PPL Susquehanna, LLC
Allegheny Electric Cooperative, Inc.
Docket No. 50-387
Susquehanna Steam Electric Station, Unit 1
Renewed Facility Operating License

1. The Nuclear Regulatory Commission (the Commission or the NRC) having found that:

   A. The application for a renewed 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 1 (the facility), has been substantially completed in conformity with Construction Permit CPPR-101 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 applications 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were submitted by Pennsylvania Power & Light Company and Allegheny Electric Cooperative, Inc. For purposes of certain historical references contained herein, the term "operating licensee" is used to refer to PPL Susquehanna, LLC, as well as Pennsylvania Power & Light Company and PP&L, Inc., both of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, and other benefits of the facility against environmental and other costs and considering available alternatives, the issuance of renewed Facility Operating License No. NPF-14 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;

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; and

J. Actions have been identified and have been or will be taken with respect to (1) managing the effects of aging during the period of extended operation on the functionality of structures and components that have been identified to require review under 10 CFR 54.21(a)(1); and (2) time-limited aging analyses that have been identified to require review under 10 CFR 54.21(c), such that there is reasonable assurance that the activities authorized by the renewed operating license will continue to be conducted in accordance with the current licensing basis, as defined in 10 CFR 54.3, for the facility, and that any changes made to the facility's current licensing basis in order to comply with 10 CFR 54.29(a) are in accordance with the Act and the Commission's regulations.

2. Renewed Facility Operating License No. NPF-14 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 1, 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 renewed 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 3952 megawatts thermal in accordance with the conditions specified herein. The preoperational tests, startup tests and other items identified in License Conditions 2.C.(36), 2.C.(37), 2.C.(38), and 2.C.(39) to this license shall be completed as specified.

(2) Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendix A, as revised through Amendment No. 254 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 178 to Facility Operating License No. NPF-14, the first performance is due at the end of the first surveillance interval that begins at implementation of Amendment 178. For SRs that existed prior to Amendment 178, 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 178.

(3) Conduct of Work Activities During Fuel Load and Initial Startup

The operating licensee shall review by committee all facility construction, Preoperational Testing, and System Demonstration activities performed concurrently with facility initial fuel loading or with the facility Startup Test Program to assure that the activity will not affect the safe performance of the facility fuel loading or the portion of the facility Startup Program being performed. The review shall address, as a minimum, system interaction, span of control, staffing, security and health physics, with respect to performance of the activity concurrently with the facility fuel loading or the portion of the facility Startup Program being performed. The committee for the review shall be composed of a least three members, knowledgeable in the above areas, and who meet the qualifications for professional-technical personnel specified by section 4.4 of ANSI N18.7-1971. At least one of these three shall be a senior member of the Assistant Superintendent of Plant's staff.

(4) Thermal and Hydraulic Design (Section 4.4, SER)

(a) PPL Susquehanna, LLC is prohibited from power operation under natural circulation conditions.

(5) Qualification of Purge Valves

Whenever the operational condition is other than cold shutdown or refueling, the operating licensee shall maintain each containment purge and vent isolation valve greater than 2-in. nominal diameter in one of the following conditions:

(a) Closed and electrically prohibited from opening,

(b) Blocked so as not to permit opening by more than 50 degrees, or

(c) Operated to permit opening by more than 50 degrees after demonstrating that the valves are qualified to close from the full open position against peak LOCA pressure, and are also qualified per the criteria of Branch Technical Position CSB 6-4. Purge valve qualification documentation must be approved by the NRC prior to operating valves in this mode.

(6) 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. 177, 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.

(7) Battery Room Area (Section 9.5.4, SER, SSER#1, SSER#3)

Prior to exceeding five percent of full power and subject to NRC review and approval, the operating licensee shall either conduct at an approved testing laborabory an ASTM E-119 test of the as-installed one-hour cable wrap configuration or install an automatic fire extinguishing system.

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

Prior to operation with partial feedwater heating, PPL Susquehanna, LLC shall provide for NRC review and approval, analyses which show a more limiting change does not occur in the minimum critical power ratio than that obtained using normal feedwater heating.

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

The operating licensee shall conduct the post-fuel-loading initial test program (set forth in Section 14 of the licensees' Final Safety Analysis Report, as amended through Amendment 50 and modified by the operating licensee's letter dated August 26, 1982, (PLA-1257)) without making any major modifications of this program unless modifications have been identified and have received prior NRC approval. Major modifications are defined as:

(a) Elimination of any test identified as essential in Section 14 of the licensees' Final Safety Analysis Report, as amended through Amendment 50 and modified by the operating licensee's letter dated August 26, 1982, (PLA-1257);

(b) Modifications of test objectives, methods or acceptance criteria for any test identified as essential in Section 14 of the licensees' Final Safety Analysis Report, as amended through Amendment 50 and modified by the operating licensee's letter dated August 26, 1982, (PLA-1257);

(c) Performance of any test at a power level different from that described in the program; and

(d) Failure to complete any tests included in the described program (planned or scheduled for power levels up to the authorized power level).

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

By June 30,1983, the operating licensee shall submit a revised inservice inspection program for NRC review and approval.

(11) Seismic System Analysis (Section 3.7.2, SSER#3)

By the dates indicated, the operating licensee shall provide documentation to the NRC for review which states the results of recheck of all calculations associated with calculating masses, section properties, and spring stiffnesses used in stick models for the following structures:

(a)	Containment	July 30, 1982
(b)	Reactor/Control Structure (Vertical model)	August 25, 1982
(c)	Diesel Generator Building	August 25, 1982
(d)	Engineering Safeguard Service Water Pumphouse	August 25, 1982

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

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

(13) Nearby Facilities (Section 2.2.2, SSER#3, SSER#4)

(a) The operating licensee shall submit a complete report for NRC review and approval delineating interim gas line flow restrictions to 39 m^3/sec of natural gas.

(b) By December 31, 1982, the approved interim gas line flow restrictions and procedures addressing system configuration changes shall be implemented.

(c) By February 28, 1983, the operating licensee shall submit a report for NRC review and approval describing either:

(1) Permanent modifications which limit flow to 39 m^3/sec, or

(2) Relocation of the pipeline to a safe distance from the facility.

(d) By September 30, 1984, the selected modification or relocation of the pipeline shall be completed.

(14) Seismic and Loss-of-Coolant Accident Loads (Section 4.2.3, SSER #3)

By August 30, 1982, the operating licensee shall submit to NRC a complete description of the analytical methods along with analytical results with regard to fuel bundle liftoff. This submittal should contain information equivalent to that to be included in the General Electric Topical Report (NEDE-21175-P) regarding fuel bundle liftoff.

(15) Control Room Design Review (Appendix F, SER, SSER#3)

By September 1, 1982, the operating licensee shall complete correction of the following human engineering discrepancies as noted in Appendix F of the Safety Evaluation Report:

2.a.(3) Left/right convention on all controllers.

6.f. Unconventional labeling.

(16) Wetwell to Drywell Vacuum Breakers (Section 6.2.1.8, SSER#3, SSER#4)

Prior to startup following the first refueling outage, the operating licensee shall implement design modification on the wetwell/drywell vacuum breaker valves that include:

(a) installation of new disc assemblies, new shaft bearing caps; and

(b) replacement of the shaft, keys and turnbuckle with stronger materials.

(17) Scram Discharge System Piping (Section 4.6, SER, SSER#1, SSER#2, SSER#3)

(a) Within 60 days of the issuance of the BWR Owner's Group Report regarding modifications to the Emergency Procedure Guidelines, the operating licensee shall submit a report addressing the Emergency Procedure Guidelines with regard to Scram Discharge Volume (SDV) pipe breaks. The operating licensee shall implement any required system or procedural modifications on a schedule acceptable to the NRC staff.

(b) Prior to startup following the first refueling outage, the operating licensee shall incorporate the following additional modifications into the scram discharge volume system:

(1) Redundant vent and drain valves, and

(2) Diverse and redundant SDV instrumentation for each instrumented volume, including both delta pressure sensors and float sensors.

(18) Environmental Qualification (Section 3.11, SER, SSER#1, SSER#2, SSER#3, SSER#4)

(a) The operating licensee shall complete all actions related to environmental qualification of equipment on a schedule specified in Section 3.11 and Appendix 3.B of Supplement No. 3 of the Safety Evaluation Report with the exceptions of Section 3.11.5.(1) and Section 3.11.5.(2)(e).

(b) Complete and auditable records must be available and maintained at a central location which describe the environmental qualification methods used for all safety-related electrical equipment in sufficient detail to document the degree of compliance with NUREG-0588, "Interim Staff Position on Environmental Qualification of Safety-Related Electrical Equipment," Revision 1, dated July 1981. Such records shall be updated and maintained current as equipment is replaced, further tested, or otherwise further qualified to document compliance with NUREG-0588.

(c) Prior to startup following the first refueling outage, the operating licensee shall be in compliance with the provisions of NUREG-0588 for safety-related electrical equipment exposed to a harsh environment.

(d) By April 15, 1983, the operating licensee shall implement the maintenance and surveillance schedule for components requiring initial maintenance and surveillance after the first year of operation.

(19) Assurance of Proper Design and Construction (Section 17.6, SSER #3, SSER#4)

(a) By December 31, 1982, the operating licensee shall review and categorize discrepancies on large pipe anchors outside containment.

(b) By December 31, 1982, the operating licensee shall restore to their original design requirements, discrepancies in large pipe anchors outside containment requiring more complex analysis than used in the original design.

(20) Emergency Preparedness (Appendix D, SSER #1, SSER #2; 13.3, SSER#4)

By March 1, 1983, the operating licensee shall certify to the NRC staff the completion of the following offsite emergency preparedness items:

(a) Adequate supplies of KI for offsite emergency workers are obtained by the State of Pennsylvania to fulfill the existing State plan or a contingency plan is developed that reflects the inability to obtain supplies to support the existing State plan.

(b) Adequate supplies of dosimetry for offsite emergency workers are obtained by the State of Pennsylvania to implement the existing State plan or the State plan is revised accordingly.

(c) State and county plans are modified as necessary-to account for the abandonment of the field Emergency Operations Center concept.

(21) School District Emergency Plans (ASLB Initial Decision, Paragraph 223)

This license will be subject to a finding (prior to operation at power levels exceeding five percent of full power) by the Director of Nuclear Reactor Regulation, in consultation with the Federal Emergency Management Agency, that all school districts within the plume exposure pathway emergency planning zone for the Susquehanna Steam Electric Station have completed written emergency plans to respond to fixed nuclear facility accidents.

(22) Municipality Transportation Resources (ASLB Initial Decision, Paragraph 223)

This license will be subject to a finding (prior to operation at power levels exceeding five percent of full power) by the Director of Nuclear Reactor Regulation, in consultation with the Federal Emergency Management Agency, that all municipalities within the plume exposure pathway emergency planning zone have completed their emergency response plans on the transportation resources and program.

(23) Seismic and Dynamic Qualification (Section 3.10, SER, SSER#1, SSER#3, SSER#4)

(a) Prior to startup following the first refueling outage, the operating licensee shall complete any modifications or replacement of equipment found necessary as a result of the operating licensee's fatigue evaluation program. In the interim, the operating licensee shall document the occurrence of every safety relief valve discharge into the suppression pool; the associated cumulative damage factors shall be calculated for typical representative equipment and kept up-to-date; and the operating licensee shall report to NRC any malfunction of equipment that occurs or should be suspected to have occurred due to any safety relief valve discharge.

(b) Prior to use, the operating licensee shall complete qualification and documentation, as well as installation of the in-vessel rack.

(c) By December 31, 1982, the operating licensee shall provide the completed final qualification report for Main Steam Isolation Value Actuator (HV-1F022A through D, HV-1F028 A through D) to the NRC staff for review.

(d) The operating licensee shall implement the NRC staff's requirements after completion of the staff's review of the final qualification report for the Main Steam Isolation Valve Leakage Control System Heater (1 E-203 A through D).

(e) Prior to exceeding the 25-cycle operational limit, the operating licensee shall qualify the Recirculation Discharge Valve assemblies (HV-1F031 A and B) including new Limitorque actuators. The replacement actuators shall be wired for torque seating type operation.

(f) Prior to startup following the first refueling outage, the operating licensee shall fully qualify the following items to the SQRT criteria and provide the final qualification reports to the NRC staff for review.

(1) CRD vent and drain valves (C12-F010/F011)
(2) Power Range Monitor Cabinet (H12-P608)
(3) Level Switch (E41-N014)
(4) Level Switch - Condensate Storage Tanks, Suppression Pool, HCPI Turbine Exhaust Drain Pot (E41-N002/N003, N015, N018)
(5) High Pressure Coolant Injection Turbine (15-211)

(24) Containment Purge System (Section 6.2.4, SER)

Prior to startup following the first refueling outage, the operating licensee shall install design features (e.g. screens) on the containment purge system to prevent blocking of the purge and vent valves by debris produced in an accident.

(25) Additional Instrumentation and Control Concerns (Section 7.7.2, SER, SSER #2)

Prior to startup following the first refueling outage, 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 systems failures, and

(b) whether high energy line breaks will result in unacceptable consequential control system failures.

(26) Surveillance of Control Blade (Section 4.2.3, SER)

DELETED

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

Prior to startup following the first refueling outage, the operating licensee shall install air dryers upstream of air receivers.

(28) 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 and 3, NUREG-0776.

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

Prior to beginning low-power testing, the operating licensee shall assure that the General Electric review of the power ascension test procedures has been completed and the General Electric recommendations have been incorporated.

(b) Special Low Power Testing and Training

DELETED

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

Prior to startup following the first refueling outage, the operating licensee shall provide to NRC a revised procedure for core damage estimation to incorporate the requirements in Section 22.2, II.B.3 of Supplement No. 3 of the Safety Evaluation Report.

2.C.(28)(c) see SER dtd 9/18/85

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

(i) By August 31, 1982, the operating licensee shall submit a report addressing the analysis performed by the BWR Owners Group regarding additional instrumentation relative to inadequate core cooling and shall implement the staff's requirements after the completion of the staff's review of this report.

2.C.(28)(d)(i) satisfied per letter dtd 4/11/86

(ii) By October 31, 1982, the operating licensee shall submit its proposal for conforming with item II.F.2 of NUREG-0737 in view of the BWR Owners Group report.

(e) Modification of Automatic Depressurization System Logic (II.K.3.18, SER, SSER#1, SSER#2, SSER#3)

(a) By October 1, 1982, the operating licensee shall evaluate the alternative design modifications of the BWR Owners Group relative to the logic for the automatic depressurization system, submit such evaluation, and propose modifications to the NRC for review and approval.

(b) Prior to startup following the first refueling outage, the operating licensee shall implement the approved alternative logic modification of the automatic depressurization system.

(f) Effect of Loss of Power on Alternating Current Pump Seals (II.K.3.25, SER, SSER#1)

Prior to startup after the first refueling, the operating licensee shall provide an emergency power supply to the cooling system for the recirculation pump seals.

(g) Upgrade Emergency Support Facilities

The operating licensee shall complete its Emergency Response Facilities as follows:

(1) Safety Parameter Display System - December 30, 1983
(2) Emergency Operations Facility - October 1, 1982
(3) Technical Support Center - October 1, 1982

(29) SRV Inplant Test (Section 6.2.1.8, SER; 6.2.1.5, SSER#1)

Within 90 days following the staff receipt of the report providing the results of the inplant SRV test at the LaSalle, Unit 1 facility, the operating licensee shall furnish the results of its evaluation and application of the LaSalle data to assure that for Susquehanna Unit 1, the ΔT between bulk and local pool temperatures will not exceed 10ºF.

(30) Dynamic Testing and Analysis of Systems, Components, and Equipment (Section 3.9.2, SSER#4)

(a) By April 1, 1983, the operating licensee shall provide to the NRC staff detailed analysis or testing results which demonstrate that the feedwater isolation valves can adequately perform their intended function and satisfy the requirements of General Design Criteria (GDC) 54 and 55 following a feedwater line break outside containment.

(b) Prior to exceeding five percent of full power, the operating licensee shall verify that all check valves relied upon for containment isolation, either within

or outside containment, are dynamically qualified or the operating licensee shall provide a basis for continued operation and a program for qualifying such valves.

(31) Control Room Design Review (Section 22, SSER #4)

Prior to startup following the first refueling outage, the operating licensee shall provide a report discussing the experience, including demonstrated reliability, of the Display Control System.

(32) Emergency Service Water System (Section 6.3.4, SSER #4)

Prior to startup following the first refueling outage, the operating licensee shall complete design modifications to the emergency service water (ESW) system, approved by the staff, to eliminate single failure in the ESW system which leads to the need for an uncooled residual heat removal (RHR) pump.

(33) The Additional Conditions contained in Appendix C, as revised through Amendment No. 188, are hereby incorporated into this license. PPL Susquehanna, LLC shall operate the facility in accordance with the Additional Conditions.

(34) Mitigation Strategy License Condition

Develop and maintain strategies for addressing large fires and explosions and that include the following key areas:

(a) Fire fighting response strategy with the following elements:
1. Pre-defined coordinated fire response strategy and guidance
2. Assessment of mutual aid fire fighting assets
3. Designated staging areas for equipment and materials
4. Command and control
5. Training of response personnel

(b) Operations to mitigate fuel damage considering the following:
1. Protection and use of personnel assets
2. Communications
3. Minimizing fire spread
4. Procedures for implementing integrated fire response strategy
5. Identification of readily-available pre-staged equipment
6. Training on integrated fire response strategy
7. Spent fuel pool mitigation measures

(c) Actions to minimize release to include consideration of:
1. Water spray scrubbing
2. Dose to onsite responders

(35) The licensee shall implement and maintain all Actions required by Attachment 2 to NRC Order EA-06-137, issued June 20, 2006, except the last action that requires incorporation of the strategies into the site security plan, contingency plan, emergency plan and/or guard training and qualification plan, as appropriate.

(36) Potential Adverse Flow Effects

These license conditions provide for monitoring, evaluating, and taking prompt action in response to potential adverse flow effects as a result of power uprate operation on plant structures, systems, and components (including verifying the continued structural integrity of the steam dryer).

(a) The following requirements are placed on operation of the PPL Susquehanna, LLC (PPL) facility above the licensed thermal power (CLTP) level of 3489 megawatts thermal (MWt):

(1) PPL shall obtain at each 3.5% power ascension step up to 107% of 3489 MWt, dryer strain gauge data and compare it to the acceptance criteria during power ascension above 3489 MWt. PPL shall obtain at each 3.5% power ascension step above 107% of 3489 MWt, main steam line strain gauge data and compare it to the limit curve for the dryer strains during power ascension.

(2) PPL shall monitor the main steam line (MSL) strain gauges during power ascension testing above 3489 MWt for increasing pressure fluctuations in the steam lines.

(3) PPL shall hold the facility at each 3.5% ascension step to collect data from License Condition 2.C.(36)(a) and conduct plant inspections and walk-downs, and evaluate steam dryer performance based on the data; shall provide the evaluation to the NRC staff by facsimile or electronic transmission to the NRC project manager upon completion of the evaluation; and shall not increase power above each hold point until 96 hours after the NRC project manager confirms receipt of the transmission.

(4) If any steam dryer strains at each 3.5% power ascension step up to 107% of 3489 MWt or frequency peak from the MSL strain gauge data exceeds the level 1 limit curve for the MSL strains above 107% of 3489 MWt, PPL shall return the facility to a power level at which the acceptance criteria is not exceeded. PPL shall resolve the discrepancy, document the continued structural integrity of the steam dryer, and provide that documentation to the NRC staff by facsimile or electronic transmission to the NRC project manager prior to further increases in reactor power.

(5) In addition to evaluating the dryer instrumentation data and MSL strain gauge data, PPL shall monitor reactor pressure vessel water level instrumentation and MSL piping accelerometers during power ascension above 3489 MWt. If resonance frequencies are identified as increasing above nominal levels in proportion to instrumentation data, PPL shall stop power ascension, document the continued structural integrity of the steam dryer, and provide that documentation to the NRC staff by facsimile or electronic transmission to the NRC project manager prior to further increases in reactor power.

(6) Following CPPU start-up testing, PPL shall resolve any discrepancies in the steam dryer analysis and provide that resolution to the NRC staff by facsimile or electronic transmission to the NRC project manager. If the discrepancies are not resolved within 90 days of identification, PPL shall return the facility to a power level at which the discrepancy does not exist.

(b) PPL shall implement the following actions:

(1) PPL shall provide to NRC the as-built dryer stress reconciliation and load limit curves 45 days prior to operation above 3489 MWt.

(2) After the dryer stress analysis is benchmarked to the Unit 1 startup test data (Unit 1 data taken up to 107% of 3489 MWt), the benchmark results and updated MSL limit curves shall be provided to the NRC 90 days prior to operation above 107% of 3489 MWt.

(3) In the event that acoustic signals are identified that challenge the limit curve during power ascension above 107%, PPL shall evaluate dryer loads and re-establish the acceptance criteria based on the new data, and shall perform an assessment of ACM uncertainty at the acoustic signal frequency.

(4) After reaching 107% of CLTP, PPL shall obtain measurements from the steam dryer instrumentation and establish the steam dryer flow-induced vibration load fatigue margin for the facility, update the dryer stress report, and re-establish the limit curve with the updated ACM load definition and revised instrument uncertainty, which will be provided to the NRC staff.

(5) During power ascension above 107% CLTP, if an engineering evaluation for the steam dryer is required because a Level 1 acceptance criteria is exceeded, PPL shall perform the structural analysis to address frequency uncertainties up to ±10 % and assure that peak responses that fall within this uncertainty band are addressed.

(6) PPL shall revise the Post Constant Pressure Power Uprate (CPPU) Monitoring & Inspection Program to reflect long-term monitoring of plant parameters potentially indicative of steam dryer failure; to reflect consistency of the facility's steam dryer inspection program with General Electric Service Information Letter (SIL) 644, "BWR/3 Steam Dryer Failure," Revision 2; and to identify the NRC Project Manager for the facility as the point of contact for providing Power Ascension Test Plan (PATP) information during power ascension.

(7) PPL shall submit CPPU steam dryer reports to the NRC. Two written reports will be provided to the NRC. These reports will be issued following completion of testing of Unit 1 power ascension to 107% CLTP and 114% CLTP. Each report will include evaluations or corrective actions that were required to assure steam dryer structural integrity. Additionally, they will include relevant data collected at each power step, comparisons to performance criteria (design predictions), and evaluations performed in conjunction with steam dryer structural integrity monitoring.

(8) PPL shall submit the flow-induced vibration related portions of the CPPU startup test procedure to the NRC, including methodology for updating the limit curve, prior to initial power ascension above 3489 MWt.

(c) PPL shall prepare the CPPU startup test procedure to include the:

(1) steam dryer strain gauge acceptance criteria to be used up to 107% of CLTP and the main steam line strain gauge limit curves to be applied for evaluating steam dryer performance above 107% CLTP;

(2) specific hold points and their duration during CPPU power ascension;

(3) activities to be accomplished during hold points;

(4) plant parameters to be monitored;

(5) inspections and walk-downs to be conducted for steam, feedwater, and condensate systems and components during the hold points;

(6) methods to be used to trend plant parameters;

(7) acceptance criteria for monitoring and trending plant parameters, and conducting the walk-downs and inspections;

(8) actions to be taken if acceptance criteria are not satisfied; and

(9) verification of the completion of commitments and planned actions specified in its application and all supplements to the application in support of the CPPU license amendment request pertaining to the steam dryer prior to power increase above 3489 MWt. PPL shall provide the related CPPU startup test procedure sections to the NRC by facsimile or electronic transmission to the NRC project manager prior to increasing power above 3489 MWt.

(d) The following key attributes of the PATP shall not be made less restrictive without prior NRC approval:

(1) During initial power ascension testing above 3489 MWt, each test plateau increment shall be approximately 3.5% of 3489 MWt;

(2) Level 1 performance criteria; and

(3) The methodology for establishing the stress criteria used for the Level 1 and Level 2 performance criteria.

Changes to other aspects of the PATP may be made in accordance with the guidance of Nuclear Energy Institute (NEI) 99-04, "Guidelines for Managing NRC Commitments," issued July 1999.

(e) During each scheduled refueling outage until at least two full operating cycles at full CPPU conditions have been achieved, a visual inspection shall be conducted of all accessible, susceptible locations of the steam dryer in accordance with BWRVIP-139 and General Electric inspection guidelines.

(f) The results of the visual inspections of the steam dryer shall be reported to the NRC staff within 60 days following startup. The results of the PATP shall be submitted to the NRC staff in a report within 60 days following the completion of all CPPU power ascension testing.

(g) This license condition shall expire upon satisfaction of the requirements in License Conditions 2.C.(36)(e) and 2.C.(36)(f) provided that a visual inspection of the steam dryer does not reveal any new unacceptable flaw or unacceptable flaw growth that is due to fatigue.

(37) Transient Testing

(a) PPL will demonstrate through performance of transient testing on each SSES unit that the loss of one condensate pump will not result in a complete loss of reactor feedwater. The test shall be performed on each unit during the unit's CPPU power ascension test program within 336 hours of achieving and prior to exceeding a nominal power level of 3733 MWt with feedwater and condensate flow rates stabilized. PPL shall confirm that the plant response to the transient is as expected in accordance with the acceptance criteria that are established. If a loss of all reactor feedwater occurs as a

result of the test, the test failure shall be addressed in accordance with corrective action program requirements and the provisions of the power ascension test program prior to continued operation of the SSES Unit above 3489 MWt.

(b) Unless the NRC issues a letter notifying the licensee that the tests specified by License Condition 2.C.(37)(a) adequately demonstrate that a single condensate pump trip will not result in a loss of all feedwater while operating at the full CPPU power level of 3952 MWt, PPL shall perform the transient test on either SSES unit (whichever unit is first to achieve the following specified operating conditions) specified by License Condition 2.C. (37)(a) during the power ascension test program while operating at 3872 MWt to 3952 (98% to 100% of the full CPPU power level) with feedwater and condensate flow rates stabilized. The test shall be performed within 90 days of operating at greater than 3733 MWt and within 336 hours of achieving a nominal power level of 3872 MWt with feedwater and condensate flow rates stabilized. PPL will demonstrate through performance of transient testing on either Susquehanna Unit 1 or Unit 2 (whichever unit is first to achieve the specified conditions) that the loss of one condensate pump will not result in a complete loss of reactor feedwater. PPL shall confirm that the plant response to the transient is as expected in accordance with the acceptance criteria that are established. If a loss of all feedwater occurs as a result of the test, the test failure shall be addressed in accordance with corrective action program requirements and the provisions of the power ascension test program prior to continued operation of either SSES Unit above 3733 MWt.

(38) Neutronic Methods

(a) An OPRM amplitude setpoint penalty will be applied to account for a reduction in thermal neutrons around the LPRM detectors caused by transients that increase voiding. This penalty will reduce the OPRM scram setpoint according to the methodology described in Response No. 3 of PPL letter, PLA-6306, dated November 30, 2007. This penalty will be applied until NRC evaluation determines that a penalty to account for this phenomenon is not warranted.

(b) For SSES SLMCPR, a conservatively adjusted pin power distribution uncertainty and bundle power correlation coefficient will be applied as stated in Response No. 4 of PPL letter, PLA-6306, dated November 30, 2007, when performing the analyses in accordance with ANF-524(P)(A), "Critical Power Methodology for Boiling Water Reactors," using the uncertainty parameters associated with EMF-2158(P)(A) "Siemens Power Corporations Methodology for Boiling Water Reactors: Evaluation and Validation of CASMO-4/MICROBURN-B2 "

(39) Containment Operability for EPU

PPL shall ensure that the CPPU containment analysis is consistent with the SSES 1 and 2 operating and emergency procedures. Prior to operation above CLTP, for each respective unit, PPL shall notify the NRC project manager that all appropriate actions have been completed.

(40) Primary Containment Leakage Rate Testing Program

Those primary containment local leak rate program tests (Type B - leakage-boundary and Type C - containment isolation valves) as modified by approved exemptions, required by 10 CFR Part 50, Appendix J, Option B and Technical Specification 5.5.12, are not required to be performed at the CPPU peak calculated containment internal pressure of 48.6 psig (Amendment No. 246 to this Operating License) until their next required performance.

D. The operating licensee shall fully implement and maintain in effect all provisions of the Commission-approved physical security, 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 plan, which contains Safeguards Information protected under 10 CFR 73.21, is entitled: "Physical Security Plan, Training and Qualification Plan, Safeguards Contingency Plan and Security and Contingency Plan for Independent Spent Fuel Storage Facility," and was submitted October 8, 2004.

E. Exemptions from certain requirements of Appendices G and H to 10 CFR Part 50 are described in the Safety Evaluation Report and Supplements 1 and 2 to the Safety Evaluation Report. In addition, an exemption was requested until receipt of new fuel for first refueling from the requirements for criticality monitors in the spent fuel pool area, 10 CFR Part 70.24. Also, an exemption was requested from the requirements of Appendix J of 10 CFR Part 50 for the first fuel cycle when performing local leak rate testing of Residual Heat Removal (RHR) relief valves in accordance with Technical Specification 4.6.1.2. This latter exemption is described in the safety evaluation of License Amendment No. 13. 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 and have been granted pursuant to 10 CFR 50.12. Except as here exempted, the facility will operate, to the extent authorized herein, in conformity with the application, as amended, and the rules and regulations of the Commission and the provisions of the Act.

F. This license is subject to the following additional condition for the protection of the environment:

Before engaging in additional construction or operational activities which may result in a significant adverse environmental impact that was not evaluated or that is significantly greater than that evaluated in the Final Environmental Statement and its

Addendum, PPL Susquehanna, LLC shall provide a written notification to the Director of the Office of Nuclear Reactor Regulation and receive written approval from that office before proceeding with such activities.

G. DELETED

H. 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.

I. In accordance with the Commission's direction in its Statement of Policy, Licensing and Regulatory Policy and Procedures for Environmental Protection; 'Uranium Fuel Cycle Impacts, October 29, 1982, this license is subject to the final resolution of the pending litigation involving Table S-3. See, Natural Resources Defense Council v. NRC, No. 74-1586 (April 27, 1982).

J. The information in the Updated Final Safety Analysis Report (UFSAR) supplement, as revised, submitted pursuant to 10 CFR 54.21(d), shall be incorporated into the UFSAR no later than the next scheduled update required by 10 CFR 50.71(e) following the issuance of this renewed operating license. Until this update is complete, PPL Susquehanna, LLC, may not make changes to the information in the supplement. Following incorporation into the UFSAR, the need for prior Commission approval of any changes will be governed by 10 CFR 50.59.

K. The UFSAR supplement, as revised, submitted pursuant to 10 CFR 54.21(d), describes certain future activities to be completed prior to and/or during the period of extended operation. The licensee shall complete these activities in accordance with Appendix A of NUREG-1931, “Safety Evaluation Report Related to the Susquehanna Steam Electric Station, Units 1 and 2,” dated November, 2009. The licensee shall notify the NRC in writing when activities to be completed prior to the period of extended operation are complete and can be verified by NRC inspection.

L. All capsules in the reactor vessel that are removed and tested must meet the requirements of American Society for Testing and Materials (ASTM) E 185-82 to the extent practicable for the configuration of the specimens in the capsule. Any changes to the capsule withdrawal schedule, including spare capsules, must be approved by the staff prior to implementation. All capsules placed in storage must be maintained for future insertion. Any changes to storage requirements must be approved by the staff, as required by 10 CFR Part 50, Appendix H.

3. This license is effective as of the date of issuance and shall expire at midnight on July 17, 2042.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/

Eric J. Leeds, Director
Office of Nuclear Reactor Regulation

Attachments:
1. Attachment 1
2. Appendix A - Technical Specifications
3. Appendix B - Environmental Protection Plan (Non-Radiological)
4. Appendix C – Additional Conditions

Date of Issuance: November 24, 2009