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PHILADELPHIA ELECTRIC COMPANY

DOCKET NO 50-352

LIMERICK GENERATING STATION

FACILITY OPERATING LICENSE

License No. NPF-27

1. The Nuclear Regulatory Commission (the Commission or the NRC) has found that:
 - A. The application for license filed by the Philadelphia Electric Company (the licensee) complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's regulations set forth in 10 CFR Chapter I, and all required notifications to other agencies or bodies have been duly made;
 - B. Construction of the Limerick Generating Station, Unit 1 (the facility) has been substantially completed in conformity with Construction Permit No. CPPR-106 and the application, as amended, the provisions of the Act and the regulations of the Commission;
 - C. The facility will operate in conformity with the application, as amended, the provisions of the Act, and the regulations of the Commission (except as exempted from compliance in Section 2.D. below);
 - D. There is reasonable assurance: (i) that the activities authorized by this operating license can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations set forth in

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10 CFR Chapter I (except as exempted from compliance in Section 2.D. below);

- E. The licensee is technically qualified to engage in the activities authorized by this license in accordance with the Commission's regulations set forth in 10 CFR Chapter I;
 - F. The licensee has satisfied the applicable provisions of 10 CFR Part 140, "Financial Protection Requirements and Indemnity Agreements", of the Commission's regulations;
 - G. The issuance of this license will not be inimical to the common defense and security or to the health and safety of the public;
 - H. After weighing the environmental, economic, technical, and other benefits of the facility against environmental and other costs and considering available alternatives, the issuance of this Facility Operating License No. NPF-27, subject to the conditions for protection of the environment set forth in the Environmental Protection Plan attached as Appendix B, is in accordance with 10 CFR Part 51, of the Commission's regulations and all applicable requirements have been satisfied;
 - I. The receipt, possession, and use of source, byproduct and special nuclear material as authorized by this license will be in accordance with the Commission's regulations in 10 CFR Parts 30, 40 and 70.
2. Based on the foregoing findings regarding this facility, Facility Operating License NPF-27 is hereby issued to the Philadelphia Electric Company, (the licensee) to read as follows:
- A. This license applies to the Limerick Generating Station, Unit 1, a boiling water nuclear reactor and associated equipment, owned by the Philadelphia Electric Company. The facility is located on the licensee's site in Chester and Montgomery Counties, Pennsylvania on the banks of the Schuylkill River approximately 1.7 miles southeast of Pottstown, Pennsylvania and 21 miles northwest of the city limits of Philadelphia,

Pennsylvania, and is described in the licensee's "Final Safety Analysis Report," as supplemented and amended, and in the licensee's Environmental Report, as supplemented and amended.

B. Subject to the conditions and requirements incorporated herein, the Commission hereby licenses Philadelphia Electric Company (PECO):

- (1) Pursuant to Section 103 of the Act and 10 CFR Part 50, to possess, use, and operate the facility at the designated location in Chester and Montgomery Counties, Pennsylvania, in accordance with the procedures and limitations set forth in this license;
- (2) Pursuant to the Act and 10 CFR Part 70, to receive, possess and to use at any time special nuclear material as reactor fuel, in accordance with the limitations for storage and amounts required for reactor operation, as described in the Final Safety Analysis Report, as supplemented and amended;
- (3) Pursuant to the Act and 10 CFR Parts 30, 40 and 70, to receive, possess and use at any time any byproduct, source and special nuclear material as sealed neutron sources for reactor startup, sealed sources for reactor instrumentation and radiation monitoring equipment calibration, and as fission detectors in amounts as required;
- (4) Pursuant to the Act and 10 CFR Parts 30, 40 and 70, to receive, possess, and use in amounts as required any byproduct, source of special nuclear material without restriction to chemical or physical form, for sample analysis or instrument calibration or associated with radioactive apparatus or components; and
- (5) Pursuant to the Act and 10 CFR Parts 30, 40 and 70, to possess, but not separate, such byproduct and special nuclear materials as may be produced by the operation of the facility.

C. This license shall be deemed to contain and is subject to the conditions specified in the Commission's regulations set forth in 10 CFR Chapter I and is subject to all applicable provisions of the Act and

to the rules, regulations, and orders of the Commission now or hereafter in effect; and is subject to the additional conditions specified or incorporated below:

(1) Maximum Power Level

The licensee is authorized to operate the facility at reactor core power levels not in excess of 3293 megawatts thermal (100% power) in accordance with the conditions specified herein and in Attachment 1 to this license. The preoperational tests, startup tests and other items identified in Attachment 1 to this license shall be completed as specified. Attachment 1 is hereby incorporated into this license. Pending Commission approval this license is restricted to power levels not to exceed five percent of full power (165 megawatts thermal);

(2) Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendix A and the Environmental Protection Plan contained in Appendix B, both of which are attached hereto, are hereby incorporated into this license. The licensee shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan;

(3) Inservice Testing of Pumps and Valves (Section 3.9.6, SER*)

Pursuant to 10 CFR Part 50.55a the relief identified in the Pump and Valve Inservice Testing Program Plan for the Limerick Generating Station Unit 1, Revision 4 dated June 15, 1984 that the licensee has requested from the pump and valve testing requirements of 10 CFR Part 50, Section 50.55a(g)(2) and (g)(4)(i) is granted for that portion of the initial 120-month period during which the staff completes its review.

*The parenthetical notation following the title of many license conditions denotes the section of the Safety Evaluation Report and/or its supplements wherein the license condition is discussed.

(4) Environmental Qualifications (Section 3.11, SER, and SSER-2)

Prior to March 1985 the licensee shall either submit additional information justifying the calculated bounding drywell equipment qualification temperature profile used or shall update all portions of the Equipment Qualification Report Record sheets to reflect the generic bounding temperature profile in NUREG-0588.

(5) Fire Protection (Section 9.5, SSER-2)

- a. The licensee shall maintain in effect all provisions of the approved fire protection program as described in the Final Safety Analysis Report for the facility through Amendment 34 and as approved in the SER through Supplement 2, subject to provisions b and c below.
- b. The licensee may make no change to features of the approved fire protection program which would decrease the level of fire protection in the plant without prior approval of the Commission. To make such a change the licensee must submit an application for license amendment pursuant to 10 CFR 50.90.
- c. The licensee may make changes to features of the approved fire protection program which do not decrease the level of fire protection without prior Commission approval after such features have been installed as approved, provided such changes do not otherwise involve a change in a license condition or technical specification or result in an unreviewed safety question (see 10 CFR 50.59). However, the licensee shall maintain, in an auditable form, a current record of all such changes including an analysis of the effects of the change on the fire protection program and shall make such records available to NRC inspectors upon request. All changes to the approved program made without prior Commission approval shall be reported to the Director of the Office of Nuclear Regulation, together with supporting analyses, within 60 days of the change.

- d. The licensee shall complete the fire protection items identified in Attachment 2.

(6) Qualification of Personnel (Section 13.1.2.2, SER)

The licensee shall have on each shift operators that meet the requirements described in Attachment 3.

(7) Detailed Control Room Design Review (Section 18, SSER-3)

The task analysis and control room inventory, the control room survey, and the control room enhancements shall satisfy the requirements stated in Attachment 4.

(8) Safety Parameter Display System (Section 18.2, SSER-3)

The licensee shall have the SPDS operable by April 1, 1985.

(9) Emergency Response Capabilities, Generic Letter 82-33
Supplement 1 to NUREG-0737, (Section 13.3, SSER-3)

The licensee shall complete the emergency response capabilities as required by Attachment 5 in this license.

(10) Post-Fuel-Loading Initial Test Program (Section 14, SER)

The licensee shall conduct the post fuel loading initial test program described in Chapter 14 of the Final Safety Analysis Report, without making any major modification unless such modifications have prior NRC approval. Major modifications are defined as:

- (a) Elimination of any safety-related test*

*Safety-related tests are those tests which verify the design, construction, and operation of safety-related systems, structures, and equipment.

- (b) Modification of objectives, test method, or acceptance criteria for any safety-related test.
- (c) Performance of any safety-related test at a power level different from that stated in the FSAR by more than five percent of rated power.
- (d) Failure to satisfactorily complete the entire initial startup test program by the time core burnup equals 120 effective full power days.
- (e) Deviation from initial test program administrative procedures or quality assurance controls described in the FSAR.
- (f) Delays in test program in excess of 30 days (14 days if power level exceeds 50 percent), concurrent with power operation. If continued power operation is desired during a delay, the licensee shall provide justification that adequate testing has been performed and evaluated to demonstrate that the facility can be operated at the planned power level with reasonable assurance that the health and safety of the public will not be endangered.

(11) Inservice Inspection Program (Section 5.2.4.3 and 6.6.3, SER)

Within 12 months of the date of this license the licensee shall submit the inservice inspection program for staff and approval.

(12) Salem ATWS Event, Generic Letter 83-28 (Section 15.8, SSER-2)

The licensee shall submit responses to and implement the requirements of Generic Letter 83-28 on a schedule which is consistent with that given in its November 10, 1983 and May 8, 1984 letters.

(13) Turbine System Maintenance Program (Section 3.5.1.3, SER)

The licensee shall submit a turbine system maintenance program within 3 years of the date of issuance of this license. Prior to the review and approval of that program by the NRC staff, the licensee shall conduct turbine system inspection and maintenance in accordance with Attachment 6.

(14) Reactor Enclosure Cooling Water and Chilled Water *
Isolation Valves (Section 6.2.4.2, SER)

The licensee shall, prior to startup following the first refueling outage, provide automatic and diverse isolation signals to the reactor enclosure cooling water and the chilled water supply and return line isolation valves.

(15) Remote Shutdown System (Sections 7.1.4.4, 7.4.2.3, SER)

The licensee shall, prior to startup following the first refueling outage, have completed modifications to the existing remote shutdown to provide a redundant safety-related method of achieving safe shutdown conditions. The licensee shall perform necessary tests prior to startup following the first refueling outage to demonstrate the operability of the modified system.

(16) Operation with Partial Feedwater Heating at End-of-Cycle
(Section 15.0, SER)

Limerick Unit 1 shall not be operated with partial feedwater heating for the purpose of extending the normal fuel cycle unless acceptable justification is provided to and approved by the NRC staff prior to such operation.

(17) Hydrogen Recombiner Isolation (Section 6.2.4.2, SER and SSER-1)*

The licensee shall, prior to startup following the first refueling outage, install and test an additional automatic isolation

valve in each of the hydrogen recombiner lines penetrating the containment.

(18) Refueling Floor Volume Connection to Standby Gas Treatment * System (Sections 6.2.3, 6.5.3.2 and SSER-2)

Prior to any movement of irradiated fuel within the refueling floor volume the licensee shall complete and test all modifications required to connect the refueling floor volume to standby gas treatment system. During the interim period, after initial criticality, the licensee shall not remove the reactor pressure vessel head prior to the NRC staff review and approval.

(19) Residual Heat Removal System Pressure Isolation Valves (Section 3.9.6, SSER-3)

The licensee shall modify and test prior to startup following the first refueling outage, the existing instrumentation used to sense and alarm to the control room a pressure increase caused by leakage past the residual heat removal system pressure isolation valves. Specifically, the applicant shall be required to modify a minimum of one pressure alarm in each of the four RHR pump discharge lines on the discharge side of the four associated pump discharge check valves (1F031, A, B, C and D) to be functionally independent of RHR pump operation.

(20) Emergency Planning

In the event the NRC finds that the lack of progress in completion of the procedures in the Federal Emergency Management Agency's final rule, 44 CFR Part 350, is an indication that a major substantial problem exists in achieving or maintaining an adequate state of emergency preparedness, the provisions of 10 CFR Section 50.54(s)(2) will apply.

- D. The facility requires exemptions ^{***}/ from certain requirements of Appendices A and J to 10 CFR Part 50. These exemptions are described in the Office of Nuclear Reactor Regulations Limerick Generating Station Safety Evaluation Report, (Sections 6.2.4.2 and 6.2.6) and in Supplement No. 3 to this report, (Section 6.2.6). These exemptions are authorized by law and will not endanger life or property or the common defense and security and are otherwise in the public interest. Therefore these exemptions are hereby granted pursuant to 10 CFR 50.12. With the granting of these exemptions the facility will operate, to the extent authorized herein, in conformity with the application, as amended, the provisions of the Act, and the rules and regulations of the Commission.
- E. The licensee shall fully implement and maintain in effort all provisions of the Commission approved physical security, guard training and qualification, and safeguards contingency plans, including amendments made pursuant to the authority of 10 CFR 50.54(p). The approved plans, which contain Safeguards Information as described in 10 CFR 73.21, are collectively entitled, "Limerick Generating Station Physical Security Plan," dated March 1981 (letter of March 17, 1981) as revised by changes dated May 1983 (letter of May 20, 1983) and August 1983 (letter of September 8, 1983) and August, 1984 (letter of August 31, 1984); "Limerick Generating Station Safeguards Contingency Plan," dated March 1981 (letter of March 17, 1981) as revised by change dated April 1983 (letter of April 16, 1983); "Limerick Generating Station Plant Security Personnel Training and Qualification Plan," dated September 1981 (letter of September 30, 1981) as revised by change dated March 1982 (letter of April 1, 1982) and August 1982 (letter of August 13, 1982).
- F. With the exception of 2.C(2) the licensee shall report any violations of the requirements contained in Section 2.C, and E of this license within 24 hours. Initial notification shall be made in accordance with the provisions of 10 CFR 50.72 with written followup in accordance with the procedures described in 10 CFR 50.73(b), (c), (d), and (e).

- G. The licensee shall have and maintain financial protection of such type and in such amounts as the Commission shall require in accordance with Section 170 of the Atomic Energy Act of 1954, as amended, to cover public liability claims.

- H. This license is effective as of the date of issuance and shall expire at midnight on _____.

FOR THE NUCLEAR REGULATORY COMMISSION

Harold R. Denton, Director
Office of Nuclear Reactor Regulation

Enclosures:

- 1. Attachment 1
- 2. Appendix A - Technical Specifications (NUREG-)
- 3. Appendix B - Environmental Protection Plan

Date of Issuance: September __, 1984

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ATTACHMENT 1

(Region to provide update)

This attachment identifies preoperational tests and other items which must be completed to the satisfaction of the staff in accordance with the operational modes as identified below.

- A. The following preoperational tests must be completed prior to proceeding to Operational Mode 2 (initial criticality).

1P13.5 Fire Protection Halon System*
1P34.1 Reactor Enclosure HVAC
1P45.1 Feedwater System
1P68.1 Solid Radwaste System (Packaging)
1P68.1B Radwaste Crane
1P70.1 Standby Gas Treatment System
1P73.1 Containment Atmospheric Control System
1P79.2A Digital Process Radiation Monitoring System
1P79.2F Gaseous Effluent Radiation Monitoring
1P83.1 Main Steam System
1P83.3 Steam Leak Detection

- B. The following tests shall be completed prior to opening the Main Steam Isolation Valves, following the loading of fuel.

1P33.1 Turbine Enclosure HVAC System
1P43.1 Condenser and Air Removal System
1P72.1 Gaseous Radwaste Recombiners and Filters
1P93.2 Main Turbine Control (EHC) System

*A roving fire watch will be established until testing is complete.

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C. The following tests shall be completed prior to exceeding 5% of rated power.

- 1P76.2 Post-Accident Sampling System
- 1P58.2 Redundant Reactivity Control System

ATTACHMENT 2

This attachment identifies the fire protection requirements which shall be satisfied in accordance with the schedule identified below.

- A. The licensee shall complete the following fire protection items identified in the licensee's letters of June 21, 1984 and August 8, 1984, prior to exceeding five percent power.
- (1) Install automatic sprinkler systems in Fire Area 41 (RECW Equipment Area) and 42 (Safeguard System Access Area).
 - (2) Provide additional automatic sprinkler system coverage in the NE corner of the Reactor Building, elev. 283' (Fire Area 47A).
- B. The licensee shall complete the following fire protection items prior to startup following the first refueling outage.
- (1) Provide a stairway for fire brigade access from the turbine building to the Unit 1 cable spreading room via the Unit 2 cable spreading room and the static inverter room.
 - (2) Complete necessary modifications to the control structure, elevations 332' and 350', to ensure that the standpipe hose stations are capable of flowing 100 gpm at 65 psi.

ATTACHMENT 3

This attachment identifies the shift operating staff experience requirements.

The licensee shall have a licensed senior operator on each shift who has had at least six months of hot operating experience on a same type plant, including at least six weeks at power levels greater than 20% of full power, and who has had startup and shutdown experience. For those shifts where such an individual is not available on the plant staff, an advisor shall be provided who has had at least four years of power plant experience, including two years of nuclear plant experience, and who has had at least one year of experience on shift as a licensed senior operator at a similar type facility. Use of advisors who were licensed only at the RO level will be evaluated on a case-by-case basis. Advisors shall be trained on plant procedures, technical specifications and plant systems, and shall be examined on these topics at a level sufficient to assure familiarity with the plant. For each shift, the remainder of the shift crew shall be trained in the role of the advisors. The training of the advisors and remainder of the shift crew shall be completed prior to initial criticality. Prior to initial criticality, the licensee shall certify to the NRC the names of the advisors who will be on operating shifts. These advisors shall be retained until the experience levels identified in the first sentence above have been achieved. The NRC shall be notified at least 30 days prior to the date the license proposes to release the advisors from further service.

ATTACHMENT 4

This attachment identifies the detailed control room design review requirements which shall be satisfied in accordance with the schedule identified below.

(A) Task Analysis and Control Room Inventory

The results from the Limerick plant specific task analysis to identify control room operator tasks and information/control requirements for emergency operations, including a complete description of the method, data, and documentation, shall be completed and reported to the staff by the end of June 1985. This effort shall also include a comparison of the display and control requirements with a control room inventory to identify missing displays and controls.

(B) Control Room Survey

The applicant shall satisfactorily complete the control room survey, evaluate all human engineering discrepancies defined by the survey, including those defined by the staff's audit team during the In-Progress Audit, and correct human engineering discrepancies which have been categorized as Priority 1 (High Safety Significance) prior to operation at a power level greater than five percent of design power. The results from the effort are to be documented in an addendum to the Final Report and submitted for staff review.

(C) Control Room Enhancements

The applicant shall complete control room enhancements rated to: the control room panels (paint, tape and label), re-scaling of instruments using acceptable human factors methods, and changes to standard control switch shapes prior to exceeding five percent of rated power.

ATTACHMENT 5

The licensee shall complete the following requirements related to emergency response facilities in accordance with the schedule noted below:

(TO BE PROVIDED)

ATTACHMENT 6

This attachment identifies the turbine system inspection and maintenance program to be followed by the licensee prior to approval of the licensee's program.

- (A) For turbine governor and overspeed protection systems, at approximately 3-year intervals, during refueling or maintenance shutdowns, at least one main steam control valve, and one of each type of steam extraction valves are to be dismantled and visual and surface examinations conducted of valve seats, disks, and stems. Valve bushings should be inspected and cleaned, and bore diameters should be checked for proper clearance. If any valve is shown to have hazardous flaws, excessive corrosion, or improper clearances, the valve is to be repaired or replaced and all other valves of that type dismantled and inspected.
- (B) Main steam control and stop valves, reheat intercept and stop valves, and steam extraction nonreturn valves are to be exercised at least once a week during normal operation by closing each valve and observing directly the valve motion as it moves smoothly to a fully closed position.
- (C) At least once a month during normal operation, each compartment of the electrohydraulic governor system (which modulates control and intercept valves) and the mechanical overspeed trip mechanism and backup electrical overspeed trip (both of which trip the main steam control and stop valves, and the reheat intercept and stop valves) are to be tested.