#### UNITED STATES NUCLEAR REGULATORY COMMISSION WASHINGTON, D. C. 20555



SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION SUPPORTING

AMENDMENT NOS. 148 AND 151 TO FACILITY OPERATING

### LICENSE NOS. DPR-44 and DPR-56

PHILADELPHIA ELECTRIC COMPANY PUBLIC SERVICE ELECTRIC AND GAS COMPANY DELMARVA POWER AND LIGHT COMPANY ATLANTIC CITY ELECTRIC COMPANY

#### PEACH BOTTOM ATOMIC POWER STATION, UNIT NOS. 2 AND 3

DOCKET NOS. 50-277 AND 50-278

# 1.0 INTRODUCTION

By letter dated August 26, 1988, Philadelphia Electric Company requested an amendment to Facility Operating License Nos. DPR-44 and DPR-56 for Peach Bottom Atomic Power Station, Unit Nos. 2 and 3. The amendments would make changes to Technical Specification pages 127, 128, 132, 132a, 136 and would add new pages 128a and 128b in response to issues raised in two NRC inspection reports. The amendment revises Technical Specifications (TS), Limiting Conditions for Operations (LCO) and Surveillance Requirements (SRs) for the Containment Cooling System (CCS) in TS 3/4.5.B and revises related requirements for diesel generator (DG) testing in TS 3/4.5.F and the associated BASES. The issues identified in NRC Inspection Reports 50-277/85-07; 50-278/85-07 and 50-277/86-16; 50-278/86-17 concern (a) clarification of the specific LCO and SR requirements for components of the CCS and (b) revision of the alternate system testing requirements upon the inoperability of a diesel generator.

# 2.0 EVALUATION

Inspection Report 85-01 identified concerns which are based on apparent inconsistent definitions between TS 3/4.5.B (pages 127, 128) and the BASES (page 136) of what constitutes the CCS. The residual heat removal system is designed for three modes or subsystems of operation as set forth in UFSAR Section 4.8: shutdown cooling, containment cooling and low pressure coolant injection to the reactor vessel. The major equipment of the residual heat removal system (RHRS) includes four heat exchangers, four main system pumps (RHR pump) and one high pressure service water (HPSW) pump for each unit. The containment cooling function also includes three modes of operation: drywell spray, torus spray and torus cooling depending upon the alignment of valves and piping within the system. Each of the three containment cooling modes utilizes HPSW to remove heat from the RHR heat exchanges. The BASES identify the CCS as consisting of residual heat removal (RHR or LPCI) pumps and high pressure

8910050048 890927 PDR ADOCK 05000277 PDC PDC service water (HPSW) pumps. The concern identified by the Inspection Report 85-07 was that the licensee interpreted the CCS to consist only of the HPSW pump. In addition, it was noted that the specific coolant paths for the three modes of operation of the CCS, namely drywell spray, torus cooling and torus spray, are described in the UFSAR but are not specifically reflected in the TS. The Inspection Report thus concluded that the TS were incomplete in this regard.

Inspection Report 86-16/17 also noted that the TS 3/4.5.F requirement (page 132) to perform daily testing of 24 safety related pumps on the inoperability of one DG is not consistent with the Standard Technical Specifications which do not require such alternate testing of the ECCS pumps.

The licensee has responded with nineteen identified types of changes to the TS which augment and clarify the CCS specifications, revise the alternate testing required for inoperable DG conditions and provide associated administrative changes.

Changes 1 through 13 include administrative changes in nomenclature, clearer identification of components and systems, changes to ensure consistency and editorial changes to support the remaining changes. These include (a) replacement of the term "containment cooling subsystem" with "containment cooling system," (b) changing the headings for LCOs and SR to reflect the separate components of the CCS, (c) referencing the newly added LCO subsections in LCO 3.5.B.1, (d) format changes to renumber TS subsections to accommodate the newly added TS subsection in 4.5.B.1(d), (e) and (f) and 3.5.B.4a, 5a and 6a, (e) revising 3/4.5.B.2 and 3/4.5.B.3 to reflect the complementary relationship of TS for the HPSW pumps to the newly added TS specifically focussed on the torus cooling mode in 3/4.5.B.4, the drywell spray mode in 3/4.5.B.5 and the torus spray mode in 3/4.5.B.6, (e) and other changes of an administrative and editorial nature identified as the licensee's change numbers 9, 10, 11 and 12 for Units 2 and 3 and including change 13 for Unit 3 only.

The staff has reviewed these changes and, in conjunction with conclusions presented below, concludes that these changes are necessary to support the following changes, provide clarifications and correct several discrepancies, and are acceptable.

Change number 14 expands 4.5.B.1 to include the torus cooling, drywell spray and torus spray valve operability requirements in addition to the HPSW components.

Change number 15 revises 4.5.B.3 to focus the testing required when three of the four HPSW pumps are inoperable on the remaining HPSW pump instead of "remaining components of both containment cooling subsystems." The DG would continue to be required to be tested as it was by the previous version of 4.5.B.3. In conjunction with change 15, the licensee has added change 16 to replace the previous focus on the "containment cooling

subsystem loops" in LCO 3.5.B.4 with separate LCOs now focussed on the torus cooling (3.5.B.4), drywell spray (3.5.B.5) and torus spray (3.5.B.6). Change 17 makes comparable changes to the adjoining surveillance requirements which results in expansion of 4.5.B.4 into a new 4.5.B.4, 4.5.B.5 and 4.5.B.6. Change 17 also reduces the required surveillance frequency for the CCS component from "immediately and daily thereafter" to "immediately" with the seven day limit imposed by the LCO.

The staff has reviewed changes 15, 16 and 17 and concludes that they acceptably respond to the needs for clarification of requirements and improvements in consistency raised by the aforementioned Inspection Reports. The reduced surveillance frequency included in change 17 is offset by a more restrictive LCO. On these bases, the staff finds these changes to be acceptable.

Change number 18 in the licensee's application modifies the requirement for testing alternate emergency core cooling (ECC) system components upon the inoperability of one diesel generator (DG). The former version of TS 3.5.F.1 required that when one DG is inoperable all of the low pressure core and containment cooling systems shall be operable. The amended version of TS 3.5.1 requires that the low pressure core and containment cooling systems powered by the remaining operable DGs be operable. This is a reasonable change since the systems powered by the inoperable DG are not assumed to be operable since they would not have an assured onsite emergency power supply, although their electrical buses may continue to be powered by the station's offsite power supply. This assumption is reflected in the safety design basis for the standby ac power source in UFSAR section 8.5.1. No modification is made to TS 3.5.F.1's seven day limit on loss of 1 DG or to the requirement that remaining DG's be operable.

Change number 19 modifies the requirements for testing low pressure core and containment cooling systems when one DG is inoperable. The former version of TS 4.5.F.1 required that when one DG is inoperable all of the low pressure core and containment cooling subsystems shall be tested immediately and daily thereafter. The amended version deletes this accelerated testing and thus relies on the regularly scheduled surveillance testing of these components to provide adequate assurance of their operability.

The effect of the former version of TS 4.5.1 to require unnecessarily frequent surveillance testing was noted in the NRC staff's inspection report 50-277/86-16; 50-278/86-17 wherein it was noted that the TS required daily testing of 24 safety related pumps when the E-3 DG was taken out of service for maintenance. More recently, this TS was noted to have required the daily testing of these 24 pumps for about four weeks while each of the 4 DG's was out of service for the periodic maintenance overhaul.

The issue of alternate system testing has been recently considered by the staff in a license amendment concerning the Vermont Yankee facility. The Vermont Yankee (VY) amendment involved about 15 sections in the TS and was supported by a quantified expectation, by way of probabilistic risk assessment, that the availability for such systems will improve with the elimination of the prescribed daily tests. The VY analyses considered many systems such as the uninterruptible power supply, the ADS, the SGTS, other water pumping and routing systems and it considered in detail the core spray system and the diesel generators. The staff's evaluation concluded that it had been shown that the reduction in DG and CS testing frequency from daily to monthly could result in an improvement in unavailability by a factor of about 3 to 4.

The staff has reviewed the licensee's proposal for Peach Bottom and has compared it with similar issues recently reviewed on the VY facility. The former TS surveillance requirements and the amended versions for the case of one inoperable DG are virtually equivalent for the two plants. The licensee has reviewed the surveillance history for RHR, Core Spray and HPSW systems at Peach Bottom and has found a low rate (less than 1%) of unsatisfactory surveillance test results over a ten year period. On the basis of the similarity of the Peach Bottom issue to the recently reviewed Vermont Yankee issues and the licensee's assessment the staff concludes that the elimination of the low pressure core and containment cooling alternate system testing as proposed in changes 18 and 19 will contribute to the reliability of these systems; therefore the staff finds the proposed changes acceptable.

#### 3.0 ENVIRONMENTAL CONSIDERATIONS

These amendments involve a change to a requirement with respect to the installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 and changes to surveillance requirements. The staff has determined that the amendments involve no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that the amendments involve no significant hazards consideration and there has been no public comment on such finding. Accordingly, the amendments meet the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b), no environmental impact statement nor environmental assessment need be prepared in connection with the issuance of the amendments.

#### 4.0 CONCLUSION

The Commission made a proposed determination that the amendments involve no significant hazards consideration which was published in the Federal Register (54 FR 31395) on July 28, 1989 and consulted with the State of Pennsylvania. No public comments were received and the State of Pennsylvania did not have any comments. The staff has concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, and (2) such activities will be conducted in compliance with the Commission's regulations, and the issuance of the amendments will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributor: R. E. Martin

Dated: September 27, 1989

# 5.0 References

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- Letter, RW Starostecki; NRC, to S. L. Daltroff, PECo dated February 1, 1985 transmitting combined inspection report 50-277/85-07; 50-278/85-07.
- Letter, R. M. Gallo, NRC, to S. L. Daltroff, PECo dated October 24, 1986 transmitting combined inspection report 50-277/86-16; 50-278/86-17.
- Letter, W. F. Kane, NRC to PECo dated November 1, 1988 transmitting combined inspection report 50-277/88-34; 50-278/88-34 closing issues raised in the two reports listed above.
- Letter, E. J. Bradley, PECo, to Dr. T. Murley, NRC dated August 26, 1988 transmitting application for amendment to Technical Specifications.
- Letter, M. B. Fairtile, NRC, to R. W. Capstick, VYNPC, dated July 21, 1989 transmitting amendment to Technical Specifications for the Vermont Yankee Nuclear Power Station.