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

PHILADELPHIA ELECTRIC COMPANY

DOCKET NO 50-352

LIMERICK GENERATING STATION, UNIT 1

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 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 Commision (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 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; and

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 and the Partial Initial Decisions issued by the Atomic Safety and Licensing Board dated March 8, 1983 and August 29, 1984 and the Decision of the Appeal Board dated September 26, 1984, 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 Philadelphia Electric Company. The facility is located on the licensee's site in Montgomery and Chester Counties, Pennsylvania on the banks of the Schuylkill River approximately 1.7 miles southeast of the city limits 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-Operating License Stage, as supplemented and amended.

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

(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 Montgomery and Chester 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 (except as exempted from compliance in Section 2.D. below) 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% rated power) in accordance with the conditions specified herein. Pending Commission approval this license is restricted to power levels not to exceed five percent of rated power (165 megawatts thermal).

(2) Deferred Items

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.

(3) 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.

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

Pursuant to 10 CFR Part 50.55a the relief identified in the Pump and Valve Inservice Testing Program Plan for the Limerick

---

*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.

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.

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

Prior to March 31, 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.

(6) 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 Revision 34 and as approved in the SER through Supplement 2, and in the Fire Protection Evaluation Report through Revision 6, subject to provisions b and c below.

b. The licensee shall 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 evaluation 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, annually.

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

(7) 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.

(8) Emergency Response Capabilities (Generic Letter 82-33, Supplement 1 to NUREG-0737)

(a) 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.

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

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

(c) Regulatory Guide 1.97, Revision 2 Compliance

Prior to startup following the first refueling outage the license shall implement modifications (installation or upgrade) for those items listed below consistent with the guidance of Regulatory Guide 1.97, Revision 2 unless prior approval of an alternate design of these items is granted by the NRC staff. These items as listed by the licensee's letter of August 16, 1984, are neutron flux, reactor water level, drywell sump level, drywell drain sump level, radiation level in circulating primary coolant, suppression spray flow and standby liquid control system tank level.

(9) 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.

(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.

(10) Inservice Inspection Program (Section 5.2.4.3 and 6.6.3, SER and SSER-3)

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

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

The licensee shall implement the requirements of Generic Letter 83-28 on a schedule which is consistent with that given in its November 10, 1983, May 8, 1984, and August 31, 1984 letters.

(12) 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 review and approval of that program by the NRC staff, the licensee shall volumetrically inspect all low pressure turbine rotors at the second refueling outage and every other (alternate) refueling outage thereafter.

(13) Reactor Enclosure Cooling Water and Chilled Water Isolation Valves (Section 6.2.4.2, SER and SSER3)

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.

(14) Remote Shutdown System (Sections 7.1.4.4, 7.4.2.3, SER and Section 7.4.2.3 SSER-3)

a. The licensee shall provide to the NRC staff, prior to exceeding 5% power, information on the changes to be made at the first refueling outage, and information regarding the interim provisions for a redundant remote shutdown capability using procedures and existing equipment, as provided in the licensee's letter of October 25, 1984.

b. The licensee shall, prior to startup following the first refueling outage, have completed modifications to the existing remote shutdown system 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.

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

The facility shall not be operated with partial feedwater heating for the purpose of extending the normal fuel cycle.

(16) Hydrogen Recombiner Isolation (Section 6.2.4.2, SER and SSER-1 and SSER-3)

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 primary containment.

(17) Refueling Floor Volume Connection to Standby Gas Treatment System (Section 6.2.3, SSER-2 and SSER 3)

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.

(18) Ultimate Heat Sink (Section 9.2.4, SSER-3)

The licensee shall prior to exceeding 5 percent of rated power, have developed and implemented plant procedures addressing (a) the methods and resources for repair of spray pond piping, (b) operation of the spray pond in either of closed cycle or once through cooling modes, (c) restoration of offsite power to the Schuylkill River makeup pumphouse and (d) the verification of availability of portable pumps to pump water from the Schuylkill River to the spray pond pumphouse wetwells.

(19) Control of Heavy Loads (Section 9.1.5, SER)

a. Prior to startup following the first refueling outage, the licensee shall make commitments acceptable to the NRC staff regarding the guidelines of Sections 5.1.2 through 5.1.6 of of NUREG-0612 (Phase II).

b. Prior to startup following the second refueling outage, the licensee shall implement modifications and procedures required to fully satisfy the guidelines of Sections 5.1.2 through 5.1.6 of NUREG-0612 (Phase II).

(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 include (a) exemption from General Design Criteria (GDC) 61 of Appendix A, operation of that portion of the standby gas treatment system (SGTS) that serves the refueling area until the first refueling (Section 6.2.3 of SSER-2 and SSER-3), (b) exemption from GDC-56 of Appendix A, the requirement for additional automatic containment isolation valves for the hydrogen recombiner lines and the requirement for automatic isolation of existing isolation valves in the Drywell Chilled Water (DCW) and the Reactor Enclosure Cooling Water (RECW) systems until prior to startup following the first refueling outage (Section 6.2.4.2 of the SER, SSER-1 and SSER-3), (c) exemption from GDC 2 and 4 of Appendix A, the protection of the ultimate heat sink from the effects of tornado missiles up to power levels not exceeding five percent of rated power (Section 9.2.5 of SSER-3), (d) exemption from GDC-19 of Appendix A, as related to the requirement for redundant remote shutdown capability (Section 7.4.2.3 of SSER-3), (e) exemption from the requirement of paragraph III.D.2.(b)(iii) of Appendix J, the testing of containment air locks at times when the containment integrity is not required (Section 6.2.6.1 of the SER and SSER-3), (f) exemption for the requirements of paragraphs II.H.4. and III.C.2 of Appendix J, the leak rate testing of the Main Steam Isolation Valves (MSIVs) at the peak calculated containment pressure, Pa, and exemption from the requirements of paragraph III.C.3 of Appendix J that the measured MSIV leak rates be included in the summation for the local leak rate test (Section 6.2.6.1 of SSER-3), (g) exemption from the requirement of paragraphs II.H.1 and III.B.2 of Appendix J, the local leak rate testing of the Traversing Incore Probe Shear Valves (Section 6.2.6.1 of the SER and SSER-3) and (h) a one-time

exemption from the requirement of Appendix J to perform local leak rate testing on seven Residual Heat Removal Relief Valves (Section 6.2.6.1 of SSER-3). 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 effect 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), August 1983 (letter of September 8, 1983), August, 1984 (letter of August 31, 1984), September 1984 (letter of September 25, 1984) and October 1984 (letter of October 9, 1984); "Limerick Generating Station Safeguards Contingency Plan," dated March 1981 (letter of March 17, 1981) as revised by change dated April 1982 (letter of April 16, 1982); "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. The licensee shall report any violations of the requirements contained in Sections 2.C, with the exception of 2.C(3), and Section 2.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 October 26, 2024

FOR THE NUCLEAR REGULATORY COMMISSION

Harold R. Denton, Director
Office of Nuclear Reactor Regulation

Attachments/Appendices:

1. Attachments 1-4
2. Appendix A - Technical Specifications (NUREG-1088)
3. Appendix B - Environmental Protection Plan

Date of Issuance: OCT 26 1984

ATTACHMENT 1
To-NPF 27

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.

1. The following preoperational tests must be completed and test exemptions resolved 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

2. The following tests shall be completed and test exemptions resolved 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

3. The following tests shall be completed and test exceptions resolved prior to exceeding five percent of rated power.

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

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

4. OUTSTANDING ITEMS TO BE ACCOMPLISHED PRIOR TO INITIAL CRITICALITY

a. Calibrate the containment vacuum relief valve position indicators. (Inspection Report 50-352/84-26, Item 05)

b. Complete the items listed below:

(I) Implement in-plant Radioactive Waste Control Program (HP-810) and implement training program to support Rad Waste Control Program as specified in IE Bulletin 79-19.

(II) Revise procedures and provide appropriate dosimetry to adequately address administrative control of external exposures, beta and neutron exposure evaluation, and high energy photon exposures. Complete procedures which address guidance for exposure to minors.

(III) Develop and implement internal dosimetry procedures to address 10 CFR 20.103 assessments (i.e., excreta analysis for evaluation of alpha emitter intake) and finalize procedures for Whole Body Counting.

(IV) Establish and implement personnel access control program and make provisions (i.e., access control point, health physics field office, portal monitors and frisker stations) and assure appropriate quantity of calibrated radiation instruments.

c. Revise the following procedures as noted in Inspection Report 50-352/84-47.

(I) Revise Procedure SE-8, "Fire", Attachments A, B, C and D, to correct noted deficiencies and to include locations of referenced components. (Item 01)

(II) Revise Procedure SE-1, "Plant Shutdown from Outside the Control Room," to correct noted deficiencies and to incorporate Procedure SE-8, Attachment E, "Safe Shutdown from the Remote Shutdown Panel." (Item 02)

d. Provide additional emergency lighting in the corridor leading from the control room to the Remote Shutdown Panel and the stair wells 3 and 4 in the Reactor Enclosure. (Inspection Report 50-352/84-47, Item 04)

5. OUTSTANDING ITEMS TO BE COMPLETED PRIOR TO EXCEEDING 5% RATED THERMAL POWER

a. Demonstrate the implementation of the following TMI Action Plan Items:

(I) I.G.1 "Training During Low Power Testing"

(II) II.B.2 "Plant Shielding"

(III) II.B.3 "Post-Accident Sampling Systems"

(IV) III.D.1.1 "Primary Coolant Sources Outside Containment"

6. OUTSTANDING ITEMS TO BE ACCOMPLISHED PRIOR TO COMPLETION OF THE POWER ASCENSION PROGRAM

a. Demonstrate the implementation of the following TMI Action Plan Items.

(I) Item II.F.1 "Additional Accident Monitoring Instrumentation (Items 1, 2a, b, c, d, e and f of 0737)"

(II) Item III.D.3.3 "Inplant Radiation Monitoring"

7. OUTSTANDING ITEMS TO BE CORRECTED BY THE FIRST REFUELING OUTAGE

a. Seal the conduits to instruments in the pipe tunnel. (Inspection Report 50-352/84-27, Item 04)

b. Complete the actions for Construction Deficiency Report 84-00-10 "Water accumulation in diesel fuel oil tanks."

ATTACHMENT 2
To NPF-27

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

1. 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 of rated power.

   (a) Install automatic sprinkler systems in Fire Area 41 (RECW Equipment Area) and 42 (Safeguard System Access Area).

   (b) Provide additional automatic sprinkler system coverage in the NE corner of the Reactor Building, elev. 283' (Fire Area 47A).

   (c) Complete necessary modifications to the control structure fire protection system, elevations 332' and 350', to ensure that the standpipe hose stations are capable of flowing 100 gpm at 65 psi.

2. The licensee shall complete the following fire protection item prior to startup following the first refueling outage.

   (a) 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.

ATTACHMENT 3
To NPF-27

This attachment identifies the shift operating staff experience requirements.

At all times the plant is in an operating condition other than cold shutdown or refueling, 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. Advisors, as a minimum, 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 knowledgeable of 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 achieving criticality, the licensee shall certify to the NRC the names of the advisors who have been examined and have been determined to be competent to provide advice to the operating shifts. These advisors shall be retained until at least one of the senior operators on each shift has the required experience. The NRC shall be notified at least 30 days prior to the release of any special assigned advisors.

ATTACHMENT 4
To NPF-27

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

1. 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.

2. Control Room Survey

The licensee 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 rated power. The results from the effort are to be documented in an addendum to the Final Report and submitted for staff review.

3. Control Room Enhancements

The licensee shall complete control room enhancements related 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.