2NRC-4-086
June 20, 1984

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United States Nuclear Regulatory Commission
Washington, DC 20555

ATTENTION: Mr. George W. Knighton, Chief
Licensing Branch 3
Office of Nuclear Reactor Regulation

SUBJECT: Beaver Valley Power Station - Unit No. 2
Docket No. 50-412
Open Item/Response

Gentlemen:

This letter forwards responses to the issues listed below. The following items are attached:

Attachment 1: Response to Outstanding Issue 56 of the Beaver Valley Power Station Unit No. 2 Draft Safety Evaluation Report.

Attachment 2: Response to Outstanding Issue 59 of the Beaver Valley Power Station Unit No. 2 Draft Safety Evaluation Report.

Attachment 3: Response to Outstanding Issue 60 of the Beaver Valley Power Station Unit No. 2 Draft Safety Evaluation Report.

Attachment 4: Response to Outstanding Issue 62 of the Beaver Valley Power Station Unit No. 2 Draft Safety Evaluation Report.

Attachment 5: Response to Outstanding Issue 75 of the Beaver Valley Power Station Unit No. 2 Draft Safety Evaluation Report.

Attachment 6: Response to Outstanding Issue 103 of the Beaver Valley Power Station Unit No. 2 Draft Safety Evaluation Report.

DUQUESNE LIGHT COMPANY

By E. J. Woolever
E. J. Woolever
Vice President

KAT/wjs
Attachments

cc: Ms. M. Ley, Project Manager (w/a)
Mr. E. A. Licitra, Project Manager (w/a)
Mr. G. Walton, Resident Inspector (w/a)

SUBSCRIBED AND SWORN TO BEFORE ME THIS 20th DAY OF June, 1984.
Anita Elaine Reiter
Notary Public

ANITA ELAINE REITER, NOTARY PUBLIC
ROBINSON TOWNSHIP, ALLEGHENY COUNTY
MY COMMISSION EXPIRES OCTOBER 20, 1986

B001
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COMMONWEALTH OF PENNSYLVANIA)
) SS:
COUNTY OF ALLEGHENY)

On this 20th day of June, 1984, before me, a Notary Public in and for said Commonwealth and County, personally appeared E. J. Woolever, who being duly sworn, deposed and said that (1) he is Vice President of Duquesne Light, (2) he is duly authorized to execute and file the foregoing Submittal on behalf of said Company, and (3) the statements set forth in the Submittal are true and correct to the best of his knowledge.

Anita Elaine Reiter
Notary Public

ANITA ELAINE REITER, NOTARY PUBLIC
ROBINSON TOWNSHIP, ALLEGHENY COUNTY
MY COMMISSION EXPIRES OCTOBER 20, 1986

ATTACHMENT 1

Response to Outstanding Issue 56 of the
Beaver Valley Power Station Unit No. 2
Draft Safety Evaluation Report

Draft SER Section 7.2.2.6: NUREG-0737 Item II.K.3.12, "Anticipatory Reactor Trip on Turbine Trip"

As stated above, the design includes an anticipatory reactor trip on turbine trip. The staff has reviewed the design for conformance to BTP ICSB-26 and has identified the following concerns:

(1) The 4/4 logic, although redundant in each RPS train, has four input channels developed from position switch contacts on the four turbine stop valves. The installation of the stop valve position contacts and their cable routing to the RPS input cabinets do not preclude a single failure from preventing either train from performing its safety function.

(2) The sensors and stop valve contacts are not qualified to operate in a seismic event.

This item is open pending staff review of the applicant's response.

Response:

This item was the subject of a conference call among Westinghouse (W), Duquesne Light Company (DLC), and the Nuclear Regulatory Commission (NRC) staff on January 9, 1984. The basis for the standard W design was described at the time and was further documented in DLC letter 2NRC-4-013 of February 21, 1984. The concern about seismic qualification of sensors and stop valve contacts is addressed by the same rationale.

ATTACHMENT 2

Response to Outstanding Issue 59 of the
Beaver Valley Power Station Unit No. 2
Draft Safety Evaluation Report

Draft SER Section 7.3.3.4: SWS Isolation on Low Header Pressure

During the staff's review of the SWS, it was noted that on low service water system header pressure the service water system is isolated from the secondary component cooling water heat exchangers and the standby service water pump is automatically started. There is little information in FSAR Section 7 on this circuitry and the FSAR does not provide a design basis for this system. Therefore, the staff requests that sufficient information be provided for its review and, if this isolation has safety significance, that information be provided in the appropriate section of the FSAR. This is an open item.

Response:

The design basis for the standby service water pumps is provided in Section 9.2.1.2.1. As stated in Item 10 of that section, the controls are designed in accordance with IEEE Standard 279-1971. Control of the standby service water pump is described in Section 9.2.1.2.5.

Isolation of the secondary component cooling water heat exchanger is required to meet General Design Criteria 44, as described in Section 9.2.1.1.1, Item 4c. In addition, the isolation logic is designed to prevent spurious operation by a transmitter failure because isolation of secondary component cooling water would require a turbine trip. To accomplish this, a two-out-of-two logic has been used. With this logic, a single failure will neither prevent isolation of at least one service water train when low pressure exists in both headers nor cause isolation when no low pressure exists. When low pressure exists in only one header, a single failure could prevent isolation, but isolation is not required because the other header remains fully operable.

ATTACHMENT 3

Response to Outstanding Issue 60 of the
Beaver Valley Power Station Unit No. 2
Draft Safety Evaluation Report

Draft SER Section 7.3.3.5: Normal Letdown Line Relief Valve

The staff raised a concern that the relief valve located on the letdown line would relieve primary coolant to the pressurizer relief tank if the isolation valves inside containment did not close on a containment isolation signal (while the isolation valve outside containment did close) or if the outside containment isolation valve failed closed. The staff considers this an open issue subject to its review of the applicant's response.

Response:

The failure of inside containment isolation valve to close upon demand of a safety signal presupposes a single random failure and may result in reactor coolant discharging to the pressurizer relief tank (PRT) via the relief valve. Such discharge would be dependent upon the upstream isolation valves failing to close, and the pressure differential within the letdown line. Given the failure of the upstream valves, containment isolation is accomplished by the automatic closure of outside containment isolation which receives the same safety signal as the inside containment valve.

The upstream isolation valves close automatically upon pressurizer low level. Additionally, as the valves are air-operated, fail closed, the letdown line would be isolated upon loss of instrument air.

In the remote probability that the letdown line not be isolated, however, the letdown flow rate via the relief valve to the PRT would not exceed the normal letdown flow rate. Following closure of the outside containment isolation valve, the pressure in the letdown line upstream of the valve would increase to that of the relief valve setpoint (600 psi nominal). This increase in pressure decreases the pressure drop across the letdown orifice(s), resulting in decreased letdown flow.[1]

The loss of coolant through the unisolated letdown line does not affect the reactor coolant system heat removal capability nor would it significantly affect the amount of coolant within the system (even if safety injection had not been initiated). Consequently, core integrity is maintained and 10CFR50 Appendix K limits are not exceeded. The radiological effects external to the containment for letdown routed to the PRT would be trivial and bounded by effects analyzed for a break in the letdown line outside containment. The radiological effects external to the containment have been calculated for letdown spilling outside the containment (see FSAR Section 15.6.2). The analyses show that for 30 minutes of unisolated letdown flow, the resulting doses are only a small fraction of 10CFR100 limits.

[1]This assumes no corresponding increase in RCS pressure. Should the initiating event result in increased RCS pressure, say to the safety valve setpoint, the inlet pressure to the orifice(s) would increase. In any event, the combined effect of increasing the pressure upstream and downstream of the orifice(s) would result in a letdown flow rate only approaching that of the normal letdown flow rate.

ATTACHMENT 4

Response to Outstanding Issue 62 of the
Beaver Valley Power Station Unit No. 2
Draft Safety Evaluation Report

Draft SER Section 7.3.3.7: Main Feedwater Isolation (excerpt)

The staff has expressed concern that the lack of redundancy for protective action initiated by low T_{avg} coincident with reactor trip may be a safety-significant issue and, therefore, considers this an open item.

Additionally, FSAR Figures 7.2-1 (Sheet 13) an 7.3-18 do not agree with the information provided by the applicant. The staff considers the revision of these FSAR figures to agree with the final design to be a confirmatory item.

Response:

Main feedwater isolation (trip of all feedwater pumps and closure of all feedwater isolation valves) is initiated by either a safety injection signal or the presence of a P-14 permissive signal. Permissive P-14 represents the presence of hi-hi-steam generator water level signals in at least two of the three channels in any loop. all of this is designed to be redundant. A low T_{avg} signal in at least two of the three reactor coolant loops in coincidence with permissive P-4, reactor trip, will close the feedwater main valves. This is not redundant.

Nowhere in the FSAR Chapter 15 safety analysis is feedwater assumed to be isolated by closure of the main feedwater valves initiated by a low T_{avg} signal in coincidence with P-4. Feedwater is isolated only by either a safety injection signal or a hi-hi steam generator water level (P-14) signal.

Since this method of feedwater isolation (low T_{avg} in coincidence with reactor trip) is not assumed in FSAR Chapter 15, it is not necessary for safety and therefore not required to be redundant.

ATTACHMENT 5

Response to Outstanding Issue 75 of the
Beaver Valley Power Station Unit No. 2
Draft Safety Evaluation Report

Draft SER Section 7.7.2.1: NUREG-0737, Item II.K.3.9, "Proportional Integral Derivative (PID)"

FSAR Section 1.10 states that this item is not applicable because the hardware is not installed at BVPS-2. However, FSAR Figure 7.7-4 shows the PID controller is part of the plant's pressurizer pressure control system. Until this conflict is resolved, the staff considers this an open item.

Response:

The PID controller modification, for BVPS-2 to address NUREG-0737 Item II.K.3.9, has been to change the derivative action setting to zero, thereby eliminating it from consideration. FSAR Table 1.10-1 will be changed to clarify the statement on II.K.3.9.

ATTACHMENT 6

Response to Outstanding Issue 103 of the
Beaver Valley Power Station Unit No. 2
Draft Safety Evaluation Report

Draft SER Section 15.6.3: Steam Generator Tube Rupture

The evaluation of the "GTR accident provided by the applicant in response to review . stions 450.8, 9, and 10 has not demonstrated the capability to mitig.te SGTR events. Operator actions and system performance will have to be further evaluated to complete our review. Therefore, we consider this to be an open item for this draft SER.

Response:

DLC is a member of the Westinghouse Owners Steam Generator Tube Rupture Subgroup. This subgroup has been formed to determine operator response times following a steam generator tube failure which can be supported by existing data on the application of approved standards. The subgroup met with the NRC on February 24, 1984, to discuss the program and initial results (see 3/7/84 letter from Victor Nerses). The subgroup is currently considering the concerns raised by the NRC at that meeting. DLC is planning to utilize the applicable results of the WOG subgroup work when it is available.