



UNITED STATES
NUCLEAR REGULATORY COMMISSION

WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NOS. 224 AND 228 TO FACILITY OPERATING

LICENSE NOS. DPR-44 and DPR-56

PECO ENERGY 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 May 1, 1998, as supplemented by letter dated September 11, 1998, PECO Energy Company, the licensee for Peach Bottom Atomic Power Station (PBAPS), Units 2 and 3, proposed a change to modify the safety relief valves (SRVs) Technical Specification (TS) Surveillance Requirements (SRs) to perform manual actuations once every 24 months as part of each unit's startup testing activities. The specific TS change evaluated herein is for TS SRs 3.4.3.2 and 3.5.1.12. The current SR 3.4.3.2 requires verifying the opening of the SRVs when manually actuated, and SR 3.5.1.12 requires verifying the opening of the Automatic Depressurization System (ADS) SRVs when manually actuated. These SRs also contain associated notes which state that these tests are not required to be performed until 12 hours after reactor steam pressure and flow are adequate to perform the tests. The licensee proposes to revise these SRs to require verification that the SRV actuators stroke when manually actuated in the depressurization mode. The licensee also proposes to delete the note associated with these SRs.

Each plant SRV is a Target Rock 3-Stage pilot-operated valve with an attached pneumatic actuator. There are a total of 11 SRVs installed on each of the Peach Bottom 2 and 3 main steam systems, all of which operate in the safety mode or the depressurization mode. In the safety mode, each SRV opens when system pressure exceeds the self-actuating setpoint pressure, which is controlled by the setpoint spring acting on the pilot disk. When the pilot disk opens, the resulting differential pressure across the second stage piston opens the second stage disk which then results in a differential pressure across the main piston which opens the main disk to relieve system overpressure. The depressurization mode functions are accomplished by applying electric power to solenoids which provide instrument gas to the pneumatic diaphragm assembly that forces the second stage disk to open. Once the second stage is open, steam pressure provides the necessary force to open the main SRV disk. All 11 SRVs are capable of being manually opened in the depressurization mode. Five of the SRVs also perform the ADS function which automatically opens the SRVs in the depressurization mode to reduce system pressure following a small break LOCA.

Currently, the Peach Bottom 2 and 3 TS SRs 3.4.3.2 and 3.5.1.12 require that, at least once every 24 months, the SRVs be opened during reactor startup following an outage. The licensee states that there has been one occurrence of leakage in an SRV second stage disk caused by steam cutting of the seat and disk area that required a plant shutdown. The licensee states that the leak is suspected to have resulted from functional testing of the SRV during startup. The licensee also states that second stage leakage, if allowed to continually increase, will eventually result in opening of the main disk and system depressurization.

2.0 EVALUATION

The licensee proposes to revise TS SRs 3.4.3.2 and 3.5.1.12 to require verification that only the SRV actuators stroke every 24 months. This would eliminate the requirement to open the SRVs during reactor startup following an outage. The notes associated with these SRs would also be eliminated since reactor steam pressure would no longer be required to meet the SRs. The licensee states that with the proposed changes, the solenoid valves would be energized, the actuators would stroke, and the movement of the second stage disks would be verified by the measurement of the travel of the actuator rods. However, because there would be no steam pressure, the main disks would not be lifted in situ. The licensee states that since the safety mode tests of approximately 50% of the SRVs are performed at a 24-month frequency to meet the requirements of the American Society of Mechanical Engineers (ASME) OM (Operations and Maintenance) Code - 1990 Edition, the only change in the frequency of testing of the SRV components is that the main disks of the SRVs would be tested every two cycles (approximately 4 years) as compared to the current requirement of every one cycle (approximately 2 years). In addition to the safety mode tests, TS SRs 3.3.5.1.5 and 3.5.1.11 require tests of the ADS logic system and simulated automatic actuation tests of the ADS every 24 months. The licensee states that the combination of these tests, the safety mode testing, and that performed for SRs 3.4.3.2 and 3.5.1.12, completely demonstrates the operability of the SRVs.

The staff has reviewed the licensee's proposed TS changes and finds that the current TS requirement to perform the in situ stroke testing of the SRVs may contribute to undesirable SRV leakage and could result in spurious actuation of the valves during power operation. By removing the TS requirement to perform in situ functional testing during startup, the probability of inadvertent opening of an SRV may be reduced through the elimination of a potential initiator of SRV second stage disk leakage and subsequent erosion. The testing proposed by the licensee provides periodic verification of all of the individual SRV components which are currently being tested except that the main disks are to be stroke tested less frequently. The staff finds that the proposed TS surveillance and safety mode testing of the SRV components are acceptable because they provide assurance of adequate valve operation.

The licensee has proposed testing with less frequent stroking of the SRV main stages. Instead of stroke testing the SRV main stages after each refueling outage, only half would be stroke tested during safety mode testing each refueling outage, which would result in an approximate four year frequency. However, because the main stage disks of the Peach Bottom 2 and 3 valves and similar valves at other BWRs have a history of reliable performance, the staff finds that the proposed stroking of half of the main stage disks each refueling is adequate.

Another difference between the current TS-required stroking and the licensee's proposal is that, when performing the testing in situ as required by the current TS, the testing verifies that the SRV discharge line is not blocked. However, the licensee stated that foreign material exclusion controls in place at the plant, together with the horizontal orientation of the discharge line mating connections, provide reasonable assurance that no obstruction exists in the lines. The staff finds that the likelihood of blockage of an SRV discharge line is remote as demonstrated by operational history and that the licensee has acceptably addressed this concern.

3.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Pennsylvania State official was notified of the proposed issuance of the amendments. The State official had no comments.

4.0 ENVIRONMENTAL CONSIDERATION

The amendments change a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 and change the surveillance requirements. The NRC 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 (63 FR 40559). 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 or environmental assessment need be prepared in connection with the issuance of the amendments.

5.0 CONCLUSION

The Commission 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, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendments will not be inimical to the common defense and security or to the health and safety of the public.

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Date: October 5, 1998