



Duquesne Light

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September 13, 1985

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
Request for Additional Information - Post-Fire Safe Shutdown
Capability

REFERENCES: 1. NRC letter to DLC, dated June 18, 1985
2. 2NRC-5-116, August 7, 1985

Gentlemen:

Enclosed are responses to the two requests for additional information concerning post-fire safe shutdown capability contained in your letter dated June 18, 1985. Your letter also indicated that Duquesne Light Company (DLC) was to provide supplemental information concerning safe shutdown and alternate shutdown by the end of June 1985. DLC is not aware of any commitment that has been made to supply this information by the end of June 1985. DLC's schedule for completing the spurious signal analysis, which will resolve the open item associated with alternate and safe shutdown capability, is August 1986. If the NRC requires this information earlier to support a licensing milestone, please notify E. T. Eilmann of my staff at (412) 787-5141.

The analysis discussed in the response to Item 2 of your letter is still in progress. A supplement to this response will be submitted at the completion of this analysis.

SUBSCRIBED AND SWORN TO BEFORE ME THIS
13 DAY OF September, 1985.

Sheila M. Fattore
Notary Public

SHEILA M. FATTORE, NOTARY PUBLIC
SHIPPINGPORT ROAD, BEAVER COUNTY
MY COMMISSION EXPIRES SEPT. 16, 1985
Member, Pennsylvania Association of Notaries

DUQUESNE LIGHT COMPANY

By *J. B. Carey*
J. B. Carey
Vice President

ETE/wjs
Enclosures

cc: Mr. B. K. Singh, Project Manager (w/e)
Mr. G. Walton, NRC Resident Inspector (w/e)

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COMMONWEALTH OF PENNSYLVANIA)
COUNTY OF Beaver) SS:

On this 13th day of September, 1985, before me, a
Notary Public in and for said Commonwealth and County, personally appeared
J. J. Carey, 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.

Sheila M. Fattore
Notary Public

SHEILA M. FATTORE, NOTARY PUBLIC
SHIPPINGPORT BORO, BEAVER COUNTY
MY COMMISSION EXPIRES SEPT. 16, 1985
Member, Pennsylvania Association of Notaries

RESPONSE TO ASB REQUEST FOR
ADDITIONAL INFORMATION
CONCERNING POST-FIRE SAFE SHUTDOWN

QUESTION 1:

A recent plant inspection at another facility revealed that for a fire in the control room, isolation transfer switches for certain hot shutdown systems/components had to be switched to the alternate or isolated position prior to damage occurring to these circuits. If this were not accomplished in time, fuses would have to be replaced in order to make safe shutdown system/component operable. This situation existed because the transfer switches did not place new/redundant fuses into the control power circuit, but left the existing (assumed blown) set of fuses in the circuit. For most of the transfer switches, the situation did not cause a problem since the desired effect after isolation was the de-energization of power. In other instances where the system/component had to be operable or where operation might be required to override a spurious actuation (such as a motor operated valve) replacement of fuses would be required if blown.

Although the present isolation switches at Beaver Valley Unit 2 do isolate the required equipment or component from the control room, it has not been demonstrated that it is unnecessary to replace fuses in order to place the equipment/component in the desired mode of operation or position. In order for us to conduct a review to determine if fuse replacement is necessary for the operation of a safety system after a control room fire, please provide the following:

- a. The results of your review of electrical design drawings for the existing isolation transfer switches to determine where and if this situation exists.
- b. If the Beaver Valley Unit 2 design necessitates the changing of fuses to achieve and maintain hot shutdown after a control room fire, provide modifications to existing switches and/or install new isolation switches where necessary to provide redundant fusing such that a blown fuse will not require replacement to achieve and maintain hot shutdown.

Response:

There are no plant operational requirements to replace blown fuses for the BVPS-2 transfer of control power from the main control room to the alternate shutdown panel (ASP) room in the event of any single exposure fire in any BVPS-2 fire area. As depicted in Figure A5-12 of the Fire Protection Evaluation Report (FPER), two fuses are provided for the protection of each 480V load that requires a motor starter and is controlled by either the ASP and/or the main control room. One fuse protects the leg of the circuit that has control cable routings to the main control room and its controls; the other fuse protects the leg of the ASP control circuit that allows independent transfer to the ASP. In

this manner, no single exposure fire postulated in any fire area, e.g., main control room, fire areas that adjoin main control room to ASP, and ASP room, etc., would disable the other protected leg. An explanation of the above is being added to Section 3.3.2 of the FPER to eliminate any further concerns.

RESPONSE TO ASB REQUEST FOR
ADDITIONAL INFORMATION
CONCERNING POST-FIRE SAFE SHUTDOWN

QUESTION 2:

We have a concern regarding the potential for multi-high impedance faults in AC power circuits which could result in the loss of power to safe shutdown equipment. Figure 1 contains a sketch of circuit designs which could result in the loss of needed power to safe shutdown equipment. As can be seen in Figure 1, redundant divisions of safe shutdown cables are properly separated in accordance with Appendix R criteria. However, a fire in fire area A would result in loss of Division A safe shutdown equipment and cause damage to nonsafe shutdown cables associated with the Division A bus. Further, the individual fault current resulting from the fire damage in the nonsafe shutdown cables may not be enough to trip the individual breakers (B_1 and B_2), but the sum of the faults may be sufficient to trip the main breaker (B_3). If this were to occur, the Division B bus and the corresponding redundant Division B safe shutdown would be lost. You must show that multi-high impedance faults in AC power circuits resulting from a single fire cannot result in the loss of function of any safety-related system as outlined above.

Response:

The plant electrical systems will be reviewed by means of a circuit breaker coordination study to verify that faults (both high or low impedance) within the electrical system are cleared properly. As described in Section 3.1.5 to the FPER, circuit breaker coordination studies have been performed on all 4,160 V ac and 480 V ac power switchgear (unit substations) which provide power to their respective safe shutdown circuits. The balance of the 480 V ac (motor control centers), 125 V dc and 120 V ac systems will have coordination studies completed for safe shutdown circuits.

DLC is presently investigating the spurious signal analysis which will be used in conjunction with the breaker coordination studies. The results of these analyses will be submitted to the ASB upon their completion which is scheduled for August 1986.