

September 16, 1986

Docket No. 50-278

Mr. Edward G. Bauer, Jr.
Vice President & General Counsel
Philadelphia Electric Company
2301 Market Street
Philadelphia, Pennsylvania 19101

Dear Mr. Bauer:

SUBJECT: EVALUATION OF PROPOSED FLAW SIZE ACCEPTANCE CRITERIA FOR
PEACH BOTTOM ATOMIC POWER STATION, UNIT 3 MID-CYCLE INSPECTION
(TAC #61725)

We have reviewed the Philadelphia Electric Company (the licensee or PECO) submittal dated June 9, 1986 regarding the proposed flaw size acceptance criteria for mid-cycle ultrasonic examination of two inlet safe ends and three pipe welds in the recirculation and residual-heat-removal (RHR) systems of Peach Bottom Unit 3. The licensee's submittal was in partial response to requirements outlined in the Commission Confirmatory Orders dated March 20, 1986.

The licensee's proposed acceptance criteria consist of limits on the average and peak crack depths for each of the welds to be ultrasonically examined at mid-cycle. PECO proposed that if the ultrasonic indications of the mid-cycle inspection are less than the proposed limits, Peach Bottom Unit 3 plant be allowed to return to service for the remainder of its fuel cycle (approximately 9 months of operation). The licensee proposed limits for the peak crack depth that were derived from the Code allowable flaw sizes for short flaws. Past practices on the part of most licensees, as well as the staff, has been to establish limits for crack depth based on the assumption that the flaws were 360° circumferential. PECO's current evaluation therefore, is not as conservative as usual past practices. However, the NRC staff concludes that the licensee's proposed flaw size acceptance criteria are acceptable based upon the following considerations:

- (1) The proposed flaw size acceptance criteria apply only to the results of the mid-cycle inspection. These welds will be reinspected again after an additional 9 months of operation.
- (2) The peak crack depths reported by the licensee were obtained from the sizing of local cusps. The length of these cusps were extremely short and represents a small fraction of the total weldment circumference. Therefore, even if a local cusp should grow through the wall, the staff believes that the result would be a small through wall flaw with limited leakage.
- (3) Two of the three piping welds (2-AS-8 and 10-0-03) were successfully treated with Induction-Heating-Stress-Improvement (IHSI) and, therefore, have a favorable residual stress distribution. The NRC staff does not expect any significant crack growth in these welds.

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- (4) The licensee is committed to replace the two safe end welds by the end of the next refueling outage.

As an additional safeguard, the NRC staff requests that the licensee incorporate the following items into the mid-cycle inspection plan and the acceptance criteria:

- (A) The licensee should describe clearly the methodology used in determining the average flaw depth including the ultrasonic techniques used in sizing and the locations of each sizing determination made.
- (B) Any extension of crack length should be carefully determined for each weld, particularly for weld 10-0-03. If the crack length in weld 10-0-03 was determined to be greater than 30% from the mid-cycle inspection results, the licensee's proposed average depth limit would not be conservative. Therefore, a crack length limit of 30% of the circumference is appropriate for weld 10-0-03. If the crack length in weld 10-0-03 exceeds this limit, the licensee should perform an evaluation that would be subject to NRC review and approval prior to plant start up.
- (C) The licensee should include a schematic representation of the mid-cycle and previous inspection results for each weld of the five welds cited above to facilitate staff review of the inspection results. These results should be provided to the NRR staff within 45 days of the completion of the mid-cycle unless conditions outlined in (B) above occur.

If you have questions concerning our evaluation of the licensee's submittal, please contact the Peach Bottom Project Manager, Gerald E. Gears, at (301) 492-4993.

Sincerely,
Original signed by

Gerald E. Gears, Project Manager
BWR Project Directorate #2
Division of BWR Licensing

cc: See next page

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