

JUL 17 1982

Docket No.: 50-387

Mr. Norman W. Curtis
Vice President - Engineering
Pennsylvania Power and Light Company
Two North Ninth Street
Allentown, Pennsylvania 18101

Dear Mr. Curtis:

Subject: ^{SSC RPT} Susquehanna Steam Electric Station, Unit 1 - Issuance of Facility
Operating License No. NPF-14

The U. S. Nuclear Regulatory Commission has issued the enclosed Facility Operating License No. NPF-14 to Pennsylvania Power and Light Company and Allegheny Electric Cooperative, Inc. for the Susquehanna Steam Electric Station, Unit 1 located in Luzerne County, Pennsylvania. License No. NPF-14 authorizes operation of the Susquehanna Steam Electric Station, Unit 1 at 3293 megawatts thermal. Authorization to operate beyond five percent (164.6 megawatts thermal) is still under consideration and will require Commission approval.

A copy of a related Federal Register notice, the original of which has been forwarded to the Office of the Federal Register for publication is also enclosed.

Three signed copies of Amendment No. 1 to Indemnity Agreement No. B-90 which covers the activities authorized under License No. NPF-14 are also enclosed. Please have all licensees sign all copies and return one copy to this office.

An Assessment of the Effect of License Duration on Matters Discussed in the Final Environmental Statement for the Susquehanna Steam Electric Station, Units 1 and 2 is enclosed as Enclosure 4.

Sincerely,

Darrell G. Eisenhut, Director
Division of Licensing
Office of Nuclear Reactor Regulation

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Enclosures:

1. Facility Operating License No. NPF-14
2. Federal Register Notice
3. Amendment No. 1 to Indemnity Agreement B-90
4. Assessment of the Effect of License Duration on Matters Discussed in the FES

DL: XBY	DL: LBZ	STATE PROGRAMS
MR: Brook/yt	RPerch	ID: mitz
7/16/82	7/16/82	7/16/82

OFFICE	cc w/enclosures: See next page	AEAB A Tolson 7/1/82	OELD Christman 7/1/82	DL: LBZ J Youngblood 7/1/82	RL Tedesco 7/1/82	DL: DGP D Eisenhut 7/1/82
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Susquehanna

JUL 17 1982

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President, Board of Supervisors
728 East Third Street
Berwick, Pennsylvania

Attorney General
Department of Justice
Capitol Annex
Harrisburg, Pennsylvania 17120

Department of Environmental Resources
Office of Environmental Planning
ATTN: Mr. David Hess
Room 813, Executive House
Harrisburg, Pennsylvania 17120

Department of Environmental Resources
ATTN: Director, Office of Radiological Health
P. O. Box 2063
Harrisburg, Pennsylvania 17105

Mr. M. A. Dupree
Mobil Oil Corporation
P. O. Box 5444
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EIS Review Coordinator (TECH SPECS ONLY)
EPA Region III
Curtis Building, 5th Floor
6th and Walnut Streets
Philadelphia, Pennsylvania 19106

Pennsylvania Power & Light Company
Allegheny Electric Cooperative, Inc.
Docket No. 50-387
Susquehanna Steam Electric Station, Unit 1
Facility Operating License

License No. NPF-14

1. The Nuclear Regulatory Commission (the Commission or the NRC) having found that:
 - A. The application for a license filed by the Pennsylvania Power & Light Company 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 No. 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 Pennsylvania Power & Light Company* 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;

*The Pennsylvania Power & Light Company 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.

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- F. The licensees have satisfied the applicable provisions of 10 CFR 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 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; 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.
7. Based on the foregoing findings and the Initial Decision issued by the Atomic Safety and Licensing Board on April 12, 1982, regarding this facility, Facility Operating License No. NPF-14 is hereby issued to the Pennsylvania Power & Light Company 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 through Amendment 48, and the licensees' Environmental Report as supplemented and amended through Amendment 48.
 - 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", Pennsylvania Power & Light Company (PP&L) and the Allegheny Electric Cooperative, Inc. to possess, and PP&L 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) PP&L, 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 through Amendment 48;

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- (3) PP&L, 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) PP&L, 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) PP&L, 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

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

(2) Technical Specifications and Environmental Protection Plan

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

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

PP&L 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 N13.7-1971. 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) PP&L is prohibited from power operation under natural circulation conditions.
- (b) Prior to startup following the first refueling outage, PP&L shall provide, for NRC review and approval, a new stability analysis, indicating the results for appropriate exposure core conditions.

(5) Qualification of Purge Valves (Section 6.2.4, SSER #1)

- (a) Until such time as qualification data for purge valves are provided to and approved by the NRC, operation of the purge and vent containment isolation valves by the licensee shall comply with the requirements of the interim position as stated in the attachment to II.E.4.2 in NUREG-C737. As part of the interim position, the purge and vent valves shall be blocked to a maximum opening of no greater than 50 degrees.
- (b) Prior to exceeding five percent of full power, PP&L shall provide purge valve qualification documentation to the NRC for review and approval.

(6) Fire Protection Program (Section 9.5, SER, SSER#1, SSER#2, SSER#3)

PP&L shall maintain in effect and fully implement all provisions of the approved Fire Protection Review Report, as amended through Revision 1 dated March 1981. In addition, PP&L shall maintain the fire protection program set forth in Appendix R to 10 CFR Part 50.

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(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, PP&L shall either conduct at an approved testing laboratory 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, PP&L 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)

PP&L shall conduct the post-fuel-loading initial test program (set forth in Section 14 of the licensee's Final Safety Analysis Report, as amended through Amendment 48) 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 48;
- (b) Modifications of test objectives, methods or acceptance criteria for any test identified as essential in Section 14 of the licensee's Final Safety Analysis Report, as amended through Amendment 48;
- (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, PP&L 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, PP&L shall provide documentation to the NRC for review which states the results of recheck of all calculations associated with calculating masses, section

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properties, and spring stiffnesses used in stick models for the following structures:

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

(12) Radon (ASLR 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)

- (a) PP&L shall provide notification to the NRC prior to any modifications to the orifice in either the principal or secondary flow lines, shown on Transcontinental Gas Pipe Line Corp. drawing number MB-1P-1 and 34-3452MB-1P-1, Rev. 1, exceeding 2 inches in diameter. Prior to any restrictor modifications which increase the effective orifice diameter greater than 2 inches the facility shall be placed in a cold shutdown condition.
- (b) Prior to exceeding five percent of full power, PP&L shall implement administrative controls which will preclude both lines referenced in Transcontinental Gas Pipe Line Corp. drawing number MB-1P-1, Rev. 1, being simultaneously open, and shall submit a copy of the administrative controls to NRC for review.
- (c) By February 28, 1983, PP&L shall submit a report for NRC review and approval that describes either:
 1. a passive 2 inch flow restrictor to be installed in the gas pipeline in proximity to the nuclear station, or
 2. relocation of the pipeline to a distance where unrestricted flow in the pipeline would not be hazardous to the safe operation of the nuclear plant.
- (d) By September 30, 1984, the option chosen by PP&L and approved by NRC shall be fully implemented.

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

By August 30, 1982, PP&L 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, PP&L 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)

Thirty days prior to operation in excess of five percent power, PP&L shall provide the results of its vacuum breaker performance evaluation program for NRC review and approval.

(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 licensee shall submit a report addressing the Emergency Procedure Guidelines with regard to Scram Discharge Volume (SDV) pipe breaks. PP&L 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, PP&L 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)

- (a) PP&L 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.

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- (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, PP&L shall be in compliance with the provisions of NUREG-0588 for safety-related electrical equipment exposed to a harsh environment.

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

Prior to exceeding five percent of full power, PP&L shall have conducted an independent review of the mechanical and structural design of the feedwater system located inside containment extending from the Reactor Pressure Vessel nozzles to the containment penetration. This verification review shall consider design, installation, inspection, testing, and any other aspects necessary to ensure conformance with the design. This review shall be performed independently of PP&L and its contractors who perform design and construction activities for the Susquehanna Steam Electric Station.

(20) Emergency Preparedness (Appendix D, SSEP #1, SSEP #2)

Prior to exceeding five percent power, PP&L shall demonstrate that the state of offsite preparedness, which has been determined to be acceptable for operation at up to five percent power, provides assurance that adequate protective measures can and will be taken in the event of a radiological emergency during operations in excess of five percent power. The use of 10 CFR 50.54(s)(2) to specify a period within which corrective actions must be taken to assure an adequate state of emergency preparedness will include instances where NRC finds that the lack of progress in completion of the procedures in the Federal Emergency Management Agency's proposed rule set forth in 44 CFR Part 350 is an indication that major substantive problems exist in achieving or maintaining an adequate state of preparedness. Any corrective period specified will relate to substantive problems identified by the Federal Emergency Management Agency.

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(21) School District Emergency Plans (ASLR 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 (ASLR 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, SEP, SSER#1, SSER#3)

- (a) Prior to startup following the first refueling outage, PP&L shall complete any modifications or replacement of equipment found necessary as a result of the licensee's fatigue evaluation program. In the interim, PP&L 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 PP&L 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) PP&L shall complete all actions related to seismic and dynamic qualification of equipment identified in section 3.10 of Supplement No. 3 of the Safety Evaluation Report on the schedule specified therein.

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

Prior to startup following the first refueling outage, PP&L 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.

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

Prior to startup following the first refueling outage, PP&L 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)

Within 30 days after plant startup following the first refueling outage, PP&L shall comply with items 1, 2, and 3 of IE Bulletin No. 79-26, Revision 1, "Boron Loss from BWR Control Blades", and submit a written response on item 3.

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

Prior to startup following the first refueling outage, PP&L shall install air dryers upstream of the air receivers.

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

PP&L shall complete the following conditions to the satisfaction of the NRC. These conditions reference the appropriate items in Section 22.2, "TII 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 (I.C.7, SER, SSER #1)

Prior to beginning low-power testing, PP&L 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 (I.G.1, SER, SSER#3)

During the first fuel cycle, PP&L shall perform Simulated Loss of All AC Power Test. At least four weeks prior to the test, PP&L shall provide a safety analysis and test procedure to NRC.

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

Prior to startup following the first refueling outage, PP&L 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.

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

(i) By August 31, 1982, PP&L 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.

(ii) By October 31, 1982, PP&L 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, PP&L 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, PP&L 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, PP&L shall provide an emergency power supply to the cooling system for the recirculation pump seals.

(g) Upgrade Emergency Support Facilities (III.A.1.2, SER, SSER#1, SSER#2)

PP&L shall complete its Emergency Response Facilities as follows:

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

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D. PP&L shall maintain in effect and fully implement all provisions of the Commission approved physical security, and guard training and qualification plans; including amendments made pursuant to the authority of 10 CFR 50.54(p). The approved plans, which contain 10 CFR 73.21 information, are collectively entitled: "Susquehanna Steam Electric Station Physical Security Plan" (which includes response to security contingencies as Chapter 11) dated March 14, 1978 with the following changes; Change A dated July 31, 1978, Change B dated February 15, 1979, Change C dated August 15, 1979, Change D dated September 28, 1979, Change E dated May 22, 1980, Change F dated March 27, 1981, Change G dated May 29, 1981, Change H dated June 26, 1981, Change I dated March 19, 1982, Change J dated April 1, 1982, and Change K dated May 4, 1982, Change L dated July 9, 1982, and including Chapter 11 revision dated June 5, 1981; and "Susquehanna Steam Electric Station Security Training and Qualification Plan" dated May 27, 1980, as revised April 30, 1981.

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. 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. 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.

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, PP&L 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. Reporting to the Commission:

(a) PP&L shall report any violations of the requirements contained in Section 2, Items C(1), C(3) through C(22), and F of this license within twenty-four (24) hours by telephone and confirmed by telegram, mailgram, or facsimile transmission to the NRC Regional Administrator, Region I, or designee, not later than the first working day following the violation, with a written followup report within fourteen (14) working days.

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- (b) PP&L shall notify the Commission, as soon as possible but not later than one hour, of any accident at this facility which could result in an unplanned release of quantities of fission products in excess of allowable limits for normal operation established by the Commission.
- H. PP&L 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. This license is effective as of the date of issuance and shall expire at midnight on July 17, 2022.

FOR THE NUCLEAR REGULATORY COMMISSION

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Harold R. Denton, Director
Office of Nuclear Reactor Regulation

Attachments:

- 1. Attachment 1
- 2. Appendix A - Technical Specifications (NUREG-0931)
- 3. Appendix B - Environmental Protection Plan

Date of Issuance: July 17, 1982

*SEE TRANSMITTAL LETTER FOR CONCURRENCES.

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SURNAME ▶	NRushbrook	BJYoungblood	RLTedesco	EChristenbury	DGEisenhut	HRDenton	
DATE ▶	7/17/82	7/17/82	7/17/82	7/ /82	7/ /82	7/ /82	

ATTACHMENT 1

1. OUTSTANDING ITEM TO BE ACCOMPLISHED PRIOR TO LOADING FUEL

- a. Ground Reactor Protective System Cabling and Cabinetry as stated in Construction Deficiency Report 80-00-28 and conduct necessary testing.

2. OUTSTANDING ITEMS TO BE ACCOMPLISHED BEFORE INITIAL CRITICALITY

- a. Demonstrate recirculation loop riser double weld configuration acceptability.
- b. Demonstrate acceptability of loadings on equipment nozzles and of stress intensification factors on weld components.
- c. Verify and document proper seismic mounting of safety-significant temperature sensors.
- d. Verify and document that the instrumentation supplied by the NSSS vendor has the requisite accuracy in accordance with the design specifications.
- e. Provide for verifying operating activities in accordance with NUREG-0737 item I.C.6 and FSAR Section 18.1.13.
- f. Verify installation of additional post-accident monitoring instrumentation in accordance with NUREG-0737 item II.F.1 and FSAR Section 18.1.30.
- g. Implement a program for reducing leakage from potentially radioactive systems in accordance with NUREG-0737 item III.D.1.1 and FSAR Section 18.1.69.
- h. Verify installation of radioactive Iodine monitoring equipment inplant in accordance with NUREG-0737 item III.D.3.3 and FSAR Section 18.1.70.
- i. Verify that Unit 2 equipment used in Unit 1 is qualified and properly identified.
- j. Complete walkdown of welds requiring in-service-inspection and assure required accessibility has not been compromised by other equipment.
- k. Establish specific controls that assure calibration of equipment required by the Technical Specifications.
- l. Upon issue of the Operating License Technical Specifications, verify that specified conditions, setpoints, and action points in facility procedures are consistent with those Technical Specifications.
- m. Replace deficient Agastat GP relays in safety systems with qualified relays in accordance with the commitment documented in Inspection Report 50-387/82-17 Detail 2.

- n. Demonstrate that stress analyses consider the effect of grouted pipe penetrations and show acceptability of the as-built configuration.
- o. Evaluate vendor-supplied personnel monitoring equipment to assure appropriate equipment is being supplied to personnel in accordance with 10 CFR 20.202.
- p. Establish a personnel neutron exposure monitoring program in accordance with 10 CFR 20.202.
- q. Establish a whole body counting program, including thyroid calibration, in accordance with 10 CFR 20.201.
- r. Establish controls to assure calibration of portable radiation monitoring equipment in accordance with 10 CFR 20.201.

3. OUTSTANDING ITEM TO BE COMPLETED BEFORE EXCEEDING 5% POWER

- a. Correct the Emergency Service Water water hammer reported by Pennsylvania Power and Light Company letter PLA 1129 dated June 18, 1982.

APPENDIX B

TO FACILITY OPERATING LICENSE NO. NPF-14
SUSQUEHANNA STEAM ELECTRIC STATION, UNITS 1 AND 2

PENNSYLVANIA POWER AND LIGHT COMPANY
DOCKET NOS. 50-387 AND 50-388

ENVIRONMENTAL PROTECTION PLAN
(NON-RADIOLOGICAL)

July 17, 1982

SUSQUEHANNA STEAM ELECTRIC STATION

ENVIRONMENTAL PROTECTION PLAN

(NON-RADIOLOGICAL)

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1.0 Objectives of the Environmental Protection Plan

The Environmental Protection Plan (EPP) is to provide for protection of environmental values during additional construction and operation of the nuclear facility. The principal objectives of the EPP are as follows:

- (1) Verify that the station is operated in an environmentally acceptable manner, as established by the FES and other NRC environmental impact assessments.
- (2) Coordinate NRC requirements and maintain consistency with other Federal, State and local requirements for environmental protection.
- (3) Keep NRC informed of the environmental effects of facility construction and operation and of actions taken to control those effects.

Environmental concerns identified in the FES which relate to water quality matters are regulated by way of the licensee's NPDES permit.

2.0 Environmental Protection Issues

In the FES-OL dated June 1981, the staff considered the environmental impacts associated with the operation of the Susquehanna Steam Electric Station. Certain environmental issues were identified which required study or license conditions to resolve environmental concerns and to assure adequate protection of the environment.

2.1 Aquatic Issues

Specific aquatic issues raised by the staff in the FES-OL were:

1. The need for aquatic monitoring programs to confirm that thermal mixing occurs as predicted, that chlorine releases are controlled within those discharge concentrations evaluated, and that effects on aquatic biota and water quality due to plant operation are no greater than predicted.
2. The need for special studies to document levels of intake entrainment and impingement.

(FES-OL: Summary and Conclusions and Sections 5.2 and 5.3)

Aquatic issues are addressed by the effluent limitations, monitoring requirements and the effective NPDES permit issued and implemented by the Pennsylvania Department of Environmental Resources, Bureau of Water Quality Management. The NRC will rely on this agency for regulation of matters involving water quality and aquatic biota.

2.2 Terrestrial Issues

Those issues requiring monitoring programs identified previously and not yet completely resolved are listed below.

1. General monitoring for bird impingement on cooling towers. (FES-OL Sections 5.2.5 and 5.3.5)
2. The applicant will conduct short duration operational sound level surveys when each unit reaches its full operational level. Daytime as well as nighttime measurements will be taken to determine ambient day-night equivalent sound levels. (FES-OL Sections 5.2.5 and 5.3.5)
3. Maintenance of transmission lines. (Section 5.3.5)

NRC requirements with regard to remaining terrestrial issues are specified in Subsections 4.1 and 4.2 of this EPP.

2.3 Cultural Resources Issues

The need to protect the archeological sites identified in the floodplain survey which may possibly be eligible for the National Register of Historic Places. NRC requirements with regard to the cultural resources issue are specified in Subsection 4.2.4 of this EPP.

3.0 Consistency Requirements

3.1 Plant Design and Operation

The licensee may make changes in station design or operation or perform tests or experiments affecting the environment provided such changes, tests or experiments do not involve an unreviewed environmental question, and do not involve a change in the Environmental Protection Plan. Changes in plant design or operation or performance of tests or experiments which do not affect the environment are not subject to the requirements of this EPP. Activities governed by Section 3.3 are not subject to the requirements of this section.

Before engaging in additional construction or operational activities which may affect the environment, the licensee shall prepare and record an environmental evaluation of such activity. When the evaluation indicates that such activity involves an unreviewed environmental question, the licensee shall provide a written evaluation of such activities and obtain prior approval from the Director, Office of Nuclear Reactor Regulation. When such activity involves a change in the Environmental Protection Plan, such activity and change to the Environmental Protection Plan may be implemented only in accordance with an appropriate license amendment as set forth in Section 5.3.

A proposed change, test or experiment shall be deemed to involve an unreviewed environmental question if it concerns (1) a matter which may result in a significant increase in any adverse environmental impact previously evaluated

in the final environmental statement (FES) as modified by staff's testimony to the Atomic Safety and Licensing Board, supplements to the FES, environmental impact appraisals, or in any decisions of the Atomic Safety and Licensing Board; or (2) a significant change in effluents or power level [in accordance with 10 CFR Part 51.5(b)(2)] or (3) a matter not previously reviewed and evaluated in the documents specified in (1) of this Subsection, which may have a significant adverse environmental impact.

The licensee shall maintain records of changes in facility design or operation and of tests and experiments carried out pursuant to this Subsection. These records shall include a written evaluation which provide bases for the determination that the change, test, or experiment does not involve an unreviewed environmental question nor constitute a decrease in the effectiveness of this EPP to meet the objectives specified in Section 1.0. The licensee shall include as part of his Annual Environmental Operating Report (per Subsection 5.4.1) brief descriptions, analyses, interpretations, and evaluations of such changes, tests and experiments.

3.2 Reporting Related to the NPDES Permits and State Certifications

Violations of the NPDES Permit or the State certification (pursuant to Section 401 of the Clean Water Act) shall be reported to the NRC by submittal of copies of the reports required by the NPDES Permit or certification. The licensee shall also provide the NRC with copies of the results of studies at the same time they are submitted to the permitting agency.

Changes and additions to the NPDES Permit or the State certification shall be reported to the NRC within 30 days following the date the change is approved. If a permit or certification, in part or in its entirety, is appealed and stayed, the NRC shall be notified within 30 days following the date the stay is granted.

The NRC shall be notified of changes to the effective NPDES Permit proposed by the licensee by providing NRC with a copy of the proposed change at the same time it is submitted to the permitting agency. The notification of a licensee-initiated change shall include a copy of the requested revision submitted to the permitting agency. The licensee shall provide the NRC a copy of the application for renewal of the NPDES permit at the same time the application is submitted to the permitting agency.

3.3 Changes Required for Compliance with Other Environmental Regulations

Changes in plant design or operation and performance of tests or experiments which are required to achieve compliance with other Federal, State, or local environmental regulations are not subject to the requirements of Section 3.1.

4.0 Environmental Conditions

4.1 Unusual or Important Environmental Events

Any occurrence of an unusual or important event that indicates or could result in significant environmental impact causally related to plant operation shall be recorded and promptly reported to the NRC within 24 hours by telephone, telegraph, or facsimile transmissions followed by a written report per Sub-section 5.4.2. The following are examples: excessive bird impaction events, onsite plant or animal disease outbreaks, mortality or unusual occurrence of any species protected by the Endangered Species Act of 1973, fish kills, increase in nuisance organisms or conditions and unanticipated or emergency discharge of waste water or chemical substances.

No routine monitoring programs are required to implement this condition.

4.2 Environmental Monitoring

4.2.1 General Monitoring Program for Bird Impingement (refer to Section 4.1)

4.2.2 Maintenance of Transmission Line Corridors

The use of herbicides within the Susquehanna Steam Electric Station transmission line corridors shall conform to the approved use of selected herbicides as registered by the Environmental Protection Agency and approved by State authorities and applied as directed by said authorities.

Records shall be maintained in the appropriate division office concerning herbicide use. Such records shall include the following information:

commercial and chemical names of materials used; concentration of active material in formulations diluted for field use; diluting substances other than water; rates of application; method and frequency of application; location; and the date of application. Such records shall be maintained for a period of 5 years and be made readily available to the NRC upon request. There shall be no routine reporting requirement associated with this condition.

4.2.3 Sound Level Surveys

Surveys shall be conducted to quantify the sound levels that exist at various locations around the site during operation of the Susquehanna Steam Electric Station. Surveys shall be conducted during one unit and during two unit operation at the site. The operational phase sound level surveys shall be conducted as soon as practicable during the operational phase of the facility, when each unit's cooling tower is operating with its design water flow rate. The one unit operation survey shall be scheduled to the extent practicable, such that measured sound levels are not significantly affected by onsite activities associated with the construction of the second unit.

For each of the surveys, sound level data shall be collected at several sites, the exact number and location to be selected by the licensee after consideration of (1) existing on-site and nearby off-site noise sources and barriers, and (2) noise sensitive land uses in the site vicinity (e.g., residences, schools, churches, cemeteries, hospitals, parks).

Data collected from each sampling site shall encompass both the daytime and the nighttime periods. Sampling shall include the identification of pure tones, if any, emanating from plant equipment during the operational phase.

The selection, calibration and use of equipment, conduct of the surveys, and the analysis and reporting of data shall conform to the provisions of the applicable American National Standards Institute Standards. The conduct of the surveys for both operational conditions shall be similar such that the results are comparable.

The results of the surveys conducted under this program shall be summarized, interpreted and reported in accordance with Section 5.4.1 of this EPP. The results shall include, for each sampling location for each survey, the daytime and nighttime equivalent sound levels, the background and intrusion sound levels (i.e., the L_{90} and L_{10} , respectively), and the range of sound levels recorded. A description of the pure tones found, if any, and their sources shall also be included in the results.

The final report of this program shall present a brief assessment by the licensee of the environmental impact of plant operation on the off-site acoustic environment, and shall describe the proposed mitigative measures, if any, to be taken to reduce the impact of plant noise levels on the off-site environment. This report shall also contain a list of all noise related complaints or inquiries received by Pennsylvania Power & Light

Company (PP&L) concerning the Susquehanna Steam Electric Station subsequent to issuance of the operating license along with a description of the action taken by PP&L to resolve these complaints or inquiries.

This program shall terminate upon completion of the collection of the specified sound level data for each phase and submission of an acceptable final report.

4.2.4 Cultural Resources

On March 26, 1981, the Pennsylvania Power & Light Company submitted a report to NRC, entitled, "Archeological Investigations at The Susquehanna SES: The Susquehanna SES Floodplain", prepared by Commonwealth Associates for Pennsylvania Power & Light Company. The report identified three sites as significant and one site as potentially significant with the sites being possibly eligible for the National Register of Historic Places.

In order for the NRC to proceed with the submission of a determination of eligibility request to the Keeper of the National Register, the applicant shall be required to provide the NRC with the information necessary to initiate a determination of eligibility request with regard to sites SES-3, SES-6, SES-8 and SES-11. The U.S. Department of Interior form entitled, "National Register of Historic Places Inventory - Nomination Form" should be filled out in detail with appropriate maps and other materials for each of the four sites and returned to the NRC. Item 12 of the form need not be filled out. The licensee should refer to the Federal Register,

September 21, 1977, Part 11, for detailed guidance. The NRC requests the licensee to take appropriate measures to protect the sites during the determination of eligibility process. Upon receipt and review of the information, the NRC will forward the materials to the Keeper for action. If the Keeper rules the sites are not eligible, the finding will be filed and this section of the EPP is fully satisfied with no further action required.

If the Keeper rules that any of the sites are eligible for the National Register, the licensee is required to provide the NRC with information with regard to completing a determination of effect which the operation and maintenance activities of the plant may have on the eligible sites. The licensee should follow the steps presented in 36 CFR 800.3 and 36 CFR 800.4 in developing the information. Upon receipt of the information, the NRC, in consultation with the SHPO, will complete the determination of effect process. If the determination results in a no effect determination as provided in 36 CFR 800.4(4)(B)(1), the documentation will be filed and this section of the EPP is fully satisfied with no further action required.

If the determination results in an effect determination, the licensee will be required to provide the NRC with information adequate to document the effect determination and an appropriate action program which the licensee has developed in consultation with the SHPO and concurred in by the SHPO. Upon review of the program the NRC will forward the documentation to the Advisory Council on Historic Preservation (ACHP) for comment.

After ACHP comment is received by NRC, the program will be revised, if necessary, to incorporate any comments provided by the ACHP. The licensee shall then proceed, in consultation with the SHPO, to implement the proposed program. Upon completion of the program, a report shall be submitted to the NRC which will include a description of the results of the program and the disposition of data recovered (if applicable). Upon submittal of this report, this section of the EPP is fully satisfied with no further action required.

5.0 Administrative Procedures

5.1 Review and Audit

The licensee shall provide for review and audit of compliance with the Environmental Protection Plan. The audits shall be conducted independently of the individual or groups responsible for performing the specific activity. A description of the organization structure utilized to achieve the independent review and audit function and results of the audit activities shall be maintained and made available for inspection.

5.2 Records Retention

Records and logs relative to the environmental aspects of plant operation shall be made and retained in a manner convenient for review and inspection. These records and logs shall be made available to NRC on request.

Records of modifications to plant structures, systems and components determined to potentially affect the continued protection of the environment shall be retained for the life of the plant. All other records, data and logs relating to this EPP shall be retained for five years or, where applicable, in accordance with the requirements of other agencies.

5.3 Changes in Environmental Protection Plan

Request for change in the Environmental Protection Plan shall include an assessment of the environmental impact of the proposed change and a supporting justification. Implementation of such changes in the EPP shall not commence

prior to NRC approval of the proposed changes in the form of a license amendment incorporating the appropriate revision to the Environmental Protection Plan.

5.4 Plant Reporting Requirements

5.4.1 Routine Reports

An Annual Environmental Operating Report describing implementation of this EPP for the previous year shall be submitted to the NRC prior to May 1 of each year. The initial report shall be submitted prior to May 1 of the year following issuance of the operating licenses. The period of the first report shall begin with the date of issuance of the operating license for the first operational unit.

The report shall include summaries and analyses of the results of the environmental protection activities required by Subsection 4.2 of this Environmental Protection Plan for the report period, including a comparison with preoperational studies, operational controls (as appropriate), and previous nonradiological environmental monitoring reports, and an assessment of the observed impacts of the plant operation on the environment. If harmful effects or evidence of trends towards irreversible damage to the environment are observed, the licensee shall provide a detailed analysis of the data and a proposed course of action to alleviate the problem.

The Annual Environmental Operating Report shall also include:

- (a) A list of EPP noncompliances and the corrective actions taken to remedy them.
- (b) A list of all changes in station design or operation, tests, and experiments made in accordance with Subsection 3.1 which involved a potentially significant unreviewed environmental issue.
- (c) A list of nonroutine reports submitted in accordance with Subsection 5.4.2.

In the event that some results are not available by the report due date, the report shall be submitted noting and explaining the missing results. The missing data shall be submitted as soon as possible in a supplementary report.

5.4.2 Nonroutine Reports

A written report shall be submitted to the NRC within 30 days of occurrence of nonroutine event. The report shall (a) describe, analyze, and evaluate the event, including extent and magnitude of the impact and plant operating characteristics, (b) describe the probable cause of the event, (c) indicate the action taken to correct the reported event, (d) indicate the corrective action taken to preclude repetition of the event and to prevent similar occurrences involving similar components or systems, and (e) indicate the agencies notified and their preliminary responses.

Events reportable under this subsection which also require reports to other Federal, State or local agencies shall be reported in accordance with those reporting requirements in lieu of the requirements of this subsection. The NRC shall be provided a copy of such report at the same time it is submitted to the other agency.

PENNSYLVANIA POWER & LIGHT COMPANY

ALLEGHENY ELECTRIC COOPERATIVE, INC.

SUSQUEHANNA STEAM ELECTRIC STATION, UNIT No. 1

DOCKET NO. 50-387

NOTICE OF ISSUANCE OF FACILITY OPERATING LICENSE

Notice is hereby given that the U. S. Nuclear Regulatory Commission (the Commission), has issued Facility Operating License No. NPF-14 to Pennsylvania Power & Light Company and Allegheny Electric Cooperative, Inc. (the licensees) which authorizes operation of the Susquehanna Steam Electric Station, Unit No. 1 (the facility), by Pennsylvania Power and Light Company at reactor core power levels not in excess of 3293 megawatts thermal in accordance with the provisions of the License and the Technical Specifications. Authorization to operate beyond five percent (164.4 megawatts thermal) is still under consideration and will require specific Commission approval.

Susquehanna Steam Electric Station, Unit 1 is a boiling water nuclear reactor located at the licensees' site in Luzerne County, Pennsylvania. The license is effective as of the date of issuance.

The application for the license complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's regulation. The Commission has made appropriate findings as required by the Act and the Commission's regulations in 10 CFR Chapter I, which are set forth in the license. Prior public notice of the overall action involving the proposed issuance of an operating license was published in the FEDERAL REGISTER on August 9, 1978 (43FR35406).

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The Commission has determined that the issuance of this license will not result in any environmental impacts other than those evaluated in the Final Environmental Statement since the activity authorized by the license is encompassed by the overall action evaluated in the Final Environmental Statement.

For further details with respect to this action, see (1) Facility Operating License No. NPF-14, complete with Technical Specifications, (2) the report of the Advisory Committee on Reactor Safeguards, dated August 11, 1981, (3) the Commission's Safety Evaluation Report, dated April 1981, Supplement No. 1, dated June 1981, Supplement No. 2, dated September 1981 and Supplement No. 3, dated July 1982, (4) the Final Safety Analysis Report and amendments thereto; and (5) the Final Environmental Statement dated, June 1981; and (6) Assessment of the Effect of License Duration on Matters Discussed in the Final Environmental Statement for the Susquehanna Steam Electric Station, Units 1 and 2.

These items are available for public inspection at the Commission's Public Document Room, 1717 H Street, N.W., Washington, D. C. 20555 and at the Osterhout Free Library, Reference Department, 71 South Franklin Street, Wilkes-Barre, Pennsylvania 18701. A copy of Facility Operating License No. NPF-14 may be obtained upon request addressed to the U. S. Nuclear Regulatory Commission, Washington, D.C. 20555, Attention: Director, Division of Licensing. Copies of the Safety Evalua-

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tion Report and its Supplements No. 1, 2, and 3 (NUREG-0776) may be purchased at current rates from the National Technical Information Service, Department of Commerce, 5285 Port Royal Road, Springfield, Virginia 22161, and through the NRC GPO sales program by writing to the U. S. Nuclear Regulatory Commission, Attention: Sales Manager, Washington, D.C. 20555. GPO deposit account holders may call 301-492-9530.

Dated at Bethesda, Maryland, this th 17 day of July, 1982
 FOR THE NUCLEAR REGULATORY COMMISSION

15/

B. J. YOUNGBLOOD, Chief
 Licensing Branch No. 1
 Division of Licensing

OFFICE	DL:LB#1	DL:LB#1	DL:LB#1	DL:LB#1			
SURNAME	MRushbrook/y	RPerch	J.R. GRAY	JYoungblood			
DATE	7/16/82	7/16/82	7/16/82	7/16/82			

09 - No legal objection
 J.R. GRAY

[Signature]
 JYoungblood



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

Docket No. 50-387

AMENDMENT TO INDEMNITY AGREEMENT NO. B-90
AMENDMENT NO. 1

Effective July 17, 1982, Indemnity Agreement No. B-90 between Pennsylvania Power and Light Company and Allegheny Electric Cooperative, Inc. and the Nuclear Regulatory Commission, dated September 10, 1981, is hereby amended as follows:

Item 2a. of the Attachment to the indemnity agreement is deleted in its entirety and the following substituted therefor:

Item 2 - Amount of financial protection

- | | |
|----------------|---|
| a. \$1,000,000 | (From 12:01 a.m., September 10, 1981 to 12 midnight, July 16, 1982 inclusive) |
| \$160,000,000* | (From 12:01 a.m., July 17, 1982) |

Item 3 of the Attachment to the indemnity agreement is deleted in its entirety and the following substituted therefor:

Item 3 - License number or numbers

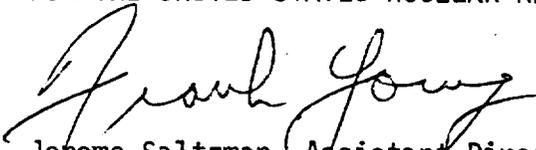
- | | |
|----------|--|
| SNM-1878 | (From 12:01 a.m., September 10, 1981 to 12 midnight July 16, 1982 inclusive) |
| NPF-14 | (From 12:01 a.m. July 17, 1982) |

* and, as of August 1, 1977, the amount available as secondary financial protection.

Item 5 of the Attachment to the indemnity agreement is amended by adding the following:

Nuclear Energy Liability Policy (Facility Form) No. MF-107 issued by Mutual Atomic Energy Liability Underwriters.

FOR THE UNITED STATES NUCLEAR REGULATORY COMMISSION

for 
Jerome Saltzman, Assistant Director
State and Licensee Relations
Office of State Programs

Accepted _____ 1982

By _____
Pennsylvania Power and Light Company

Accepted _____ 1982

By _____
Allegheny Electric Cooperative, Inc.

ASSESSMENT OF THE EFFECT OF LICENSE DURATION ON MATTERS DISCUSSED
IN THE FINAL ENVIRONMENTAL STATEMENT FOR THE SUSQUEHANNA STEAM ELECTRIC STATION
UNITS 1 AND 2 (Dated June 1982)

INTRODUCTION

The Final Environmental Statement (FES) for the operation of the Susquehanna Steam Electric Station Unit Nos. 1 and 2 was published in June 1981. At that time it was staff practice to issue operating licenses for a period of 40 years from the date of the construction permit. This was approximately 30 years of operating life.

By letter dated June 8, 1982, the applicant requested that the operating license for their Susquehanna Steam Electric Station, then under consideration by the staff, have a duration of 40 years from the date of issuance.

DISCUSSION

The staff has reviewed the Susquehanna FES to determine which aspects considered in the FES are affected by the duration of the operating license. In general, the FES assesses various impacts associated with operation of the facility in terms of annual impacts and balances these against the anticipated annual energy production benefits. Thus, the overall assessment and conclusions would not be dependent on specific operating life. There are, however, four areas in which a specific operating life was assumed:

1. Project costs are based on a 30-year levelized cost.
2. Radiological assessments are based on a 15-year plant midlife.

3. Uranium fuel cycle impacts are based on one initial core load and 29 annual refuelings.

4. Uranium availability is evaluated through 30 years of operation.

These were assessed to determine whether the use of a 40-year operating period rather than a 30-year operating period would significantly affect our assessment concerning these areas.

EVALUATION:

The staff's appraisal of the significance of the use of 40 years of operation rather than 30 as it affects these four areas is presented in the following discussions:

1. Projected Costs - The projected costs of the facility, which include the cost of decommissioning, are based on a 30-year operating life and are levelized over that period of time. The use of a 40-year operating period rather than a 30-year period would not significantly affect the operating and maintenance cost. If the facility's capital cost were spread over a 40-year period the overall resulting cost of facility operation would be lowered. Therefore, any extension in the operating life of the facility would result in savings in system production costs. The production of energy at reduced cost results in an incremental net benefit for the use of a 40-year operating life of the facility.
2. Radiological Assessments - The NRC staff calculates dose commitments to the human population residing around nuclear power reactors to assess the impact on people from radioactive material released from

these reactors. The annual dose commitment is calculated to be the dose that would be received over a 50-year period following the intake of radioactivity for 1 year under the conditions that would exist 15 years after the plant began operation.

The 15 year period is chosen as representing the midpoint of plant operation and is incorporated into the dose models by allowing for buildup of long life radionuclides in the soil. It affects the estimated doses only for radionuclides ingested by humans that have half-lives greater than a few years. For a plant licensed for 40 years, increasing the buildup period from 15 to 20 years would increase the dose from long life radionuclides via the ingestion pathways by 33% at most. It would have much less effect on dose from shorter life radionuclides. Tables 4.8 and 4.9 of the FES indicate that the estimated doses via the ingestion pathways are well below the regulatory design objectives. For example, the ingestion dose to the thyroid is 4.3 mrem/yr/unit compared to an Appendix I design objective of 15 mrem/yr. Thus, an increase of even as much as 33% in these pathways would remain well below the Appendix I guidelines and would not be significant.

3. Uranium Fuel Cycle Impacts - The impacts of the uranium fuel cycle are based on 30 years of operation of a model LWR. The fuel requirements for the model LWR were assumed to be one initial core load and 29 annual refuelings (approximately 1/3 core). The annual fuel requirement for the model LWR averaged out over a 40-year operating

life (1 initial core and 39 refuelings of approximately 1/3 core) would be reduced slightly as compared to the annual fuel requirement averaged for a 30-year operating life.

The net result would be an approximately 1.5% reduction in the annual fuel requirement for the model LWR. This small reduction in fuel requirements would not lead to significant changes in the impacts of the uranium fuel cycle. The staff does not believe that there would be any changes to Susquehanna FES Table 4.16 (S-3) that would be necessary in order to consider 40 years of operation. If anything, the values in Table 4.16 become more conservative when a 40-year period of operation is considered.

4. Uranium Resources - In the Susquehanna FES, the uranium resource availability is based on the cumulative lifetime (assumed to be 30 years) uranium requirements for 170,000 MWe capacity as identified in Section 8.5.6. However, as stated on page 8-20 the lifetime uranium commitment for this generating capacity would be less than one-third of the currently estimated domestic resources. A 33% increase in operating life (to 40 years) of the 170,000 MWe capacity would still be within the uranium resources projected in the Susquehanna FES. Cancellation of much of this 170,000 MWe capacity since the Susquehanna FES was issued will further reduce the demand for uranium. Furthermore, the increase in operating life assumption to 40-years will reduce the need for replacement generating capacity including nuclear, at the end of 30 years.

CONCLUSION:

The staff has reviewed the Susquehanna FES and determined that only four of the areas related to its NEPA analysis discussed in the statement were tied directly to a 30-year operating period. We have concluded, based on the reasons discussed in the sections above, that the impacts associated with a 40-year license duration are not significantly different from those associated with a 30-year license duration and are not significantly different from those assessed in the Susquehanna FES.

DISTRIBUTION FOR SUSQUEHANNA STEAM ELECTRIC STATION, UNIT 1 - ISSUANCE OF
FACILITY OPERATING LICENSE NO. NPF-14:

*w/Tech Specs
Document Control*
NRC PDR*
L PDR*
TERA*
NSIC*

LB#2 Rdg.
RPerch
MRushbrook
JYoungblood
ASchwencer
MCutchin, OELD*
JRutberg, OELD
DEisenhut/RPurple
TNovak*
AToalston, AIG
JSouder
OIE
MPA
TBarnhart (4 cys)*
WMiller
IDinitz
WJones, OA (10 cys)
ACRS (16)
BPCotter, ASLBP
ARosenthal, ASLAP