

# Duquesne Light Company

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January 24, 1992

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U. S. Nuclear Regulatory Commission  
Attn: Document Control Desk  
Washington, DC 20555

**Subject: Beaver Valley Power Station, Unit No. 1  
Docket No. 50-334, License No. DPR-66  
Conformance To Regulatory Guide 1.97 (TACM75944)**

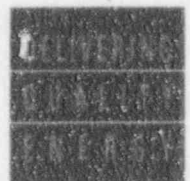
- Reference:
1. NRC Letter to Duquesne Light Company, Emergency Response Capability - Conformance to Regulatory Guide 1.97 (TACM75944), dated December 30, 1991
  2. NRC Letter to Duquesne Light Company, Combined Inspection Report Nos. 50-334/89-25 and 50-412/89-23, dated February 7, 1990.

Reference 1 transmitted the Supplemental Safety Evaluation (SSE) related to the conformance of the Beaver Valley Power Station Unit No. 1 (BVPS-1) to Regulatory Guide (RG) 1.97. This letter addresses the NRC request in the SSE concerning the steam generator wide range level (SGWRL) instrumentation and provides corrective actions for the related items in the NRC inspection report transmitted by Reference 2.

Duquesne Light Company (DLC) proposes to upgrade the SGWRL instrumentation as described below. The upgrade includes the installation of additional level recorders in the control room and electrical isolation devices. DLC is proceeding with the design change package (DCP) for this upgrade and is planning to perform the channel modifications during the ninth refueling outage (9R) which is projected to begin in February, 1993. The schedule is tentative because the DCP is in its preparation stage and the lead time for procurement of qualified equipment has not been determined.

The scope of the DCP is described in the following responses.

A003



Description of Deviation A1 (Reference 2)

"A. RG 1.97 revision 3, Table 1, Category 1 Design and Qualification Criteria for instrumentation, Section 2 (Redundancy) states, in part, that: "No single failure within either the accident monitoring instrumentation, its auxiliary supporting features, or its power sources concurrent with the failures that are a condition or result of a specific accident should prevent the operators from being presented the information necessary for them to determine the safety status of the plant and to bring the plant to and maintain it in a safe condition following an accident." Section 9 (Interfaces) states, in part, that: "The transmission of signals for other use should be through isolation devices that are designated as part of the monitoring instrumentation and that meet the provisions of this document."

1. Contrary to Section 2 above on December 8, 1989 it was determined that separate indicators were not provided for the three post-accident instrument channels monitoring the Unit 1 Steam Generator Level-Wide Range variable."

Response

DLC plans to install in the control room a separate Quality Assurance (QA) Category 1 recorder for each SGWRL channel.

Description of Deviation A2 (Reference 2)

- "2. Contrary to Section 9 above, on December 8, 1989, it was determined that the installed instrumentation for the Unit 1 Steam Generator Level-Wide Range does not have an isolation device between the instrument loops and the common strip chart three-pen recorder for transmitter channels FW-477, and FW-497."

Response

Because of the modifications indicated in the response to A.1 above, the common strip chart three-pen recorder will no longer be in the loops.

Item (2) of the NRC Conclusion to the SSE (Reference 1)

"Based on the staff's review, we find that (1) the BVPS-1 design is acceptable with respect to conformance to RG 1.97, Revision 2, for the instrumentation associated with containment isolation valve position indication, and (2) the BVPS-1 design is not acceptable for instrumentation associated with wide range steam generator level. DLC should modify the wide range steam generator level instrumentation to ensure conformance with the RG 1.97 redundancy and single failure criterion for Category 1 instrumentation."

Response

DLC proposes to upgrade the SGWRL instrumentation as follows:

- Perform the modifications to resolve the Deviations A.1 and A.2 above.
- Isolate each SGWRL instrument loop from its respective computer inputs with a QA Category 1, Class 1E isolation device.
- Ensure that the SGWRL recorders and their associated power supplies are QA Category 1, Class 1E components.
- Isolate each SGWRL instrument loop from the common indicating meter in the auxiliary feedwater pump room or remove the common meter from the loops.

The above modifications will result in the following:

- Display redundancy for the SGWRL loops in the control room.
- Computer system isolation from the SGWRL loops (will be available for channel backup in the event of power supply failures to the recorders).
- Assurance that the SGWRL instrumentation channels are electrically isolated from associated non-1E or common components in the loops.

In addition, as noted in our previous submittal of December 18, 1989, that the use of the narrow range steam generator level indication was accepted in the Appendix "R" safety evaluation report dated January 5, 1983; i.e., separation for fire related scenarios does not utilize SGWRL signals, and that the signal cables for the SGWRL instrumentation are routed in a common neutral tray according to the original design basis of the plant. As stated in the UFSAR Section 7.5.2 "No automatic protection or control functions are provided by these channels." In Reference 2, it was acknowledged that the BVPS-1 design predated RG 1.75. However, we believe that the proposed modifications and the rating of the cabling (300 volts and 20 amps for its service condition of 45 VDC and 20 Ma) further reduces the likelihood of electrically induced faults.

Finally, the BVPS-1 power operated relief valves (PORV's) for the reactor coolant system (RCS) pressurizer (PRZR) provide a PORV flow to power ratio in excess of 140 lbm/hr/Mwt for any two PORV's. The background information for the function restoration procedure in response to loss of secondary heat sink states the following:

"As steam generator dryout occurs, an increase in RCS pressure and temperature results in the opening of the pressurizer PORVs. Thus, for high pressure plants with a PORV flow to power ratio greater than 140 (lbm/hr/Mwt, an alternate symptom for successful initiation of bleed and feed is increasing RCS pressure and temperature or pressure greater than or equal to 2335.PSIG (PRZR PORV set pressure)."

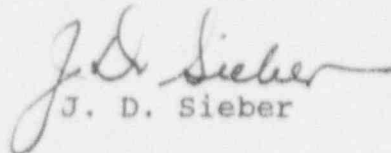
Therefore, even if multiple failures are assumed leading to a loss of secondary heat sink including the loss of the SGWRL instrumentation, the operator would have information available to proceed to the feed and bleed mode of operation. The RCS pressure is available in the control room and on instrumentation qualified to the Category 1 criteria of RG 1.97.

Based on the above described modifications to upgrade the SGWRL instrumentation and the availability of alternate instrumentation for the loss of secondary heat sink, we believe that the level of qualification of the SGWRL instrumentation should be acceptable for its intended use.

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Should you have any questions regarding this submittal, please contact E. D. Coholich at (412) 393-5224.

Sincerely,

  
J. D. Sieber

cc: Mr. J. Beall, Sr. Resident Inspector  
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