwater pumps, each capable of providing 60 percent of the feedwater flow required for full power operation, two electric motor driven auxiliary feedwater pumps of 50 percent of required capacity each, and one steam turbine driven auxiliary feedwater pump with 100 percent of required capacity. In addition,

Unit 2 has one electric motor driven start-up pump that will provide 30 percent of the feedwater flow required for full power operation.

The Applicant has extensive nuclear power plant operating experience and plans to utilize experienced personnel from Unit 1 to fill key positions in staffing Unit 2. The Applicant appears to have an effective training program which utilizes a control room simulator specific to Unit 1 and a control board "mock-up" specific to Unit 2 for training Unit 2 personnel. Considering the similarity between Unit 1 and Unit 2 and the associated control boards, we believe that the plant staff can be successfully trained by the Applicant.

During our meeting, the NRC Staff identified a number of open issues that must be resolved prior to the granting of an operating license. We believe that these issues can be resolved in a manner satisfactory to the NRC Staff. We wish to be kept informed.

The Applicant stated that a review of the plant will be conducted in order to assure that there are no unacceptable seismically induced interactions between nonsafety equipment and safety-related systems.

Seismic Category 1 structures (including buried piping) at this plant have been designed for an SSE corresponding to a peak horizontal ground acceleration of 0.125g at the ground surface. The Committee recommends that the Applicant evaluate the seismic capability of the emergency AC power supplies, DC power supplies, and small equipment such as actuators and instrument lines that are part of the decay heat removal system to assure that adequate safety margins exist.

The potential for overflowing the steam generators and the satisfactory accommodation of the consequential effects remains unanswered. The NRC Staff has been working with the Applicant to determine the ability of the instrumentation and control systems to prevent steam generator overflow. However, the capability of the main and auxiliary steam lines to accommodate the consequential effects from overflowing the steam generators from any cause, such as instrumentation failures, steam generator tube ruptures, etc., has not been fully addressed. We recommend that these somewhat interrelated matters receive further study by the licensee and the Staff. We recognize that USI A-47, "Safety Implications of Control Systems," addresses some aspects of this matter; however, there are additional issues which require resolution. We wish to be kept informed.

The licensee is embarking on an evaluation of alternate pipe rupture protection for the balance of plant beyond the primary system (that is, the application of the leak-before-break criterion to evaluate the need for pipe whip restraints). This is a departure from previous practice and could have benefits, but it must be considered carefully. We wish to be briefed on this program before implementation.

We believe that, subject to the resolution of open items identified by the NRC Staff and the items mentioned above, and subject to the satisfactory completion of construction, staffing, and preoperational testing, there is reasonable assurance that the Beaver Valley Power Station, Unit 2 can be operated at power levels up to 2652 MWT without undue risk to the health and safety of the public.

Sincerely,

David A. Ward
Chairman

References:

1. Duquesne Light Company, "Final Safety Analysis Report, Beaver Valley Power Station, Unit 2," with Amendments 1-10
 2. U. S. Nuclear Regulatory Commission, "Safety Evaluation Report Related to the Operation of Beaver Valley Power Station, Unit 2," USNRC Report NUREG-1057, dated October 1985
 3. Undated letter from a member of the public regarding Beaver Valley Nuclear Power Station, Unit 2
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