

PPL Susquehanna, LLC
Allegheny Electric Cooperative, Inc.
Docket No. 50-388
Susquehanna Steam Electric Station, Unit 2
Facility Operating License

License No. NPF-22

1. The Nuclear Regulatory Commission (the Commission or the NRC) having found that:
 - A. The application for a license filed by the PPL Susquehanna, LLC and the Allegheny Electric Cooperative, Inc. (the licensees)[#] 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 Susquehanna Steam Electric Station, Unit 2 (the facility), has been substantially completed in conformity with Construction Permit No. CPPR-102 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;
 - 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;
 - E. The PPL Susquehanna, LLC^{*} is technically qualified to engage in the activities authorized by this operating license in accordance with the Commission's regulations set forth in 10 CFR Chapter I;
 - F. The licensees have satisfied the applicable provisions of 10 CFR 140, "Financial Protection Requirements and Indemnity Agreements", of the Commission's regulations;

[#] The original application for the operating license and construction permit were submitted by Pennsylvania Power & Light Company and Allegheny Electric Cooperative, Inc. For purposes of certain historical references contained herein, the term "operating licensee" is used to refer to PPL Susquehanna, LLC, as well as Pennsylvania Power & Light Company and PP&L, Inc., both of which were previously named in the license with authority to operate the facility.

^{*} The PPL Susquehanna, LLC is authorized to act as agent for the Allegheny Electric Cooperative, Inc. and has exclusive responsibility and control over the physical construction, operation, and maintenance of the facility.

- 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, or other benefits of the facility against environmental and other costs and considering available alternatives, the issuance of Facility Operating License No. NPF-22 subject to the condition for protection of the environment set forth herein, 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 regarding this facility, Facility Operating License No. NPF-22 is hereby issued to the PPL Susquehanna, LLC and the Allegheny Electric Cooperative, Inc. to read as follows:
- A. This license applies to the Susquehanna Steam Electric Station, Unit 2, a boiling water nuclear reactor and associated equipment (the facility), owned by the licensees. The facility is located in Luzerne County, Pennsylvania, and is described in the licensees' Final Safety Analysis Report, as supplemented and amended, and the licensees' Environmental Report, as supplemented and amended.
 - B. Subject to the conditions and requirements incorporated herein, the Commission hereby licenses:
 - (1) Pursuant to Section 103 of the Act and 10 CFR Part 50, "Domestic Licensing of Production and Utilization Facilities", PPL Susquehanna, LLC and the Allegheny Electric Cooperative, Inc. to possess, and PPL Susquehanna, LLC to use, and operate the facility at the designated location in Luzerne County, Pennsylvania, in accordance with the procedures and limitations set forth in this license;
 - (2) PPL Susquehanna, LLC, pursuant to the Act and 10 CFR Part 70, to receive, possess, and 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) PPL Susquehanna, LLC, 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 neutron sources for reactor instrumentation and radiation monitoring equipment calibration, and as fission detectors in amounts as required;

- (4) PPL Susquehanna, LLC, pursuant to the Act and 10 CFR Parts 30, 40, and 70, to receive, possess, and use in amounts as required any byproduct, source or 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) PPL Susquehanna, LLC, 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

PPL Susquehanna, LLC is authorized to operate the facility at reactor core power levels not in excess of 3441 megawatts thermal (100% power) in accordance with the conditions specified herein and in Attachment 1 to this license. The preoperational test, 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.
 - (2) Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendix A, as revised through Amendment No. 162 , and the Environmental Protection Plan contained in Appendix B, are hereby incorporated in the license. PPL Susquehanna, LLC shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

For Surveillance Requirements (SRs) that are new in Amendment 151 to Facility Operating License No. NPF-22, the first performance is due at the end of the first surveillance interval that begins at implementation of Amendment 151. For SRs that existed prior to Amendment 151, including SRs with modified acceptance criteria and SRs whose frequency of performance is being extended, the first performance is due at the end of the first surveillance interval that begins on the date the Surveillance was last performed prior to implementation of Amendment 151.
 - 2.C.(3) PPL Susquehanna, LLC shall implement and maintain in effect all provisions of the approved fire protection program as described in the Fire Protection Review Report for the facility and as approved in Fire Protection Program, Section 9.5, SER, SSER#1, SSER#2, SSER#3, SSER#4, SSER#6, Safety Evaluation of Fire Protection Report dated August 9, 1989, Safety Evaluation

of Revision 4 to the Fire Protection Review Report dated March 29, 1993, Safety Evaluation of Fire Protection Program Issues, Safe Shutdown Methodology and Analysis of Associated Circuits dated October 21, 1997, and Safety Evaluation of the licensees' Amendment No. 150, dated June 24, 1998, to relocate the Fire Protection Program subject to the following provision:

The operating licensee may make changes to the approved fire protection program without prior approval of the Commission only if those changes would not adversely affect the ability to achieve and maintain safe shutdown in the event of a fire.

(4) Operation with Partial Feedwater Heating at End-of-Cycle (Section 15.1 SER, SSER #1)

PPL Susquehanna, LLC shall not operate 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.

(5) Initial Test Program (Section 14, SER, SSER #1)

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

- (a) Elimination of any safety-related test[†];
- (b) Modifications of objectives, test methods 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 licensees' Final Safety Analysis Report by more than 5 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 licensees' Final Safety Analysis Report; and

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

(g) Delays in the 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 operating 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.

(6) Inservice Inspection Program (Section 5.2.4 and 6.6, SER, SSER #1, SSER #3)

By March 1, 1985, the operating licensee shall submit a revised inservice inspection program for NRC review and approval.

(7) Environmental Qualification (Section 3.11 SER, SSER #1, SSER #2, SSER #3, SSER #4, SSER #5, SSER #6)

Prior to March 31, 1985, the operating licensee shall environmentally qualify all electrical equipment according to the provisions of 10 CFR 50.49 except as follows:

- (a) All modifications of Unit 2 equipment which are common with Unit 1 shall be completed prior to the startup following the first refueling outage for Unit 1 which is prior to November 30, 1985.
- (b) Testing and qualification of conduit seals, silicone rubber insulated cable and NSIS cable shall be completed prior to November 30, 1985.
- (c) Modifications to the Target Rock Solenoid Valve SV-22651 shall be completed prior to November 30, 1985.

(8) Seismic and Dynamic Qualification (Section 3.10, SER, SSER # 1 SSER #3, SSER #4, SSER #5, SSER #6)

- (a) Prior to exceeding 5 percent of rated power, the operating licensee shall complete qualification and documentation, as well as installation for:
 - (1) RCIC back power supply and inverter
 - (2) A/E - added devices to NSSS panels
- (b) "Prior to use, the operating licensee shall complete qualification and documentation, as well as installation of the in-vessel rack."

(9) Surveillance of Control Blade (Section 4.2.3 SER)

(Deleted)

(10) Additional Instrumentation and Control Concerns (Section 7.7.2, SER, SSER #2; Section 3.11.3, SSER #6)

Prior to exceeding five percent of rated power, the operating licensee shall resolve the following concerns to the NRC's satisfaction:

- (a) whether common electrical power sources or sensor malfunctions may cause multiple control system failures, and
- (b) whether high energy line breaks will result in unacceptable consequential control system failures.

(11) Emergency Diesel Engine Starting Systems (Section 9.6.3, SER)

Prior to September 1, 1985, the operating licensee shall install air dryers upstream of the air receivers.

(12) NUREG-0737 Conditions (Section 22, SER)

The operating licensee shall complete the following conditions to the satisfaction of the NRC. These conditions reference the appropriate items in Section 22.2, "TMI Action Plan Requirements for Applicants for Operating Licenses," in the Safety Evaluation Report and Supplements 1, 2, 3, 4, 5, and 6, NUREG-0776.

(a) Nuclear Steam Supply Vendor Review of Procedures (1.C.7, SER, SSER #1)

Prior to achieving initial criticality, the operating licensee shall assure that the General Electric review of the power ascension test procedures has been completed.

(b) Detailed Control Room Design Review (I.D.1 SSER #6)

All human engineering deficiencies requiring correction as a result of the operating licensee's Detailed Control Room Design Review for Unit 1 shall be corrected in the Unit 2 control room. By March 1, 1985, the operating licensee should submit its schedule for implementing all human engineering deficiency corrective action for review and approval by NRC staff.

(c) Post Accident Sampling (II.B.3, SER, SSER #1, SSER #3)

- (1) Prior to exceeding 5 percent of rated power, the operating licensee shall have installed and have operational the Post-Accident Sampling System.
- (2) Prior to December 1, 1984, the operating licensee shall revise the interim core damage estimating procedure by submitting for staff review a final procedure which incorporates hydrogen levels, reactor vessel coolant level and containment radiation levels in addition to radionuclide data.

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

The operating licensee shall complete emergency response facilities and capabilities as required in Attachment 2 of this license.

(e) Instrumentation for Detection of Inadequate Core Cooling (II.F.2, SER, SSER #1, SSER #3, SSER #6)

The operating licensee shall implement the staff's requirements regarding upgrading of liquid level instrumentation or inclusion of additional instrumentation for detection of inadequate core cooling necessary to comply with Commission regulations, based on the staff's review of the BWR Owner's Group Reports (SLI 8211 & SLI 8218) and the operating licensee's plant specific evaluation report addressing the recommendations of the BWROG reports. Within 90 days after the operating licensee is informed of staff requirements, the operating licensee shall submit for review and approval by the staff, a schedule for implementing any required modifications regarding upgrading of liquid level instrumentation or inclusion of additional instrumentation for detection of inadequate core cooling.

(f) Modification of Automatic Depressurization System Logic - Feasibility for Increased Diversity for Some Event Sequences (II.K.3.18, SER, SSER #1, SSER #2, SSER #3, SSER #6)

- (1) Prior to achieving initial criticality, the operating licensee shall:
 - (i) Install modifications to the Automatic Depressurization System acceptable to the NRC, and
 - (ii) Propose Technical Specifications for the bypass timer setting and surveillance requirements for the bypass timer.

- (2) Prior to September 1, 1985, the operating licensee shall:
 - (i) Incorporate into the Plant Emergency Procedures the usage of the manual inhibit switch, and
 - (ii) Propose Technical Specifications for the manual inhibit switch.
- (3) The operating licensee shall maintain the manual inhibit switch disabled until license condition 2.C.(12) (f) (2) above is satisfied.

(13) Emergency Service Water System (Section 9.2.1, SSER #6)

Prior to September 1, 1985, the operating licensee shall complete modifications to the emergency service water (ESW) system described in the operating licensee's letter dated May 16, 1983.

(14) Control of Heavy Loads (Section 9.1.4, SSER #6)

(Deleted)

(15) Radon (ASLB Initial Decision, Paragraph 223)

This license will be subject to the ultimate outcome of the consolidated radon proceeding currently underway in Docket Nos. 50-277, 50-278, 50-320, 50-354 and 50-355.

(16) Formal Federal Emergency Management Agency Finding

In the event the NRC finds that lack of progress in completion of the procedures in Federal Emergency Management Agency's final rule, 44 CFR Part 350, is an indication that 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.

(17) Additional Conditions

The Additional Conditions contained in Appendix C, as revised through Amendment No. 162, are hereby incorporated into this license. PPL Susquehanna, LLC shall operate the facility in accordance with the Additional Conditions.

2. D. The operating 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 provisions of the Miscellaneous Amendments and Search Requirements revisions to 10 CFR 73.55 (51 FR 27817 and 27822) and to the authority of 10 CFR 50.90 and 10 CFR 50.54(p). The plans, which contain Safeguards Information protected under 10 CFR 73.21, are entitled: "Susquehanna Steam Electric Station Physical Security Plan," with revisions submitted through September 24, 1987; "Susquehanna Steam Electric Station Guard Training and Qualification Plan," with revisions submitted through May 28, 1985; and "Susquehanna Steam Electric Station Safeguards Contingency Plan," with revisions submitted through September 24, 1987. Changes made in accordance with 10 CFR 73.55 shall be implemented in accordance with the schedules set forth therein.
- E. Reporting to the Commission:
- PPL Susquehanna, LLC shall report any violations of the requirements contained in Section 2, Items C(1), C(3) through C(16) of this license within twenty-four (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), and (e).
- F. PPL Susquehanna, LLC 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.
- G. This license is effective as of the date of issuance and shall expire at midnight on March 23, 2024.

FOR THE NUCLEAR REGULATORY COMMISSION

Original signed by Darrell G. Eisenhut
for Harold R. Denton

Harold R. Denton, Director
Office of Nuclear Reactor Regulation

Attachments:

1. Attachment 1
2. Attachment 2
3. Appendix A - Technical Specifications (NUREG-1042)
4. Appendix B - Environmental Protection Plan

Date of Issuance: March 23, 1984

ATTACHMENT 2

The operating licensee shall implement the specific items below, in the manner described in the operating licensee's letter (PLA-1621) dated April 15, 1983, as modified by the operating licensee's letter (PLA-1750) dated July 22, 1983, the operating licensee's letter (PLA-1772) dated August 3, 1983, the operating licensee's letter (PLA-1966) dated November 23, 1983, the operating licensee's letter (PLA-2059) dated February 1, 1984, and the operating licensee's letter (PLA-2131) dated March 14, 1984 no later than the following specified dates:

- (a) Safety Parameter Display System (SPDS)
 - SPDS full operational and operators trained July 1, 1984

- (b) Detailed Control Room Design Review (DCRDR)
 - Submit a supplemental summary report to the NRC including a proposed schedule for implementation. March 1, 1985

- (c) Regulatory Guide 1.97 - Application to Emergency Response Facilities
 - (1) Submit a report to the NRC describing how the requirements of Supplement 1 to NUREG-0737 have been or will be met. May 1984

 - (2) Implement (installation or upgrade) requirements of R. G. 1.97 or provide justification acceptable to the NRC staff for suppression pool water temperature, drywell atmosphere temperature, neutron flux, primary containment isolation valve position, radiation level in circulating primary coolant, radiation exposure rate, and noble gas and vent rate. June 1987

- (d) Upgrade Emergency Operating Procedures
 - (1) Submit a Procedures Generation Package to the NRC June 1985

 - (2) Implement the upgraded EOP's December 1985

- (e) Emergency Response Facilities
 - (1) Technical Support Center fully functional June 1987

 - (2) Operational Support Center fully functional June 1987

 - (3) Emergency Operations Facility fully functional June 1987

APPENDIX B

**TO FACILITY OPERATING LICENSE NO. NPF-22
SUSQUEHANNA STEAM ELECTRIC STATION, UNITS 1 AND 2**

PPL Susquehanna, LLC

DOCKET NOS. 50-387 AND 50-388

**ENVIRONMENTAL PROTECTION PLAN
(NON-RADIOLOGICAL)**

March, 1984

Amendment No. 153,

Amendment No. 162

Appendix C

Additional Conditions
Facility Operating License No. NPF-22
Docket No. 50-388

Amendment Number	Additional Conditions	Implementation Date
151	The operating licensee is authorized to relocate certain requirements included in Appendix A to operating licensee-controlled documents. Implementation of this amendment shall include the relocation of these requirements to the appropriate documents, as described in the operating licensee's letters dated August 1, 1996, as supplemented by letters dated November 26, 1997, January 6, March 2, April 24, and June 18, 1998, evaluated in the NRC staff's Safety Evaluation enclosed with this amendment.	This amendment is effective immediately and shall be implemented within 90 days of the date of this amendment. Dated: July 30, 1998
162	PPL Susquehanna shall not take any action that would cause PPL Corporation or any other direct or indirect parent of PPL Susquehanna to void, cancel, or diminish any applicable commitment to fund an extended plant shutdown as represented in the application for approval of the transfer of the license for Susquehanna SES, Unit 2.	This amendment shall be issued and made effective at the time the license transfer to PPL Susquehanna is completed and shall be implemented within 30 days of issuance.
162	For purposes of ensuring public health and safety, PPL Susquehanna shall provide decommissioning funding assurance, to be held in a decommissioning trust for Susquehanna SES, Unit 2, upon transfer of the license to PPL Susquehanna, in the amount specified in PP&L, Inc.'s, March 29, 1999, "Decommissioning Report of Financial Assurance" as Owner's Decommissioning Fund Totals at December 31, 1998, plus any additional funds added to the account since the filing of that report, on the date of transfer. In addition, PPL Susquehanna will ensure that its contractual arrangements with PPL EnergyPlus, LLC, and the contractual arrangements of PPL EnergyPlus, LLC with PPL Electric Utilities Corporation to obtain necessary decommissioning funds for Susquehanna SES through a non-bypassable charge will be maintained until the decommissioning trust is fully funded, or will ensure that other mechanisms that provide equivalent assurance of decommissioning funding in accordance with the Commission's regulations are maintained.	This amendment shall be issued and made effective at the time the license transfer to PPL Susquehanna is completed and shall be implemented within 30 days of issuance.

162	<p>The decommissioning trust agreement for Susquehanna SES, Unit 2, is subject to the following:</p> <ul style="list-style-type: none">a) The trust agreement must be in a form acceptable to the NRC.b) With respect to the decommissioning trust fund, investments in the securities or other obligations of PPL Corporation or its affiliates, successors, or assigns shall be prohibited. Except for investments tied to market indexes or other non-nuclear-sector mutual funds, investments in any entity owning one or more nuclear power plants are prohibited.c) The decommissioning trust agreement for Susquehanna SES, Unit 2, must provide that no disbursements or payments from the trust shall be made by the trustee unless the trustee has first given the NRC 30-days prior written notice of payment. The decommissioning trust agreement shall further contain a provision that no disbursements or payments from the trust shall be made if the trustee receives prior written notice of objection from the Director, Office of Nuclear Reactor Regulation.d) The decommissioning trust agreement must provide that the agreement cannot be amended in any material respect without 30-days prior written notification to the Director, Office of Nuclear Reactor Regulation.e) The appropriate section of the decommissioning trust agreement shall state that the trustee, investment advisor, or anyone else directing the investments made in the trust shall adhere to a "prudent investor" standard, as specified in 18 CFR 35.32(a)(3) of the Federal Energy Regulatory Commission's regulations.	<p>This amendment shall be issued and made effective at the time the license transfer to PPL Susquehanna is completed and shall be implemented within 30 days of issuance.</p>
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