PHILADELPHIA ELECTRIC COMPANY

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PEACH BOTTOM ATOMIC POWER STATION

UNIT NO. 3

DOCKET NUMBER 50-278

REPORT OF PLANT START-UP FOLLOWING

THIRD REFUELING OUTAGE

SEPTEMBER 1979

SUBMITTED TO

THE UNITED STATES NUCLEAR REGULATORY COMMISSION

PURSUANT TO

FACILITY OPERATING LICENSE NO. DPR-56

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Peach Bottom Atomic Power Station
Unit No. 2
Docket Number 50-278

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INTRODUCTION

The Peach Bottom Technical Specification 6.9.1 Routine Reports requires submittal of a startup report following any outage in which certain safety related events may occur. Installation of fuel of a different design is one of these events. This report, prepared to meet the Technical Specification requirement, describes the startup program implemented to provide assurance that the safe operation of the plant was not diminished by the activities of the third refueling outage.

The Peach Bottom Unit 3 was out of service from September 15, 1979, to November 5, 1979, to accommodate a maintenance/refueling outage. During this 52 day outage, 271 fuel bundles of the original (7X7) design and one (8X8) were replaced with the new (8X8R?) fuel design. The new fuel was manufactured by the General Electric Company and was designed to provide additional operational flexibility and fuel economy. The unit was returned to service on November 5, 1979, and reached full power on November 15, 1979. Start-up tests were performed before and during the return to power.

The startup tests identified in the F.S.A.R. were addressed and those which involve areas which were affected by outage activities were included and are summarized herein. Additional special tests connected with specific outage activities were also included in the program and are discussed in this report. The successful implementation of this startup program insures that the Unit 3 refueling outage has resulted in no conditions or system characteristics that in any way diminish the safe operation of the Unit.

The tests and data referenced in this report are on file at the Peach Bottom Atomic Power Station.

1. VERIFICATION OF SHUTDOWN MARGIN

The core shutdown margin was determined during the initial reactor criticality in the A-2 sequence. The actual shutdown margin was 1.63% ΔK/K, as compared with a Technical Specification minimum value of 0.38% ΔK/K. This test was performed on November 5, 1979.

2. CONTROL ROD OPERABILITY AND SUBCRITICALITY CHECK

Each control rod was withdrawn and inserted and subcriticality verified per surveillance test ST 10.8. The test was completed on November 4, 1979, prior to start-up.

3. LPRM CALIBRATION

LPRM calibrations were performed at approximately 25%, 50%, and 100% power levels per surveillance test ST 3.4.1.

4. REACTIVITY ANOMALIES

Surveillance test ST 3.7, "Reactivity Anomalies", was successfully performed on November 19, 1979. The predicted number of control rod notches inserted at rated conditions was 900 with a ± 1% ΔKeff range of 650 to 1150 control rod notches inserted. The actual number of control rod notches inserted was 736, which satisfies the ± 1% ΔKeff criteria.

5. CORE VERIFICATION

The Unit 3 beginning of core four (BOC4) post-alteration core verification was performed on October 16, 1979 in accordance with surveillance test ST 12.10 "Core-Post-Alteration Verification". Two fuel bundles were in the wrong location and were moved to their proper locations. A reverification was performed for the corrective fuel movement. A seating verification was performed for all fuel assemblies. Several assemblies were improperly seated. These assemblies were reseated and reverified.

6. COLD CRITICAL ROD PATTERN PREDICTION

The cold critical rod pattern prediction comparison surveillance test ST 3.9 was successfully performed for Unit 3. The predicted core keff was 1.003 and the actual core keff was 1.011 for a difference of -0.008. The difference is -0.8% and satisfies the ± 1% test acceptance criteria.

7. CORE POWER SYMMETRY AND TIP REPRODUCIBILITY TEST

Core power symmetry and TIP reproducibility test data was analyzed for sequence 'A' conditions on 12/6/79 (75% power). Two data sets were taken. The total TIP uncertainty was 2.95% and 3.27% for the two sets; therefore the test criteria that the total TIP uncertainty not to exceed 9% is satisfied. The maximum deviation between symmetrically located pairs was 16.2% and 15.6% for the two sets, which satisfies the 25% acceptance criteria.

8. CONTROL ROD DRIVE SCRAM TIMING

All 185 control rods were scram timed satisfactorily following all core alterations at nominal reactor pressure of 1000 psig in accordance with surveillance test ST 10.7. Technical Specification requirements were all satisfied.

9. RHR REDUNDANT START LOGIC MODIFICATION

A modification was completed on Unit 3 to revise the RHR pump start logic so that each pump receives a start signal from both A & B initiation logic.

The modification was tested satisfactorily using a logic system functional surveillance test with additions to prove proper operation of the changes.