Station Support Department

10CFR50.90

PECO ENERGY

PECO Energy Company
Nuclear Group Headquarters
965 Chesterbrook Boulevard
Wayne, PA 19087-5691

May 2, 1994

Docket Nos. 50-277
50-278
License Nos. DPR-44
DPR-56

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

Subject: Peach Bottom Atomic Power Station, Units 2 and 3
Response to Request for Additional Information
Regarding Power Rerate Request dated
March 29, 1994 (RAI-2)

Dear Sir:

Attached is our response to your Request for Additional Information (RAI) dated March 29, 1994 regarding our planned implementation of the Power Rerate Program at Peach Bottom Atomic Power Station (PBAPS), Units 2 and 3. The Power Rerate Program was the subject of Technical Specification Change Request (TSCR) 93-12 which was forwarded to you by letter dated June 23, 1993.

If you have any questions, please contact us.

Very truly yours,

G. A. Hunger, Jr.

G. A. Hunger, Jr., Director
Licensing

cc: T. T. Martin, Administrator, Region I, USNRC
W. L. Schmidt, USNRC Senior Resident Inspector, PBAPS

A001

COMMONWEALTH OF PENNSYLVANIA :

: ss.

COUNTY OF CHESTER :

W. H. Smith, III, being first duly sworn, deposes and says:

That he is Vice President of PECO Energy Company; the Applicant herein; that he has read the enclosed response to the NRC Request for Additional Information dated on March 29, 1994, concerning Technical Specifications Change Request (Number 93-12) for Peach Bottom Facility Operating Licenses DPR-44 and DPR-56, and knows the contents thereof; and that the statements and matters set forth therein are true and correct to the best of his knowledge, information and belief.

William H. Smith III
Vice President

Subscribed and sworn to
before me this 2nd day
of May 1994.

Erica A. Santon
Notary Public

Notarial Seal
Erica A. Santon, Notary Public
Tredyffrin Twp., Chester County
My Commission Expires July 10, 1995

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RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION (RAI-2)
PEACH BOTTOM ATOMIC POWER STATION, UNITS 2 AND 3

Question A:

Your submittal for power uprate does not discuss the instrument setpoint methodology. The staff is unable to determine whether the General Electric Co. (GE) setpoint methodology discussed in GE Topical Report NEDC-31336 was used, or a plant-specific setpoint methodology was used for this application.

Response A:

Section 5.1.2, "Instrument Setpoints", of NEDC-32183P, "Power Rerate Safety Analysis Report for Peach Bottom 2 &3," dated May, 1993, discusses the instrument setpoints effected by the Power Rerate Program. Changes to instrument setpoints discussed in Section 5.1.2 were determined using either the General Electric Company (GE) instrument setpoint methodology discussed in NEDC-31336, "General Electric Instrument Setpoint Methodology," dated October, 1986, or the PECO Energy instrument setpoint methodology. The PECO Energy instrument setpoint methodology is consistent with the GE instrument setpoint methodology as described below.

The Reactor Pressure Vessel (RPV) High-Pressure Scram, RPV High-Pressure Recirculation Pump Trip (RPT), Neutron Monitoring System (Flow-biased Average Power Range Monitor (APRM) Rod Block and APRM High Flux Scram), and Main Steam High Flow Isolation instrument setpoints were determined by plant specific calculations using the GE instrument setpoint methodology. The analytical limits for these setpoints are provided in Table 5-1 of NEDC-32183P. The Safety/Relief Valves and Main Steamline High Radiation Scram are based on qualitative discussions provided in Section 5.1.2 of NEDC-32183P and are consistent with GE instrument setpoint methodology.

The Turbine Stop Valve Closure and Turbine Control Valve Fast Closure Scram Bypass setpoint was determined using the PECO Energy instrument setpoint methodology. The analytical limit for this setpoint is provided in Table 5-1 of NEDC-32183P.

The PECO Energy and GE setpoint methodologies were not used in establishing the Pressure Regulator setpoint which is a controller setting adjusted by the Reactor Operator to maintain turbine inlet pressure within its required operating range. This setpoint was developed as described in Section 5.1.2 of NEDC-32183P.

Question B:

If a plant-specific setpoint methodology was used, then provide the following information:

1. Discuss your setpoint methodology. Include a discussion on how it differs from NEDC-31336.

2. The calculations and related documents that were used to derive the new trip setpoint and allowable values for the following parameters:

   a. reactor vessel steam dome pressure, high
   b. flow biased simulated thermal power, high
   c. main steam line flow, high.

Response B:

1. The PECO Energy instrument setpoint methodology is consistent with the GE instrument setpoint methodology discussed in NEDC-31336. When computational techniques are employed, an instrument setpoint and allowable value are determined from the analytical limit or design limit. The instrument setpoint is determined from the analytical limit or design limit by combining the instrument channel uncertainties such as accuracy (e.g., reference accuracy, pressure effects, temperature affects, radiation effects, etc.), process measurement accuracy (PMA), primary element accuracy (PEA), instrument drift, calibration accuracies and other uncertainties, as appropriate. The allowable value is determined from the analytical limit or design limit by combining the instrument channel uncertainties such as accuracy (e.g., reference accuracy, pressure effects, temperature affects, radiation effects, etc.), PMA, PEA, calibration accuracies and other uncertainties, as appropriate. The specific uncertainties and the environmental and process conditions utilized in establishing the instrument setpoint and allowable value are based on the design, application, functional and calibration requirements of the instrument channel. Independent, random components of uncertainty are combined by the Square Root Sum of the Squares and adjusted for single side of interest when appropriate. Bias components of uncertainty are algebraically combined. Dependent components of uncertainty are combined according to the characteristics of the dependency.

   The PECO Energy instrument setpoint methodology was developed to be applied to a broad scope of instrument setpoints and maintains consistency with the GE instrument setpoint methodology. The significant differences between the GE instrument setpoint methodology and the PECO Energy instrument setpoint methodology are discussed below.

A. As described in NEDC-31336, analytical limits are established for setpoints that are directly associated with abnormal plant transients or accidents analyzed in the Peach Bottom Atomic Power Station (PBAPS) Updated Final Safety Analysis Report (UFSAR). Consequently, not all instrument setpoints have an associated analytical limit. The PECO Energy instrument setpoint methodology defines a design limit that can be used for instrument setpoints that are not directly associated with abnormal plant transients or accidents analyzed in the UFSAR but are determined using the computational techniques discussed above. A design limit is established to prevent undesirable conditions, such as equipment damage or spurious trip/initiation signals. Instrument setpoints, and allowable values as appropriate, can then be determined from the design limit.

B. The PECO Energy instrument setpoint methodology identifies the potential for dependent components of uncertainty and describes combining these components of uncertainty according to the characteristics of the dependency, which is not discussed in the GE methodology.

C. The PECO Energy instrument setpoint methodology does not specifically perform the spurious trip avoidance and licensee event report avoidance tests included in NEDC-31336.

2. As discussed above, the RPV High-Pressure Scram, RPV High-Pressure RPT, Neutron Monitoring System (Flow-biased APRM Rod Block and APRM High Flux Scram), and Main Steam High Flow Isolation instrument setpoints were determined using the GE instrument setpoint methodology.

Question C:

If the GE setpoint methodology is used, then provide the following information:

1. Provide a statement indicating that you used the GE topical report.

2. The staff's Safety Evaluation Report (SER) on GE Topical Report NEDC-31336 identified certain plant-specific information needed to justify the application of the report. Provide a discussion regarding the applicability of the topical report.

3. Confirm that the calculation for the instrument setpoint is identical to that used by the plant on which the topical report is based. If not, then justify the differences.

Response:

1. The RPV High-Pressure Scram, RPV High-Pressure RPT, Neutron Monitoring System (Flow-biased APRM Rod Block and APRM High Flux Scram), and Main Steam High Flow Isolation instrument setpoints were determined by plant specific calculations using the GE instrument setpoint methodology discussed in NEDC-31336. The Safety/Relief Valves and Main Steamline High Radiation Scram instrument setpoints are based on qualitative discussions provided in Section 5.1.2 of NEDC-32183P and are consistent with GE instrument setpoint methodology.

2. The Safety Evaluation Report for NEDC-31336 identifies certain plant-specific information needed to justify the applicability of NEDC-31336 to individual plants.

   The instrument setpoints listed in Response C. 1 above were determined using plant specific analysis consistent with NEDC-31336. This plant specific information includes analyses which address instrumentation, environments, seismic conditions, and other requirements, as appropriate.

   The Safety Evaluation Report for NEDC-31336 identifies plant-specific information needed for plants that have safety relief valves that vent directly into containment or use instruments that are different from those presented in NEDC-31336. The plant specific calculations for Peach Bottom Atomic Power Station, Units 2 and 3 address the environmental effects on instrument accuracy and process measurement for the environments expected for the time that the specific trip functions are required. For PBAPS, Units 2 and 3, the instruments used to generate the trip functions listed in Response C.1 above are similar to the instruments used for the same trip functions evaluated in NEDC-31336.

3. The instrument setpoints listed in Response C.1 above were determined using plant specific calculations performed by GE in accordance with NEDC-31336. The plant specific calculations for the Neutron Monitoring System (Flow-biased APRM Rod Block and APRM High Flux Scram) include implementation of the APRM/RBM Technical Specification Improvement (ARTS) Program and Maximum Extended Load Line Limit (MELLL) operation. ARTS/MELLL was developed after issuance of NEDC-31336. ARTS/MELLL has been incorporated in the plant specific instrument setpoint calculation in accordance with the methodology discussed in NEDC-31336. ARTS/MELLL has previously been approved for implementation at PBAPS, Unit 3.