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APR 11 2001

U. S. Nuclear Regulatory Commission
Attn: Document Control Desk
Mail Station OP1-17
Washington, D. C. 20555

**SUSQUEHANNA STEAM ELECTRIC STATION
ANNUAL ENVIRONMENTAL OPERATING
REPORT (NON-RADIOLOGICAL)
PLA-5298**

**Docket Nos. 50-387
and 50-388**

The Susquehanna SES Annual Environmental Operating Report (Non-radiological) is hereby submitted for the calendar year 2000 in accordance with the Environmental Protection Plan.

If you have any questions, please contact Mr. Robert D. Kichline at (610) 774-7705.

Sincerely,

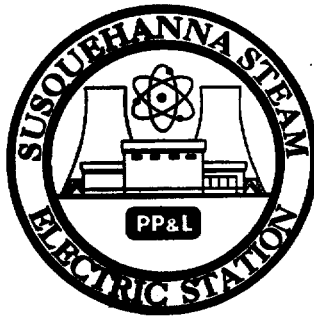
A handwritten signature in black ink, appearing to be "R. G. Byram", with a long horizontal line extending to the right.

R. G. Byram

Attachments

Copy: NRC Region I
Mr. S. L. Hansell, NRC Sr. Resident Inspector - SSES
Mr. R. G. Schaaf, NRC Project Manager

Handwritten initials "SA" inside a circle.
cool

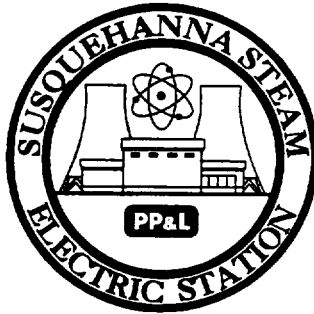


**Susquehanna Steam Electric Station
Units 1 & 2**

**2000
ANNUAL ENVIRONMENTAL OPERATING REPORT
(NONRADIOLOGICAL)**



**PPL Susquehanna, LLC
Berwick, PA
April 2001**



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

**2000
ANNUAL ENVIRONMENTAL OPERATING REPORT
(NONRADIOLOGICAL)**

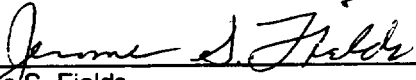
**Facility Operating License Nos. NPF-14 & NPF-22
Docket Nos. 50-387 & 50-388**

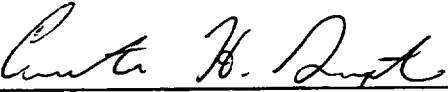
**prepared by
Environmental Services
Operations Technology
PPL Susquehanna, LLC
Berwick, PA
April 2001**

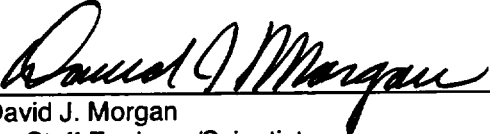
SUSQUEHANNA STEAM ELECTRIC STATION

ANNUAL ENVIRONMENTAL OPERATING REPORT
(NONRADIOLOGICAL)

2000

Prepared by:  Date: 3/21/01
Jerome S. Fields
Senior Environmental Scientist-Nuclear

Reviewed by:  Date: 3/22/01
Curtis H. Saxton
Supervisor-Effluents Management

Approved by:  Date: 3/28/01
David J. Morgan
Sr. Staff Engineer/Scientist
Operations Technology

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. In 2000, the site was expanded to approximately 3,300 acres. The station is located on the west side of the Susquehanna River on a 1,700-acre site in Salem Township, Luzerne County, Pennsylvania, approximately five miles northeast of Berwick, Pennsylvania. An additional 1,600 acres of recreational land on the east side of the river in Conyngham and Hollenback Townships were transferred to PPL Susquehanna, LLC. Under terms of an agreement finalized in January 1978, 90% of the Susquehanna SES is owned by PPL Susquehanna, LLC (Licensee) and 10% by the Allegheny Electric Cooperative, Inc.

The 2000 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, 2000 through December 31, 2000.

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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 2000 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 2000 report is the 19th 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's operational NPDES permit No. PA-0047325 was reissued on July 7, 2000, and is to expire on July 6, 2005.

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 limits are listed in Exhibit 1.

Part 2 of the aquatic monitoring program deals with programs listed in the FES or recommended by the PaDEP or U.S. Fish and Wildlife Service.

American Shad

The Susquehanna Anadromous Fish Restoration Committee continued to administer programs to restore American Shad (*Alosa sapadissima*) to the Susquehanna River in 2000. The restoration program is a continuing commitment to return shad and other migratory fishes to historic spawning and nursery waters above the dams in the Susquehanna River.

This spring was characterized by relatively high river flows that delayed operation of both the East and West fish lifts at Conowingo Dam. In spite of these delays, record numbers of 153,546 shad, and 14,965 blueback herring (*Alosa aestivalis*) were passed into Conowingo Reservoir through the East lift from 18 April through 9 June 2000 (Ref. 2.1-1). At the West fish lift, 1,351 shad and 4,783 bluebacks were transported and stocked upstream at various locations. Other major transfers from the West lift included 1,726 shad to Maryland Department of Natural Resources, 1,179 to U. S. Fish & Wildlife Service at Lamar for tank spawning, and 447 to the Pennsylvania Fish & Boat Commission (PFBC) Benner Spring Research Station.

At the Holtwood Dam, the second dam upriver, both the tailrace and spillway lifts were operational from 6 May through 14 June. During this period, 29,421 shad (19% of East lift count) and 27 bluebacks passed over the dam as based on viewing window counts. It took an average of four days for shad to pass from the Conowingo East lift to Holtwood. It is evident that most shad and the vast majority of bluebacks remained in the Conowingo Pool.

The fish lift at Safe Harbor Dam, the third dam upriver, operated from 8 May to 15 June when 21,079 shad and 159 bluebacks (most from the West lift stocking) were counted at the viewing window. The Safe Harbor lift passed 72% of the shad counted at Holtwood.

The fish passage facility at York Haven, the fourth dam upriver, operated from 12 May to 19 June. It passed 4,687 shad and no herring. This was the first year of operation and it passed 22% of the shad counted at Safe Harbor.

The PFBC continued to operate the shad culture facility along the Juniata River at the Van Dyke Research Station, near Thompsett, Pennsylvania. Throughout May, 18.7 million shad eggs were delivered to the hatchery from the Delaware River (3.8 M) and the Hudson River (14.9 M). These eggs yielded 10.4 million fry that were stocked in the Susquehanna and Lehigh Rivers. Most, 9.5 million fry, were released into the North Branch Susquehanna River including 983,000 that were stocked about 50 miles upriver from the Susquehanna SES near Tunkhannock, Pennsylvania.

Monitoring for impinged juvenile American shad was not conducted on the intake screens of the Susquehanna SES in the fall of 2000. Mr. Richard St. Pierre, Susquehanna River Coordinator for the U S Fish and Wildlife Service, did not recommend sampling in the vicinity of the station in 2000. Shad fry scheduled for stocking seven river miles down river from the Susquehanna SES at Berwick, PA, would tend to move even farther down river (see Exhibit 2). As previously mentioned, fry scheduled for the Berwick stocking, were actually stocked upriver at Tunkhannock. Although not monitored at the Susquehanna SES in 2000, juvenile shad from this stocking did exceptionally well and the site is scheduled to be used again in the spring of 2001. This fall, PPL plans to monitor the screens at the Susquehanna SES if the shad are stocked upriver.

Biofouling Mollusk Monitoring

The biofouling mollusks monitoring program was continued at the Susquehanna SES in 2000. Zebra mussels (*Dreissena polymorpha*) have been found in past years in samples near Johnson City, New York, about 150 miles upriver. Asiatic clams (*Corbicula fluminea*) were confirmed 40 miles downriver at Northumberland, Pennsylvania. However, 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 maintained 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 PPL 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 2000.

REFERENCES

- 2.1-1 Restoration of American Shad to the Susquehanna River, Annual Progress Report-2000, Susquehanna River Anadromous Fish Restoration Committee, February 2001.

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 2000, there were three proposed activities which the Licensee reviewed as part of the unreviewed environmental question program. None of these three activities was determined to be an unreviewed environmental question or required NRC notification. These activities were:

1. An evaluation was performed on a test rig to be used at the Susquehanna SES Training Center for valve repair training. The test rig holds approximately 650 gallons of water containing a corrosion inhibitor and, on occasion, a biocide. Any leaks would be collected in a sump and discharged to the station's Sewage Treatment Plant.
2. A review of a proposed installation of a Caldon Leading Edge Flow Meter to increase feedwater flow accuracy in each unit was evaluated. There will be a 1.4% increase in reactor operating thermal power and steam flow. We expect to receive approval to install flow meter from the NRC some time in 2001.
3. Discharge to the Susquehanna River of excess bentonite clay slurry used to detoxify non-oxidizing biocides in the Cooling Tower blowdown (Outfall 071) was evaluated. Possible discharge of this slurry up to a concentration of 8 mg/l was included in the NPDES

permit application submitted to the PaDEP in December 1999.
Station procedures will make certain this limit is not exceeded.

3.2 Reporting Related to NPDES Permits and State Certifications

There was one NPDES permit noncompliant sampling event in 2000. The NRC was notified by letter (PLA-5266, December 21, 2000) about a missed sampling event in October at the Circulating Water Pump House sump discharge.

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

A renewal NPDES permit no. PA 0047325 was received by the station on July 7, 2000. See Section 2.1 for additional information.

4.0 ENVIRONMENTAL CONDITIONS

4.1 Unusual or Important Environmental Events

During 2000, 10 operating occurrences were reviewed as part of the significant environmental event evaluation program. There were no significant or adverse environmental effects caused by these occurrences. There were no EPP noncompliances. A copy of a nonroutine report for an NPDES noncompliance, however, was sent to the NRC in 2000. See Section 3.2 for details.

The 10 operating occurrences are as follows:

1. While injecting biocide (Sodium Hypochlorite) into the Unit 2 Circulating Water System, the Unit 1 blowdown valve was closed and not the correct Unit 2 valve. It was uncertain if the NPDES permit condition of "not discharging chlorine from any unit for more than two hours per day" was exceeded. The first available sample data collected four hours into the event showed that chlorine concentration in the blowdown was less than detectable. The Licensee does not believe that any permit conditions was violated or that there was any adverse environmental impact from this event.
2. On February 27, 2000, high flows damaged the River Intake Structure Debris Handler. River flows increased from approximately 20,000 cfs to over 70,000 over the previous five-day period. Due to the damage, river screen wash water overflowed the debris handler pit onto the adjacent parking lot. Repairs were made to the debris handler which was put back in service on the same day.
3. There was a spill of chelant flush water due to overflow of the Diesel Jacket Water System. The common Diesel Building Sump was isolated and the contents of sump were pumped to the vendor's waste tank for disposal/treatment offsite. In total, less than 2,000 gallons were pumped from the sump. Spill material did not enter the NPDES sump (Outfall 072) or the environment.
4. When filling the Unit 1 portable Sulfuric Acid Tank, approximately 2,700 gallons of sulfuric acid were spilled into a secondary berm surrounding the tank. Approximately five gallons of acid leaked onto the ground during this event. While transferring the acid by tanker to a bermed temporary storage area an additional two gallons were spilled. The spills were neutralized and cleaned up without any adverse impacts to the environment. The amount of sulfuric acid spilled was less than the Comprehensive Environmental Response,

Compensation and Liability Act (CERCLA) reportable quantity of 65 gallons.

5. Twenty gallons of dilute Sodium Hypochlorite leaked from supply tubing in the Well Water Pump House into the environment. The amount of Sodium Hypochlorite spilled was less than the CERCLA reportable quantity of 79 gallons. The Licensee believes that there should have been no adverse impacts to site ground water or soil.
6. A dam in the North Branch Canal in the Susquehanna Riverlands recreational area broke discharging fish to the river. Water level in the canal was lowered significantly; however, there was no observed fish kill or adverse impact to the canal in the vicinity of the dam. The dam was repaired within a month.
7. A refuse truck leaked hydraulic fluid while collecting residual waste at the Access Processing Facility. Approximately one gallon of fluid leaked from a hydraulic hose onto the pavement. The spill material was cleaned up using oil dry. None of this petroleum-based product entered a waterway. There were no reportability requirements for this event.
8. There was an inadvertent injection of biocide (Sodium Hypochlorite) to Unit 2 Cooling Tower during Unit 1 biocide injection. A valve controlling biocide injection to Unit 2 was partially open. Combined blowdown sample results indicated that chlorine levels were less than detectable (<0.05 mg/l) during this event. NPDES limits were not exceeded.
9. A Load Center Supply breaker tripped affecting Main Transformer cooling equipment. Transformer oil was observed coming out of a relief line and approximately 15 to 25 gallons of oil leaked onto stones in the containment area below the transformers. Oil-soaked stones were collected in drums for disposal. The oil leak was contained and none discharged to the environment.
10. A Clay Slurry Tank overflowed when air was added to mix tank contents. Approximately 400 gallons (day slurry mixture) was discharged into the bermed area surrounding the tank. None of the clay discharged to the environment. The spill material was collected and sent down to the Waste Accumulation Area for disposal offsite. This event was not reportable.

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 PPL Power Delivery group. In 2000, the Vice President-Power Delivery reported to the President PPL Electric Utilities. The Senior Vice President-Generation and Chief Nuclear Officer and President PPL Electric Utilities reported 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 Supervisor – Operations Technology manages day-to-day offsite monitoring through the Environmental Services group. The General Manager SSES – Operations 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 are periodic audits of the EPP program. An audit of the EPP was not conducted in 2000.

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

No changes were made to the EPP during 2000.

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 2000. 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 2000.

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
WATER MANAGEMENT PROGRAMAUTHORIZATION TO DISCHARGE UNDER THE
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

NPDES PERMIT NO. PA 0047325

In compliance with the provisions of the Clean Water Act, 33 U.S.C. Section 1251 et seq. (the "Act") and Pennsylvania's Clean Streams Law, as amended, 35 P.S. Section 691.1 et seq.,

PPL Susquehanna, LLC, Two North Ninth Street, Allentown, PA 18101-1179

is authorized to discharge from a facility located at

Municipality Salem Township County Luzerne

to receiving waters named Susquehanna River

in accordance with effluent limitations, monitoring requirements and other conditions set forth in Parts A, B, and C hereof.

THIS PERMIT SHALL EXPIRE AT MIDNIGHT, July 6, 2005.

The authority granted by this permit is subject to the following further qualifications:

1. If there is a conflict between the application, its supporting documents and/or amendments and the terms and conditions of this permit, the terms and conditions shall apply.
2. Failure to comply with the terms, conditions, or effluent limitations of this permit is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or for denial of a permit renewal application.
3. Complete application for renewal of this permit, or notification of intent to cease discharging by the expiration date, must be submitted to the Department at least 180 days prior to the above expiration date (unless permission has been granted by the Department for submission at a later date), using the appropriate NPDES permit application form.

In the event that a timely and complete application for renewal has been submitted and the Department is unable, through no fault of the permittee, to reissue the permit before the above expiration date, the terms and conditions of this permit, including submission of the Discharge Monitoring Reports, will be automatically continued and will remain fully effective and enforceable pending the grant or denial of the application for permit renewal.

4. This NPDES permit does not constitute authorization to construct or make modifications to wastewater treatment facilities necessary to meet the terms and conditions of this permit.

DATE PERMIT ISSUED July 7, 2000

ISSUED BY Kate Crowley
KATE CROWLEY

DATE PERMIT AMENDMENT ISSUED _____

TITLE: Water Management Program Manager

DATE EFFECTIVE _____

DISCHARGE REQUIREMENTS FOR INDUSTRIAL WASTEWATER FACILITIES**PART A - EFFLUENT LIMITATIONS, MONITORING, RECORDKEEPING, AND REPORTING REQUIREMENTS**

1. For Outfall 070, Latitude 41° 05' 15", Longitude 76° 08' 45", River Mile Index _____ Stream Code _____

which receives wastewater from S-2 Sedimentation Pond

- a. The permittee is authorized to discharge during the period from July 7, 2000 through July 6, 2005
- b. Based on the production data and anticipated wastewater characteristics and flows described in the permit application and its supporting documents and/or amendments, the following effluent limitations and monitoring requirements apply (See also Additional Requirements, Footnotes and Supplemental Information on page 13):

Discharge Parameter	Effluent Limitations						Monitoring Requirements		
	Mass Units (lbs/day) ⁽¹⁾		Concentrations (mg/l)				Minimum Measurement Frequency	Required Sample Type	24-Hour Report Under A.3.c(4)
	Average Monthly	Maximum Daily	Minimum	Average Monthly	Maximum Daily	Instantaneous Maximum ⁽²⁾			
Stormwater only. There are no limitations for this discharge. There shall be no discharge of floating solids or visible foam in other than trace amounts.									

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s): N/A

Permit No. PA-0047325**DISCHARGE REQUIREMENTS FOR INDUSTRIAL WASTEWATER FACILITIES****PART A - EFFLUENT LIMITATIONS, MONITORING, RECORDKEEPING, AND REPORTING REQUIREMENTS**2. For Outfall 071, Latitude 41° 05' 30", Longitude 76° 08' 45", River Mile Index _____ Stream Code _____which receives wastewater from Cooling tower blowdowna. The permittee is authorized to discharge during the period from July 7, 2000 through July 6, 2005

b. Based on the production data and anticipated wastewater characteristics and flows described in the permit application and its supporting documents and/or amendments, the following effluent limitations and monitoring requirements apply (See also Additional Requirements, Footnotes and Supplemental Information on page 13):

Discharge Parameter	Effluent Limitations						Monitoring Requirements		
	Mass Units (lbs/day) ⁽¹⁾		Concentrations (mg/l)				Minimum Measurement Frequency	Required Sample Type	24-Hour Report Under A.3.c(4)
	Average Monthly	Maximum Daily	Minimum	Average Monthly	Maximum Daily	Instantaneous Maximum ⁽²⁾			
Flow (MGD)	See Page 13						Daily	Recording Instrumentation	
Free Available Chlorine ⁽¹⁾					0.2	0.50	Daily	Grab during Chlorination	
Total Zinc					1.0		1/Year	8 Hr. Composite	
Total Chromium					0.20		1/Year	8 Hr. Composite	
pH	Not less than 6.0 standard units nor greater than 9.0 standard units at all times.						Daily	Grab	
Note:	Neither Free Available Chlorine nor Total Residual Chlorine may be discharged from any unit for more than two hours in any one day and not more than one unit in any plant may discharge Free Available or Total Residual Chlorine at any one time unless the utility can demonstrate to the Regional Administrator or State that the units in a particular location cannot operate at or below this level of chlorination.								

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s):

At Outfall 071

⁽¹⁾ See Other Requirements Part C – Special Conditions Nos. 4 and 5.

Permit No. PA-0047325**DISCHARGE REQUIREMENTS FOR INDUSTRIAL WASTEWATER FACILITIES****PART A - EFFLUENT LIMITATIONS, MONITORING, RECORDKEEPING, AND REPORTING REQUIREMENTS**

3. For Outfall 072, Latitude 41° 05' 30", Longitude 76° 08' 45", River Mile Index _____ Stream Code _____
 which receives wastewater from Service and Administration Building Low Volume Waste Sump

- a. The permittee is authorized to discharge during the period from July 7, 2000 through July 6, 2005
- b. Based on the production data and anticipated wastewater characteristics and flows described in the permit application and its supporting documents and/or amendments, the following effluent limitations and monitoring requirements apply (See also Additional Requirements, Footnotes and Supplemental Information on page 13):

Discharge Parameter	Effluent Limitations						Monitoring Requirements		
	Mass Units (lbs/day) ⁽¹⁾		Concentrations (mg/l)				Minimum Measurement Frequency	Required Sample Type	24-Hour Report Under A.3.c(4)
	Average Monthly	Maximum Daily	Minimum	Average Monthly	Maximum Daily	Instantaneous Maximum ⁽²⁾			
Flow (MGD)							Daily When Discharging	Estimate	
Total Suspended Solids				30.0	100.0		1/Month	Grab	
Oil & Grease				15.0	20.0	30.0	1/Month	Grab	
pH	Not less than 6.0 standard units nor greater than 9.0 standard units at all times.						Daily When Discharging	Grab	

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s):

At Outfall 072 – Service and Administration Building Low Volume Waste Sump

Permit No. PA-0047325**DISCHARGE REQUIREMENTS FOR INDUSTRIAL WASTEWATER FACILITIES****PART A - EFFLUENT LIMITATIONS, MONITORING, RECORDKEEPING, AND REPORTING REQUIREMENTS**4. For Outfall 073, Latitude 41° 05' 30", Longitude 76° 08' 45", River Mile Index _____ Stream Code _____which receives wastewater from Unit #1 Turbine Building Low Volume Waste Sumpa. The permittee is authorized to discharge during the period from July 7, 2000 through July 6, 2005

b. Based on the production data and anticipated wastewater characteristics and flows described in the permit application and its supporting documents and/or amendments, the following effluent limitations and monitoring requirements apply (See also Additional Requirements, Footnotes and Supplemental Information on page 13):

Discharge Parameter	Effluent Limitations						Monitoring Requirements		
	Mass Units (lbs/day) ⁽¹⁾		Concentrations (mg/l)				Minimum Measurement Frequency	Required Sample Type	24-Hour Report Under A.3.c(4)
	Average Monthly	Maximum Daily	Minimum	Average Monthly	Maximum Daily	Instantaneous Maximum ⁽²⁾			
Flow (MGD)							Daily When Discharging	Estimate	
Total Suspended Solids				30.0	100.0		Quarterly	Grab	
Oil & Grease				15.0	20.0	30.0	Quarterly	Grab	
pH	Not less than 6.0 standard units nor greater than 9.0 standard units at all times.						Daily When Discharging	Grab	

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s):

At Outfall 073 – Unit #1 Turbine Building Low Volume Waste Sump

DISCHARGE REQUIREMENTS FOR INDUSTRIAL WASTEWATER FACILITIES**PART A - EFFLUENT LIMITATIONS, MONITORING, RECORDKEEPING, AND REPORTING REQUIREMENTS**

5. For Outfall 074, Latitude 41° 05' 30", Longitude 76° 08' 45", River Mile Index _____ Stream Code _____
 which receives wastewater from Unit #2 Turbine Building Low Volume Waste Sump

- a. The permittee is authorized to discharge during the period from July 7, 2000 through July 6, 2005
- b. Based on the production data and anticipated wastewater characteristics and flows described in the permit application and its supporting documents and/or amendments, the following effluent limitations and monitoring requirements apply (See also Additional Requirements, Footnotes and Supplemental Information on page 13):

Discharge Parameter	Effluent Limitations						Monitoring Requirements		
	Mass Units (lbs/day) ⁽¹⁾		Concentrations (mg/l)				Minimum Measurement Frequency	Required Sample Type	24-Hour Report Under A.3.c(4)
	Average Monthly	Maximum Daily	Minimum	Average Monthly	Maximum Daily	Instantaneous Maximum ⁽²⁾			
Flow (MGD)							Daily When Discharging	Estimate	
Total Suspended Solids				30.0	100.0		Quarterly	Grab	
Oil & Grease				15.0	20.0	30.0	Quarterly	Grab	
pH	Not less than 6.0 standard units nor greater than 9.0 standard units at all times.						Daily When Discharging	Grab	

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s):

At Outfall 074 – Unit #2 Turbine Building Low Volume Waste Sump

Permit No. PA-0047325**DISCHARGE REQUIREMENTS FOR INDUSTRIAL WASTEWATER FACILITIES****PART A - EFFLUENT LIMITATIONS, MONITORING, RECORDKEEPING, AND REPORTING REQUIREMENTS**6. For Outfall 075, Latitude 41° 05' 30", Longitude 76° 08' 45", River Mile Index _____ Stream Code _____which receives wastewater from Peach Stand Ponda. The permittee is authorized to discharge during the period from July 7, 2000 through July 6, 2005

b. Based on the production data and anticipated wastewater characteristics and flows described in the permit application and its supporting documents and/or amendments, the following effluent limitations and monitoring requirements apply (See also Additional Requirements, Footnotes and Supplemental Information on page 13):

Discharge Parameter	Effluent Limitations						Monitoring Requirements		
	Mass Units (lbs/day) ⁽¹⁾		Concentrations (mg/l)				Minimum Measurement Frequency	Required Sample Type	24-Hour Report Under A.3.c(4)
	Average Monthly	Maximum Daily	Minimum	Average Monthly	Maximum Daily	Instantaneous Maximum ⁽²⁾			
Stormwater only. There are no limitations for this discharge. There shall be no discharge of floating solids or visible foam in other than trace amounts.									

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s): N/A

DISCHARGE REQUIREMENTS FOR INDUSTRIAL WASTEWATER FACILITIES**PART A - EFFLUENT LIMITATIONS, MONITORING, RECORDKEEPING, AND REPORTING REQUIREMENTS**

7. For Outfall 079, Latitude 41° 05' 30", Longitude 76° 08' 30", River Mile Index _____ Stream Code _____

which receives wastewater from Sewage Treatment Plant

- a. The permittee is authorized to discharge during the period from July 7, 2000 through July 6, 2005
- b. Based on the production data and anticipated wastewater characteristics and flows described in the permit application and its supporting documents and/or amendments, the following effluent limitations and monitoring requirements apply (See also Additional Requirements, Footnotes and Supplemental Information on page 13):

Discharge Parameter	Effluent Limitations						Monitoring Requirements		
	Mass Units (lbs/day) ⁽¹⁾		Concentrations (mg/l)				Minimum Measurement Frequency	Required Sample Type	24-Hour Report Under A.3.c(4)
	Average Monthly	Maximum Daily	Minimum	Average Monthly	Maximum Daily	Instantaneous Maximum ⁽²⁾			
Flow (MGD)	See Page 13						Daily	Pump Rate or Weir	
CBOD ₅				25.0		50.0	1/Month	8 Hr. Composite	
Total Suspended Solids				30.0		60.0	1/Month	8 Hr. Composite	
Total Residual Chlorine				1.0		2.0	Daily	Grab	
pH	Not less than 6.0 standard units nor greater than 9.0 standard units at all times.						Daily	Grab	
Fecal Coliform Oct. 1 thru April 30	See Other Requirements – Part C, Special Condition No. 8						1/Month	Grab	
Fecal Coliform May 1 thru Sept. 30	See Other Requirements – Part C, Special Condition No. 9						1/Month	Grab	

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s):

At Outfall 079 – Sewage Treatment Effluent

Footnotes: (1) In no case shall the arithmetic means of the effluent values of the Carbonaceous Biochemical Oxygen Demand (five days) and Suspended Solids discharged during a period of 30 consecutive days exceed 15 percent of respective arithmetic means of the influent values for these parameters during the same time period, except as specifically authorized by the permitting authority.

Permit No. PA-0047325**DISCHARGE REQUIREMENTS FOR INDUSTRIAL WASTEWATER FACILITIES****PART A - EFFLUENT LIMITATIONS, MONITORING, RECORDKEEPING, AND REPORTING REQUIREMENTS**8. For Outfall 080 , Latitude 41° 05' 30" , Longitude 76° 08' 30" , River Mile Index _____ Stream Code _____which receives wastewater from C-1 Pond (Stormwater)a. The permittee is authorized to discharge during the period from July 7, 2000 through July 6, 2005

b. Based on the production data and anticipated wastewater characteristics and flows described in the permit application and its supporting documents and/or amendments, the following effluent limitations and monitoring requirements apply (See also Additional Requirements, Footnotes and Supplemental Information on page 13):

Discharge Parameter	Effluent Limitations						Monitoring Requirements		
	Mass Units (lbs/day) ⁽¹⁾		Concentrations (mg/l)				Minimum Measurement Frequency	Required Sample Type	24-Hour Report Under A.3.c(4)
	Average Monthly	Maximum Daily	Minimum	Average Monthly	Maximum Daily	Instantaneous Maximum ⁽²⁾			
Stormwater only. There are no limitations for this discharge. There shall be no discharge of floating solids or visible foam in other than trace amounts.									

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s): N/A

DISCHARGE REQUIREMENTS FOR INDUSTRIAL WASTEWATER FACILITIES**PART A - EFFLUENT LIMITATIONS, MONITORING, RECORDKEEPING, AND REPORTING REQUIREMENTS**

9. For Outfall 171, Latitude N/A, Longitude N/A, River Mile Index _____ Stream Code _____

which receives wastewater from Radwaste treatment

a. The permittee is authorized to discharge during the period from July 7, 2000 through July 6, 2005

b. Based on the production data and anticipated wastewater characteristics and flows described in the permit application and its supporting documents and/or amendments, the following effluent limitations and monitoring requirements apply (See also Additional Requirements, Footnotes and Supplemental Information on page 13):

Discharge Parameter	Effluent Limitations						Monitoring Requirements		
	Mass Units (lbs/day) ⁽¹⁾		Concentrations (mg/l)				Minimum Measurement Frequency	Required Sample Type	24-Hour Report Under A.3.c(4)
	Average Monthly	Maximum Daily	Minimum	Average Monthly	Maximum Daily	Instantaneous Maximum ⁽²⁾			
Flow (MGD)							Daily When Discharging	Estimate	
Total Suspended Solids				30.0	100.0		1/Month	Grab	
Oil & Grease				15.0	20.0		1/Year	Grab	

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s):

At Outfall 171 – Radwaste treatment plant effluent

Permit No. PA-0047325**DISCHARGE REQUIREMENTS FOR INDUSTRIAL WASTEWATER FACILITIES****PART A - EFFLUENT LIMITATIONS, MONITORING, RECORDKEEPING, AND REPORTING REQUIREMENTS**

10. For Outfall 371, Latitude N/A, Longitude N/A, River Mile Index _____ Stream Code _____

which receives wastewater from Demineralizer and building drains from raw water treatment plant building

- a. The permittee is authorized to discharge during the period from July 7, 2000 through July 6, 2005
- b. Based on the production data and anticipated wastewater characteristics and flows described in the permit application and its supporting documents and/or amendments, the following effluent limitations and monitoring requirements apply (See also Additional Requirements, Footnotes and Supplemental Information on page 13):

Discharge Parameter	Effluent Limitations						Monitoring Requirements		
	Mass Units (lbs/day) ⁽¹⁾		Concentrations (mg/l)				Minimum Measurement Frequency	Required Sample Type	24-Hour Report Under A.3.c(4)
	Average Monthly	Maximum Daily	Minimum	Average Monthly	Maximum Daily	Instantaneous Maximum ⁽²⁾			
Flow (MGD)							Daily When Discharging	Estimate	
Total Suspended Solids				30.0	100.0		1/Month	Grab	
Oil & Grease				15.0	20.0		1/Month	Grab	

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s):

At Outfall 371 – Neutralization basin discharge – prior to combining with circulating water system.

DISCHARGE REQUIREMENTS FOR INDUSTRIAL WASTEWATER FACILITIES**PART A - EFFLUENT LIMITATIONS, MONITORING, RECORDKEEPING, AND REPORTING REQUIREMENTS**

11. For Outfall 571 , Latitude N/A , Longitude N/A , River Mile Index _____ Stream Code _____

which receives wastewater from Circulating water pumphouse sump

a. The permittee is authorized to discharge during the period from July 7, 2000 through July 6, 2005

b. Based on the production data and anticipated wastewater characteristics and flows described in the permit application and its supporting documents and/or amendments, the following effluent limitations and monitoring requirements apply (See also Additional Requirements, Footnotes and Supplemental Information on page 13):

Discharge Parameter	Effluent Limitations						Monitoring Requirements		
	Mass Units (lbs/day) ⁽¹⁾		Concentrations (mg/l)				Minimum Measurement Frequency	Required Sample Type	24-Hour Report Under A.3.c(4)
	Average Monthly	Maximum Daily	Minimum	Average Monthly	Maximum Daily	Instantaneous Maximum ⁽²⁾			
Flow (MGD)							Daily When Discharging	Pump Rate or Weir	
Total Suspended Solids				30.0	100.0		1/Month	Grab	
Oil & Grease				15.0	20.0		1/Month	Grab	

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s):

At Outfall 571 – Prior to combining with circulating water system.

DISCHARGE REQUIREMENTS FOR INDUSTRIAL WASTEWATER FACILITIES

PART A- EFFLUENT LIMITATIONS, MONITORING, RECORDKEEPING, AND REPORTING REQUIREMENTS

Additional Requirements

- c. All discharges of floating materials, oil, grease, scum and substances which produce tastes, odors, turbidity or settle to form deposits shall be controlled to levels which will not be inimical or harmful to the water uses to be protected as to human, animal, plant or aquatic life.

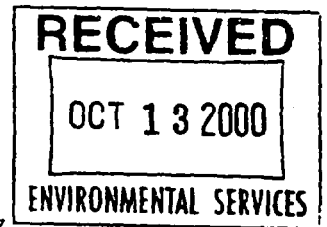
Footnotes (Refer to Pages 2 through 12)

- (1) When sampling to determine compliance with mass effluent limitations, the discharge flow at the time of sampling must be measured, recorded, and reported on the Discharge Monitoring Report Form.
- (2) The Instantaneous Maximum Discharge Limitations are for compliance use by the Department only. Do not report instantaneous maximums on Discharge Monitoring Reports (DMRs) or supplemental DMRs unless specifically required on those forms to do so.

Supplemental Information

- (1) If a flow limitation is included on Pages 2 through 12, it is based upon the rated hydraulic design capacity of the treatment facility and will be used to determine whether a hydraulic overload exists.
- (2) The effluent limitations for this outfall were determined using an effluent discharge rate of 071 – 7.93 MGD and 079 – 0.08 million gallons per day.

EXHIBIT 2
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

October 11, 2000

MEMORANDUM

TO: Jerome Fields, PP&L, Allentown, PA

FROM: Dick St. Pierre, USFWS, Harrisburg, PA

SUBJECT: Juvenile Shad Monitoring at Susquehanna SES

In spring 2000, adult shad returns to the Susquehanna River passing Conowingo Dam through the East lift were a record 154,000 fish. High flows delayed lift operations until early May and most fish passed Conowingo within a 22-day period, May 4-25. York Haven's new fishway began operating on May 12 and passed small numbers of shad every day through June 19 - a total of 4,675 fish. PA Bureau of State Parks reported that the inflatable dam at Sunbury was erected over a several day period beginning on May 12 this year. We did collect several American shad below the Sunbury Dam using electrofishing in June and we also heard of anglers catching shad and placing them over the dam. The Pennsylvania Fish and Boat Commission stocked 974,000 larval shad at Berwick from their Van Dyke hatchery in late June.

It is unlikely that any adult shad passed the Sunbury site in spring 2000 and cultured larvae are expected to move quickly downstream from their release site. Therefore, I do not recommend sampling for juvenile shad in the vicinity of PPL's Susquehanna SES in 2000. Please call if you wish to discuss this further.

A handwritten signature in cursive script, appearing to read "Dick".

cc: Ted Jacobsen

FIGURE 5.1-1 AUDITING CHART (2000)

