Duquesne Light

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June 30, 1982

Mr. Harold R. Denton
Director of Nuclear Reactor Regulation
United States Nuclear Regulatory Commission
Attn: Mr. Steven A. Varga, Chief
Operating Reactors Branch No. 1
Division of Licensing
Washington, DC 20555

Reference: Beaver Valley Power Station, Unit No. 1
Docket No. 50-334, License No. DPR-66
Fire Protection - Response to Appendix R Requirements
and Generic Letter 81-12

Gentlemen:

The Fire Protection Rule, (10 CFR 50.48) published on November 19, 1980, became effective on February 17, 1981, which required the results of certain tasks to be submitted to the Nuclear Regulatory Commission (NRC) by March 19, 1981. By letter dated March 18, 1981, we applied for exemption from some of these schedular requirements of 10 CFR 50.48(c). The exemption request related to the time allowed to:

- complete a reassessment of the fire protection features at our facility for conformance to the specific requirements of Section III.G of Appendix R to 10 CFR 50;
- to evaluate the difference determined for each area; and
- to design modifications to meet the requirements or provide justifiable basis by means of fire hazards analysis for an exemption from such requirements.

For reasons as stated in our exemption request, we requested additional time to complete the above reassessments, evaluations and designs. By letters dated December 1, 1981 and January 20, 1982, we revised our request for extension until July 1, 1982. The Commission granted our request on May 4, 1982 providing the submittal be complete as defined in the letter. The purpose of this submittal is to fulfill the requirements of 10 CFR 50.48 (c)(5) for items III.G, Fire Protection of Safe Shutdown Capability and III.L, Alternative and Dedicated Shutdown Capability, by submitting plans and schedules to comply with the requirements of 10 CFR 50.48 (c)(2), (c)(3), and (c)(4), and to demonstrate how alternative safe shutdown capability will be assured. By this submittal, Duquesne Light Company intends to demonstrate that the Appendix R objective of assuring safe shutdown capability in the event of a fire can be met without the necessity of full compliance with each provision of Appendix R. We are including requests for exemption from certain provisions of Appendix R, none of which would prevent the fulfillment of the objective or operation of the necessary safe shutdown equipment.

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Duquesne Light Company has experienced considerable difficulty interpreting the rule, understanding the conduct of the exemption process and fulfilling the Staff's documentation requirements for this regulation. These factors increased the difficulty encountered in attempting to achieve our objective of optimizing an approach to this regulation. A total of 10,600 manhours have been expended on this project to date. This does not include the engineering manhours and installation associated with Item III.J, Emergency Lighting and III.O, Oil Collection Systems for RCP's, which have already been completed, and all modifications completed as a result of 1979 BVPS fire protection Safety Evaluation Report summarized in Table 2-1 of this submittal report.

The contents of this submittal is based, in part, on the Staff's positions and perspectives advanced in its discussions with the Nuclear Utility Fire Protection Group (NUFPG) during the period December 1981 to March 1982, and reflected in the NUFPG's letter of March 16, 1982 to Richard H. Vollmer, Director, Division of Engineering, NRC. Our involvement in the NUFPG, and the interaction between the NUFPG and the NRC Staff, have led towards a mutually acceptable interpretation of the provisions of the fire protection regulations. Many of the concepts discussed between the NUFPG and the Staff have been incorporated into our evaluation process.

Generic Letter 81-12, dated February 20, 1981 from Mr. D. G. Eisenhut contained information requests associated with modifications to implement an alternative or dedicated shutdown system. Our enclosed submittal report specifically responds on a point-by-point basis to the February 20, 1981 request for those areas where modifications will be made pursuant to Appendix R.

The methodology used to evaluate and assure safe shutdown capability was to initially identify equipment and components required to achieve safe shutdown. For those fire zones where such equipment was located, an assessment as to the degree of current compliance with the Appendix R alternatives was made. Where discrepancies were identified, various alternative solutions were evaluated. An extensive computer search and analysis of all associated and non-associated circuits for those systems required for safe shutdown was conducted. The analysis compared each cable with all cables in each of the fire areas to demonstrate whether or not redundant and diverse functions are vulnerable to a fire in any given fire area. Within a vulnerable fire area, the location and functional relationship of cables was identified in order to evaluate existing separation, fire suppression and detection. Some fire zones can be readily modified to achieve compliance with Appendix R. In other instances the degree of non-conformance is such that it can be concluded that the nonconformances do not adversely affect public health and safety. In such instances an exemption is being requested and supporting justification provided. In other cases, a combination of additional fire protection improvements with a limited exemption for reasons contained in the submittal reports is used. It is our contention that for all instances where an exemption to the requirements of Appendix R is being requested, this alternative approach is justified on the basis that the maximum credible fire does not result in an inability to achieve safe shutdown.

Attached to this forwarding letter is the submittal report entitled "Fire Protection Appendix R Review, Beaver Valley Power Station - Unit No. 1".

The report contains the following chapters, as noted below, with a brief description given for each chapter:

Chapter 1 - INTRODUCTION
Provides the purpose of the report and a brief overview of the analysis performed.

Chapter 2 - HISTORICAL BACKGROUND
Reviews the history of previous fire protection analysis and also gives a summarized listing of the commitments, modifications and the present status of each in tabular form.

Chapter 3 - UNIT DESCRIPTION
Provides a description of the plant fire protection system, the power supply and electrical systems, and a fire hazards analysis and safe shutdown evaluation of each fire zone or area of the plant. The methodology employed in this section encompasses the safe shutdown capability requirements of Appendix R and the plant-specific fire hazards analysis previously conducted as part of our 1977 "Fire Protection Review and Fire Hazards Analysis" submittal report. To ensure this document submittal would stand alone, considerable detail is provided for each fire zone. Updated equipment layout drawings and configurations are provided to illustrate the fire zones, the level of protection and the interfaces with other plant areas. Table 1 of this section summarizes in tabular form, the fire zones, types of combustibles, size of the area, fire loading and the types of suppression and detection available in each area.

Chapter 4 - SHUTDOWN CAPABILITY SUMMARY
This section summarizes the equipment and components deemed necessary to achieve safe shutdown and provides a brief description of each system. Sketches are provided for each system to illustrate the basic flow paths.

Chapter 5 - ELECTRICAL ANALYSIS
This section describes the cabling and electrical raceway computer analysis that was performed for cables required for safe shutdown to determine whether or not redundant and diverse functions are vulnerable to a fire in any given fire area. The results are tabulated in the Circuit Analysis Sheets (Section 5.3). Associated circuits analysis is included in this section as defined by Section III G.2 of Appendix R and clarified by generic letter 81-12. It is intended that this comprehensive analysis will support our determinations regarding compliance to Appendix R or justification for requested exemptions.

Chapter 6 - RESOLUTION OF PROBLEM AREAS
Provided in this section are the conceptual designs of proposed modifications intended to upgrade areas/functions to achieve compliance with Appendix R. Schedules for implementation are identified in Chapter 12.

Chapter 7 - PROCEDURES

Draft shutdown procedures are provided utilizing alternative methods for operating equipment to achieve safe shutdown by use of the existing Emergency Shutdown Panel (external to the main control room), and also by operation of equipment locally. Alternate means of monitoring key instrument ..ion will be provided by a proposed portable Backup Indicating Panel. Also included are draft administrative procedures for control of transient flammable liquids and combustibles. A proposed "sample" Technical Specification on the emergency shutdown panel control and transfer circuits is also included.

Chapter 8 - IDENTIFICATION OF HIGH/LOW PRESSURE SYSTEM INTERFACES

This section identifies each high-low pressure interface that uses redundant electrically controlled devices to isolate or preclude rupture of any primary coolant boundary and the basis and justification of acceptability per Enclosure 2 of Generic Letter 81-12.

Chapter 9 - RESPONSE TO THE NRC STAFFS' GENERIC LETTER 81-12

This section was developed to provide a brief summary and cross-reference between information requested in Generic Letter 81-12 and the appropriate chapters of this report.

Chapter 10 - APPENDIX R REQUIREMENTS J AND O

Provided is a brief description of the recently installed modifications at the facility to comply with Item J - Emergency Lighting, and Item O - Reactor Coolant Pump Oil Collection System.

Chapter 11 - EXEMPTIONS

This section identifies the areas for which exemptions are requested based upon the concept of equivalent protection with justification provided. The details and information provided follows the criteria outlined in Enclosure 3 "Criteria for Evaluating Exemptions to Section III.G of Appendix R of 10 CFR 50", per Mr. W. J. Ross (NRC) letter to Mr. J. J. Carey, dated May 4, 1982.

Chapter 12 - SCHEDULE FOR COMPLIANCE

A schedule for implementation of the proposed modifications as described in Chapter 6 is provided in this section. The schedule is tabularized by plant area and denotes compliance status, requested exemptions, proposed modifications, and scheduled implementation dates.

Ten (10) copies of the attached document are being sent to the Division of Licensing.

Requested exemptions are identified in Chapter 11 of the attached submittal report and addresses on a point-by-point basis the NRC Staff Criteria for evaluating exemptions to Section III.G of Appendix R. The fire areas for which exemptions are being requested are listed below:

- Control Room (CR-1)
- Reactor Containment (RC-1)
- Blender Room (located in Primary Auxiliary Building Elev. 722)
- Pipe Tunnel, Elev. 722 (PT-1)
- Cable Tunnel (CV-3)
- Primary Auxiliary Building, Elev. 722 (PA-1G)

In accordance with 10 CFR 50.48(c)(6), and also 10 CFR 50.12(a), Duquesne Light Company (DLC) hereby requests exemption from the provisions of section III.G(2) of Appendix R for the above listed areas. The bases for these exemption requests are (1) that the existing plant configurations in conjunction with additional modifications, which DLC will make to certain of these fire areas provide equivalent protection to the public health and safety to that which would be provided by the specific requirements of Section III.G(2) of Appendix R in those areas; and (2) that, therefore, the plant modifications necessary to comply with the specific requirements of Section III.G(2) would not enhance overall facility fire protection safety. DLC believes that the existing configurations given the light fire loadings of the areas, the degree of protection already inherent in the current design, and the additional modifications planned provide protection equivalent to that which would be achieved by conformance to the requirements of Section III.G(2). Detailed technical justification for each of the fire areas for which exemptions are being requested is provided in Chapter 11 of the submittal report.

Proposed modifications are detailed in Chapter 6 of the attached submittal report with a summarized listing of the modifications and implementation schedule documented in Chapter 12. Because of the number of proposed modifications involving exemption requests, and recognizing the inter-dependency of the proposed modifications, DLC hereby requests, pursuant to 10 CFR 50.48 (c)(6) and 10 CFR 50.12, an exemption to the schedular requirements of 10 CFR 50.48 (c)(2), (c)(3), and (c)(4) pending Commission review and approval of this report. We are concerned about the possibility of initiating plant backfits without reasonable assurance as to their permanance and regulatory acceptability. Nonetheless, we are prepared to conduct discussions with the Staff to arrive at a mutually acceptable implementation plan and schedule at your earliest convenience. However, we are not planning to implement any of the modifications proposed herein without prior written NRC acceptance or approval.

Another clarification regarding the review status of the proposed modifications is that corporate reviews pursuant to 10 CFR 50.59 have not been completed. These reviews will be on-going during subsequent weeks to ensure that other aspects of facility safety will not be adversely affected by the implementation of the proposed modifications identified. Examples of this

potential where our internal reviews have yet to be completed include:

- Verification that there are no significant changes in environmental qualification profiles which could impact design temperatures, pressures, etc.

- Investigations regarding any impacts on heating, ventilation, and air conditioning requirements.

- Evaluations regarding any changes to other analyses including high energy pipe break, internally generated missiles, etc.

- Verification that the seismic design is not adversely affected by any of the proposed modifications.

- Verification that system testing and maintainability are not compromised by any of the proposed modifications.

These internal reviews are in progress and have been factored into the implementation schedule intended to support planned interactions with the Staff such that these reviews will not delay resolution of this issue.

It is reiterated, however, that prior written NRC acceptance or approval is requested prior to initiating implementation of the modifications proposed.

There exists the possibility that, during the detailed design phase of the proposed modification program described in this submittal, DLC may discover facts which are not currently ascertainable and which may dictate a course of action different from that proposed in this submittal. DLC, therefore, reserves the right to seek further exemptions from the technical requirements of Sections III.G and III.L of Appendix R should later discovered facts and circumstances warrant such action.

Our staff is available to discuss the enclosed report at your earliest convenience. Should you have any questions concerning the Appendix R submittal report, please call my office.

Very truly yours,

J. J. Carey

J. J. Carey
Vice President, Nuclear

cc: Mr. W. M. Troskoski, Resident Inspector
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COMMONWEALTH OF PENNSYLVANIA)
) SS:
COUNTY OF BEAVER )

On this 24th day of June, 1982, before me, Sheila M. Fattore 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, information and belief.

Sheila M. Fattore

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

DOCKET NO. 50-334
LICENSE NO. DPR-66

# FIRE PROTECTION APPENDIX R REVIEW

## BEAVER VALLEY POWER STATION UNIT 1

## DUQUESNE LIGHT COMPANY