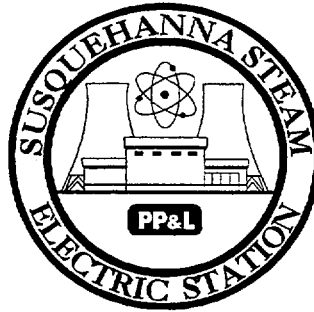


**Susquehanna Steam Electric Station
Units 1 & 2**

**1999
ANNUAL ENVIRONMENTAL OPERATING REPORT
(NONRADIOLOGICAL)**



**PP&L, Inc.
Allentown, PA
March 2000**



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**Facility Operating License Nos. NPF-14 & NPF-22
Docket Nos. 50-387 & 50-388**

**prepared by
Environmental Services
Operations Technology
PP&L, Inc.
Allentown, PA
March 2000**

SUSQUEHANNA STEAM ELECTRIC STATION
ANNUAL ENVIRONMENTAL OPERATING REPORT
(NONRADIOLOGICAL)

1999

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FOREWORD

The Susquehanna Steam Electric Station (Susquehanna SES) consists of two boiling water reactors, each with a net electrical generating capacity of approximately 1,150 megawatts. The 1,700-acre site is located in Salem Township, Luzerne County, Pennsylvania approximately five miles northeast of Berwick, Pennsylvania. Under terms of an agreement finalized in January 1978, 90% of the Susquehanna SES is owned by PP&L, Inc. (Licensee) and 10% by the Allegheny Electric Cooperative, Inc.

The 1999 Annual Environmental Operating Report (Nonradiological) for Units 1 and 2 describes results of programs necessary to meet requirements of Section 2F of the Operating License, Protection of the Environment, and Appendix B of the Operating License Environmental Protection Plan, as well as commitments in the Final Environmental Statement related to operation (NUREG-0564), June 1981. This report discusses environmental commitments and impacts from January 1, 1999 through December 31, 1999.

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FIGURE

5.1-1 Auditing Organization Chart

1.0 OBJECTIVE

The Licensee has developed procedures and guidelines to ensure that operation of Susquehanna SES does not adversely affect the environment in the vicinity of the station. Also, these procedures allocate responsibilities and interfaces necessary to monitor environmental impacts. They include coordination of U.S. Nuclear Regulatory Commission (NRC) requirements and consistency with other federal, state, and local requirements for environmental protection.

The objective of this 1999 Annual Environmental Operating Report (Nonradiological) is to provide a summary of both environmental programs and procedures as required in the Final Environmental Statement (FES) related to the operation of the Susquehanna SES, Unit 1 and 2, NUREG-0564, June 1981, and Appendix B - Environmental Protection Plans (EPP) to Operating Licenses, No. NPF-14 and No. NPF-22. The 1999 report is the 18th Annual Environmental Operating Report (Nonradiological) submitted to meet EPP requirements.

The Licensee submitted an Environmental Report-Operating License Stage for Susquehanna SES to the NRC in May 1978. This report reviewed the results of the preoperational impacts of construction and described the preoperational and proposed operational environmental monitoring programs. The NRC and other agencies reviewed this report and made recommendations for operational environmental monitoring programs which were listed in the FES.

2.0 ENVIRONMENTAL ISSUES

2.1 Aquatic Issues

The aquatic monitoring program for operation of the Susquehanna SES is divided into two parts. Part 1 includes effluent monitoring required by a National Pollutant Discharge Elimination System (NPDES) permit issued by the Pennsylvania Department of Environmental Protection (PaDEP). Monthly discharge monitoring reports are submitted to the PaDEP as part of the permitting requirements. The station operational NPDES permit No. PA-0047325 was reissued on June 22, 1995, and is to expire on June 21, 2000. An NPDES renewal application was submitted to the PaDEP in December 1999. The present permit will remain in effect until receipt of a new permit.

The PaDEP is responsible for regulating the water quality permit for the Susquehanna SES. The NPDES permit deals with discharge parameters for the Susquehanna SES Sewage Treatment Plant, Cooling Tower blowdown, and miscellaneous low volume waste discharges. The Cooling Tower blowdown also includes in-plant process streams which discharge to the Susquehanna River. Various low volume waste sumps discharge to the storm sewers which flow into Lake Took-a-while, and eventually into the Susquehanna River. NPDES permit parameters monitored are listed in the 1995 Annual Environmental Operating Report (Nonradiological).

Part 2 of the aquatic monitoring program deals with programs listed in the FES or recommended by the PaDEP.

American Shad

The Susquehanna Anadromous Fish Restoration Committee continued to administer programs to restore American Shad (*Alosa sapadissima*) to the Susquehanna River in 1999. Passage of both shad and blueback herring (*Alosa aestivalis*) at all hydroelectric projects was markedly decreased by high river flows during the spring.

Totals of 79,370 shad and 139,171 blueback herring were captured in the East and West fish lifts below the Conowingo Dam from 23 April through 4 June 1999 (Ref. 2.1-1). For the third year since the East lift was operated, all fish were allowed to pass into Conowingo Pond. This included 69,712 shad and 130,625 bluebacks. A total of 5,508 shad, 57% of those captured at the West lift, was transported and stocked upstream of the four major dams. Other major transfers from the West lift included

1,471 shad to Maryland DNR, 1,082 to U.S. Fish & Wildlife Service at Lamar for tank spawning, and 390 to the Pennsylvania Fish & Boat Commission (PFBC) Benner Spring Research Station.

At Holtwood Dam, the next dam upriver, both the tailrace and spillway lifts were operational from 25 April through 3 June. During this period, 34,702 shad (50% of Conowingo of the East lift count) and 73 bluebacks passed over the dam as based on viewing window counts. It took an average of 8 days for shad to pass from the Conowingo East lift to Holtwood. It is evident that the vast majority of bluebacks remained in the Conowingo Pool.

The fish lift at Safe Harbor Dam, the third upriver dam, operated from 1 May to 7 June when 34,150 shad and 31 bluebacks were counted at the viewing window. The Safe Harbor lift passed over 98% of the shad counted at Holtwood.

The PFBC continued to operate the shad culture facility along the Juniata River at the Van Dyke Research Station, near Thompsontown, Pennsylvania. From 3-27 May, 26.6 million shad eggs were delivered to the hatchery from the Delaware River (5.5 M) and the Hudson River (21.1 M). These eggs yielded 14.4 million fry that were stocked in the Susquehanna and Lehigh Rivers. Of these, 1.2 million fry were released into the North Branch Susquehanna River.

Based on the otolith analysis of adult shad taken at the West lift in 1999, 53% were hatchery fish and 47% were wild. This is a decline in wild fish from last year when 71% were wild. According to PFBC calculations, it takes about 340 larval shad to produce one adult return to Conowingo Dam.

Monitoring for impinged juvenile American shad was not conducted on the intake screen of the Susquehanna SES in the fall of 1999. As in 1998, Mr. Richard St. Pierre, Susquehanna River Coordinator for the Fish and Wildlife Service, felt that monitoring would not be productive (see Exhibit 1).

Biofouling Mollusk Monitoring

The biofouling mollusks monitoring program was continued at the Susquehanna SES in 1999. Though zebra mussels (*Dreissena polymorpha*) have been found in past years in samples near Johnson City, New York, about 150 miles upriver, and Asiatic clams (*Corbicula fluminea*) were confirmed 40 miles downriver at Northumberland,

Pennsylvania, neither of these species has yet been found in the vicinity of the Susquehanna SES.

The monitoring program currently involves a biweekly schedule of artificial substrate sampling in the river near the Susquehanna SES from May through November. Artificial substrates are also maintained in side-stream samplers located in the Intake Structure and on the plant site. In addition, monthly inspections of natural substrates were performed in the river and in the Emergency Service Water Spray Pond.

2.2 Terrestrial Issues

2.2.1 Studies Previously Completed

Terrestrial environmental studies completed prior to 1989 included Cooling Tower bird impaction and sound level surveys.

2.2.2 Sound Level Survey

An increase in station power generation of 5% was completed during spring 1995. A power uprate sound level survey was conducted in June 1995.

2.2.3 Maintenance of Transmission Line Corridors

Transmission line corridor maintenance and inspection records are maintained by the Power Delivery group and are available upon request. Records will be maintained for five years.

2.3 Cultural Resources Issues

Environmental Protection Plan actions required to satisfy Title 36, Code of Federal Regulations Part 800, relating to archeological sites, were completed in 1987. The Advisory Council on Historic Preservation (ACHP), in accordance with 36 CFR 800.6 (a)(1), approved the NRC's determination of "no adverse effect" for archeological sites SES-3, SES-6, SES-8, and SES-11 located on the Licensee's property (NRC letter dated October 28, 1987, to ACHP).

As part of the determination of effect process, the Licensee committed to and is taking appropriate measures to mitigate impacts from plant maintenance and operation to sites SES-3, SES-6, SES-8 and SES-11. There was no impact to these sites from plant maintenance and operation in 1999.

REFERENCES

- 2.1-1 Restoration of American Shad to the Susquehanna River, Annual Progress Report-1999, Susquehanna River Anadromous Fish Restoration Committee, February 2000.

3.0 CONSISTENCY REQUIREMENTS

3.1 Plant Design and Operation

In accordance with the Environmental Protection Plan (EPP), the Licensee shall prepare and record an environmental evaluation of proposed changes in plant design, operation, or performance of any test or experiment which may significantly affect the environment. Before initiating such activities, the Licensee shall provide a written evaluation and obtain prior approval from the Director, Office of Nuclear Reactor Regulation. Criteria for the need to perform an environmental evaluation include: (1) a significant increase in any adverse environmental impact previously evaluated by the NRC or Atomic Safety and Licensing Board, (2) a significant change in effluent or power level, or (3) a matter not previously evaluated which may have a significant adverse environmental impact.

The EPP requires that if an activity meets any of the criteria to perform an environmental evaluation, the NRC will be notified. If the change, test, or experiment does not meet any of these criteria, the Licensee will document the evaluation and allow the activity to occur.

During operation of the Susquehanna SES in 1999, there were 5 proposed activities which the Licensee reviewed as part of the unreviewed environmental question program. None of these 5 activities was determined to be an unreviewed environmental question or required NRC notification. These activities were:

1. An evaluation was performed before replacing a standpipe and repairing eroded berms in the S-2 Sedimentation Pond. These repairs helped minimize site runoff and sediment entering Lake Took-a-while, the recreation lake on the floodplain.
2. A review of a plan to repair leaks in the domestic system pipe in the vicinity of the site wells was conducted. An erosion plan was developed to minimize erosion during earth-moving activities during pipe repair.
3. Plans by Land Management Department to build a building on the floodplain were evaluated in 1999 to make certain there would be no impacts to archeological sites. A review of a 1981 archeological study listing sites in the vicinity of this new building was conducted in 1998 by Ecology III, an environmental consultant. Ecology III

4. An evaluation was conducted before a temporary water treatment filter was brought onsite to treat river water for production of clarified water. This filter was used when the groundwater domestic system was unavailable. This proposed activity was evaluated to determine if there would be an increase in river consumptive use beyond design criteria. It was determined this project did not present any potential significant environmental impacts of a new or different nature.
5. An NPDES renewal permit application was evaluated to make certain it did not include any significant environmental impacts not previously evaluated. This permit is updated every five years. It was determined that there would be no change in station effluents or power level based on renewal application submission.

3.2 Reporting Related to NPDES Permits and State Certifications

Reports and information required by the EPP concerning the NPDES Permit are to be submitted to both the NRC and PaDEP. These include violations and changes and additions to the permit. In 1999, an NPDES renewal permit application was submitted to the PaDEP with a copy to the NRC. Also, there was one NPDES permit noncompliant sampling event in 1999. The NRC was notified (PLA-5129, November 9, 1999) about this noncompliance, a missed sampling event in September for the Neutralization Basin discharge. Changes to program procedures were initiated to prevent missing sampling events in the future.

Pennsylvania is an NPDES Permitting Agreement State with the U.S. Environmental Protection Agency, therefore, state certification pursuant to Section 401 of the Clean Water Act is not required.

3.3 Changes Required for Compliance with Other Environmental Regulations

Synthetic Minor PaDEP air quality permit no. SM 40-0027 now includes the following permits:

<u>PERMIT</u>	<u>NO.</u>
Air Blasting Operation Air Quality Permit	40-399-024
Diesel Generator (E) Air Quality Permit	40-306-004
Diesel Generators (A-D) Air Quality Permit	40-306-005

4.0 ENVIRONMENTAL CONDITIONS

4.1 Unusual or Important Environmental Events

During 1999, four operating occurrences were reviewed as part of the significant environmental event evaluation. There were no adverse environmental effects caused by these occurrences. The NRC was not notified of any of these events since there were no EPP noncompliances. A copy of a nonroutine report for an NPDES noncompliance, however, was sent to the NRC in 1999. See Section 3.2 for details.

These events were as follows:

1. Painters spilled two gallons of methylethyl ketone (MEK) on the roadway. MEK was spilled from a drum which was thought to be empty. This spill was not reportable and did not have a significant environmental impact. Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) has a reportable quantity notification level of 740 gallons. This spill (MEK evaporated) did not impact any streams or waterways.
2. Chemicals to be used in a diesel generator jacket water flush leaked from their containers onto the loading dock into the warehouse. A small amount of sulfuric acid leaked from a drum plug, one bag of soda ash (sodium carbonate), and several bags of sodium hydroxide impacted an area of approximately 400 square feet inside the warehouse. This spill area was limited to the concrete floor and was well below the 2,000 square feet reporting requirement in licensee procedure NDAP-QA-0642, Nonradiological Environmental Compliance Program. The leakage was contained in the warehouse and did not enter the environment.
3. An evaluation was conducted for the release of transformer oil from the Unit 2 Main Step-up Transformer. This release occurred concurrent with a ground and overpressure event which damaged the transformer. This event was localized and impacted an area of <2,000 square feet. The transformer oil was contained and the spill was cleaned up. None of the spill entered a waterway. The spill was not reportable, however, the PaDEP and NRC were notified of this event for their information only.
4. When performing a fuel oil transfer from "E" to "B" diesel generator fuel oil storage tanks, approximately 200 gallons were released. This fuel remained in containment and was immediately recovered and

spill debris cleaned up to prevent entry into the environment. This spill did not exceed regulatory reporting requirements.

4.2 Environmental Monitoring

4.2.1 General Monitoring

With the exception of aquatic monitoring discussed in Section 2.1 of this report, all other monitoring of station operational impacts on aquatic and terrestrial biota listed in the FES and Appendix B of the operating license has been completed.

4.2.2 Maintenance of Transmission Line Corridors

Transmission line maintenance and inspection records are maintained by the Power Delivery group. In 1999, the Vice President-Power Delivery, as well as the Senior Vice President-Generation and Chief Nuclear Officer, both report to the Executive Vice President and Chief Operating Officer.

5.0 ENVIRONMENTAL PROTECTION PLAN REPORTING REQUIREMENTS

5.1 Review and Audit

The Licensee has established procedures for an independent group to review and audit compliance with the EPP. Audits of EPP compliance are conducted by Nuclear Assurance. The General Manager-Nuclear Assurance with support, as needed, from the Manager-Environmental Management Division is responsible for verifying compliance with the EPP. The Manager-Nuclear Technology is responsible for off-site environmental monitoring and for providing any related support concerning licensing. The General Manager-SSES is responsible for on-site environmental matters. The Auditing Chart (Fig. 5.1-1) lists the groups utilized in environmental reviewing and auditing of the Susquehanna SES environmental monitoring programs as well as those responsible for managing these programs.

There will be periodic audits of this report. An audit of the EPP was conducted in 1999. There were no findings against the EPP during the audit. There were, however, two recommendations which have since been addressed. One recommendation corrected a typo in an internal environmental manual and the second suggested that out-of-date EPP sections be updated. After discussions with Nuclear Licensing, it was decided not to make any changes to the EPP since annual reports already provide updates to include information on environmental programs that either are in progress or have been previously completed.

5.2 Records Retention

Records and logs relative to environmental aspects of plant operation and audit activities are retained in the Nuclear Records System. This system provides for a convenient review and inspection of environmental documents which are available to the NRC upon request.

All records concerning modifications of plant structures, systems and components which are determined to potentially affect the continued protection of the environment, are retained for the life of the plant. All other records, data, and logs relating to the environmental programs and monitoring are retained for at least five years or, where applicable, in accordance with the requirements of other agencies.

5.3 Changes in Environmental Protection Plan

There were no requests for changes in the EPP during 1999.

5.4 Plant Reporting Requirements

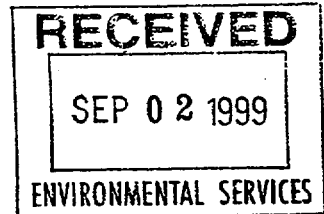
5.4.1 Routine Reports

This Annual Environmental Operating Report (Nonradiological) was prepared to meet routine reporting requirements of the EPP for 1999. It provides summaries and analyses of environmental protection activities required in Subsection 4.2 of the EPP for the reporting period.

5.4.2 Nonroutine Reports

There were no Unusual or Important Environmental Events as identified in the Environmental Protection Plan that required reporting in 1999.

SUSQUEHANNA RIVER ANADROMOUS FISH
RESTORATION COOPERATIVE



Members

Maryland Department of Natural Resources
National Marine Fisheries Service
New York Division of Fish and Wildlife
Pennsylvania Fish and Boat Commission
Susquehanna River Basin Commission
United States Fish and Wildlife Service

Secretary

Susquehanna River Coordinator
U. S. Fish and Wildlife Service
1721 N. Front Street, Rm 105
Harrisburg, PA 17102
Telephone: 717-238-6425
Fax: 717-238-0495

August 31, 1999

Mr. Jerome Fields
PP&L, Inc.
Two North Ninth Street, A-93
Allentown, PA 18101-1179

Dear Jerry,

Adult shad returns to the Susquehanna River at Conowingo Dam in spring 1999 were the second best ever (81,000). With fish passages completed at Conowingo, Holtwood and Safe Harbor, most fish were passed directly upstream. As in past years, we did operate the old Conowingo West lift for trap and transfer and moved about 5,500 adult shad into spawning waters above York Haven Dam. The Pennsylvania Fish and Boat Commission also reared 13 million larval shad at their Van Dyke hatchery and stocked these throughout the basin including 1.2 million in the North Branch near Berwick.

The number of shad available to migrate past Sunbury was very small and stocked larvae are expected to move quickly downstream from their release site. Therefore, I do not recommend sampling for juvenile shad in the vicinity of PP&L's Susquehanna SES in 1999. The new fish ladder at York Haven is almost completed and next spring we expect to document considerable movement of adult shad past this site. Therefore, I do encourage you to plan on intake sampling at your power plant next year.

Please call if you wish to discuss this further.

Sincerely,

A handwritten signature in black ink, appearing to read "Richard St. Pierre". The signature is fluid and cursive.

Richard St. Pierre
Susquehanna River Coordinator

cc: Ted Jacobsen

FIGURE 5.1-1 AUDITING CHART (1999)

