

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

1989
***Annual Environmental
Operating Report
(Nonradiological)***

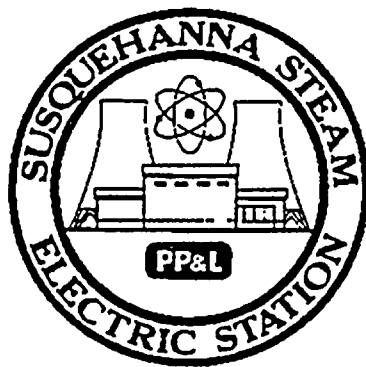


Pennsylvania Power & Light Company
Allentown, PA

April 1990

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

1989

***Annual Environmental
Operating Report
(Nonradiological)***

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

prepared by
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Pennsylvania Power & Light Company
Two North Ninth Street, Allentown PA 18101-1179

April 1990

SUSQUEHANNA STEAM ELECTRIC STATION

ANNUAL ENVIRONMENTAL OPERATING REPORT
(NONRADIOLOGICAL)

1989

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Date: 4/17/90

FOREWORD

The Susquehanna Steam Electric Station (Susquehanna SES) consists of two boiling water reactors, each with a net electrical generating capacity of 1,050 megawatts. The 1,500 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 the Pennsylvania Power and Light Company (Licensee) and 10% by Allegheny Electric Cooperative, Inc.

The 1989 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, 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, 1989, through December 31, 1989.



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SUSQUEHANNA STEAM ELECTRIC STATION ANNUAL ENVIRONMENTAL OPERATING REPORT
1989

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1.0 OBJECTIVES

The Licensee submitted an Environmental Report-Operating License Stage for the Susquehanna SES to the U.S. Nuclear Regulatory Commission (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 Final Environmental Statement (FES) related to the operation of the Susquehanna SES, Unit 1 and 2, NUREG-0564, June 1981. In addition, the Licensee developed procedures and guidelines to ensure that operation of the Susquehanna SES does not adversely affect the environment in the vicinity of the station.

Procedures were developed to allocate responsibilities and interfaces necessary to monitor environmental impacts. These include coordination of NRC requirements and consistency with other federal, state, and local requirements for environmental protection. To keep the NRC informed of other agency activities, copies of environmental correspondence are routinely provided. In addition, this 1989 Annual Environmental Operating Report (Nonradiological) provides a summary of both environmental programs and procedures as required in the FES and Appendix B - Environmental Protection Plans (EPP) to Operating Licenses, No. NPF-14 and No. NPF-22. The 1989 report is the eighth Annual Environmental Operating Report (Nonradiological) submitted to meet EPP requirements.



2.0 ENVIRONMENTAL ISSUES

2.1 AQUATIC ISSUES

The aquatic monitoring program for operation of the Susquehanna SES is divided into two phases. Phase 1 includes effluent monitoring required by a National Pollutant Discharge Elimination System (NPDES) permit issued by the Pennsylvania Department of Environmental Resources (PaDER). Monthly discharge monitoring reports are submitted to the PaDER as part of the permitting requirements. The station operational NPDES permit No. PA-0047325 was issued January 22, 1985, and expires on January 21, 1990. An application was submitted to the PaDER in June 1989 to extend the permit until January 21, 1995. Phase 2 of the aquatic monitoring program deals with programs listed in the FES involving environmental monitoring.

The PaDER in Phase 1 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 storm sewers. The cooling tower blowdown also includes in-plant process streams of which discharge directly into the Susquehanna River. Various on-site sumps and drains discharge through the storm sewers which flow into Lake Took-a-while, and eventually into the Susquehanna River. The parameters included in the sewage treatment plant effluent limits are as follows:

Flow
pH
Total Suspended Solids (TSS)
Biochemical Oxygen demand (BOD-5)
Fecal Coliforms

In-plant process effluents combine with the cooling tower blowdown before being released to the Susquehanna River. These process effluents are monitored for flow, TSS, and oil and grease. Parameters monitored in the combined cooling tower blowdown to the Susquehanna River are:

Flow
pH
Free Available Chlorine
Chromium
Iron
Zinc

The parameters monitored in the various sumps and drains that discharge to storm sewers leading to Lake Took-a-while are:

Flow
pH
TSS
Oil and Grease

Phase 2 of aquatic monitoring programs, identified in the FES and Appendix B of the Operating License for the Susquehanna SES, included monitoring algae and benthic macroinvertebrates both above the intake and below the discharge. Requirements for activities were completed in 1988 and, therefore, monitoring has been discontinued.

In 1989, the Anadromous Fish Restoration Committee did not stock prespawed adult American Shad in the North Branch of the Susquehanna River. The PA Fish Commission Hatchery stocked shad fry in the Juniata River, but due to high flow events, the juvenile shad were pushed down stream. The occurrence of any juvenile shad above Sunbury was not anticipated (Exhibit 1) and, therefore, intake sampling was not performed during 1989.

The annual surveillance for the Asiatic Clam, Corbicula Fluminea, in the vicinity of the Susquehanna SES, was completed in November. No specimens of the clam were observed in this area of the Susquehanna River. It should be noted, however, that Corbicula have been found at the northern end of Three Mile Island Nuclear Station and in the Juniata River. Three Mile Island and the confluence of the Juniata River are each, respectfully, 100 and 78 miles down river of the Susquehanna steam Electric Station.

2.2 TERRESTRIAL ISSUES

Terrestrial environmental studies completed prior to 1989 included cooling tower bird impaction and sound level surveys.

2.2.1 MAINTENANCE OF TRANSMISSION LINE CORRIDORS

During 1989, trees and brush in the transmission line corridors were maintained with herbicides and by manual clearing. The terrestrial monitoring program for the Susquehanna SES transmission lines was initiated in response to commitments in Section 5.3.5 of the FES. Three transmission lines are associated with the Susquehanna SES: 1) Stanton-Susquehanna No. 2-500 kV line, 2) Sunbury-Susquehanna No. 2-500 kV line and 3) Susquehanna-Wescosville 500 kV line (former Susquehanna-Sigefried line). These lines may be operated at either 230 kV or 500 kV. The maintenance program for transmission line corridors is discussed in detail in subsection 4.2.1 of this report.

The schedule for conducting periodic erosion control inspections of these lines and access roads is based on the age of the line. During the first five years, helicopter patrols conducted inspections three times a year. Thereafter, inspections are foot-patrols every two years and overhead patrols every five years. Inspection dates and related data are recorded on log sheets by the Licensee. A 1989 audit showed that no corrective actions were necessary along these rights-of-way.

In 1989, the three transmission lines were inspected by helicopter patrols and no adverse impacts were reported.

2.3 CULTURAL RESOURCES ISSUES

Environmental Protection Plan actions required to satisfy Title 36, Code of Federal Regulations, Part 800, were completed in 1987. By NRC letter dated October 28, 1987, to the Advisory Council on Historic Preservation (ACHP), the 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.

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 1989.

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 an unreviewed environmental question 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.

During 1989, the Licensee revised and reissued a Nuclear Department procedure developed to evaluate unreviewed environmental questions. This revision incorporated additional guidelines for determining when an evaluation is necessary and also describes the review and reporting of significant environmental events.

The EPP requires that if an activity meets any of the criteria for an unreviewed environmental question, 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 1989, there were seven activities which the Licensee reviewed as part of the unreviewed environmental questions program. These were:

1. A cross-tie flush of well water distribution lines to sewage treatment plants and cooling tower.
2. Installation of 550 cfm fume hood as part of new Unit 2 HP Access Facility.
3. Water vacuum discharge requirements.
4. Use of Rhodamine WT liquid dye for ESW/RHR pump flow rate testing.
5. Installation of permanent service water chemical addition system.
6. Installation of internal freon vent/drain into Reactor Building for Unit 2 Supplemental Cooling Unit.
7. Construction of new Access Processing Facility.

None of these activities were determined to involve an unreviewed environmental question since no significant adverse environmental impact was associated with them. Records of these evaluations are maintained by the Licensee and include a brief description of the activity as well as analyses, interpretations and results of the evaluation.

3.2 REPORTING RELATED TO NPDES PERMITS & STATE CERTIFICATIONS

All reports and information required by the NPDES Permit were submitted to both the NRC and PaDER. Pennsylvania is a 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

During 1989, two Licensee activities required new or reissued environmental permits. These were:

1. An operating permit for air contamination sources was received from the PaDER to allow the operation of an air blasting facility. This Permit, #40-399-024, was issued on February 3, 1989.
2. Two operating permits for air contamination sources were reissued by the PaDER to allow the operation of five diesel generators.
 - o Permit #40-306-005, the operation of four generators was reissued September 6, 1989.
 - o Permit #40-306-004, the operation of a fifth generator was reissued September 6, 1989.

4.0 ENVIRONMENTAL CONDITIONS

4.1 UNUSUAL OR IMPORTANT ENVIRONMENTAL EVENTS

During 1989, six occurrences were determined to be significant environmental events. Three events not requiring NRC notification are as follows:

1. May 25 - Sewage discharge to the surface the sand mound at the Emergency Operations Facility. The local sewage enforcement officer was notified and corrective actions were implemented to plug the leak.
2. August 16 - Possible sulfuric acid release to environment from the Acid/Chlorine Building Sump. No sump leakage occurred. However, an investigation indicated that there was no leak.
3. September 12 - Unpermitted discharge of liquid occurred from the condenser bay cleaning water vacuum into the storm sewer. Discharge was routed to Sewer Treatment Plant with PA DER approval.

Three significant environmental events that did require notification are as follows:

1. February 1 - Rupture of a Unit 2 PCB capacitor in the vital power supply inventory with the release of PCB to the control panel and the floor.
2. February 7 -. Electrical short in a condensate pump in a motor capacitor shut down Unit 1 and caused in a PCB spill..
3. August 15 - Rupture of a large PCB capacitor in the Unit 2 vital uninterruptable power supply lower cable spreading room which caused oil to spray and leaking oil into two cabinets, dripping on to the concrete floor below.

All required notifications were made to the appropriate agencies.

4.2 ENVIRONMENTAL MONITORING

4.2.1 MAINTENANCE OF TRANSMISSION LINE CORRIDORS

4.2.1.1 HERBICIDES USED

All herbicides utilized to control incompatible vegetation within the transmission line corridors from the Susquehanna SES are approved for use by the U. S. Environmental Protection Agency. In addition, major manufacturers or formulators all have had these products registered for distribution by the Commonwealth of Pennsylvania under the authority of the Pennsylvania Pesticide Control Act of 1973.

The following herbicides are specified for use in the Licensee's programs and are applied according to the instructions on the label.

<u>Commercial Name</u>	<u>Active Ingredients</u>	<u>EPA Registration Number</u>
Krenite S	Fosamine	352-395
Tordon 101	2,4-D, Picloram	464-306
Tordon RTU	2,4-D, Picloram	464-510
Garlon 3A	Triclopyr	464-546
Access	Triclopyr, Picloram	464-576
Garlon 4	Triclopyr	464-554
Roundup	Glyphosate	524-308-AA
Accord	Glyphosate	524-326

Additional herbicides may be needed if the level of control (i.e., new/different species, sudden increases, resistance to established chemicals) changes.

4.2.1.2 RECORDS

Records are maintained for a period of at least five years, in appropriate Division Offices of the Licensee. These records include the following:

1. Copies of labels of specified herbicides which designate commercial names, active ingredients, rates of application, warnings, storage, and handling.
2. Concentrations of active ingredient formulations diluted for field use.
3. Diluting substances (carriers).
4. Rates of application.
5. Methods of application.
6. Locations and dates of application.

4.2.1.3 TYPES OF MAINTENANCE REPORTED

A. Selective Herbicide Applications

In 1989, herbicides were applied on only two of the three transmission line corridors - Stanton-Susquehanna No. 2 and Susquehanna-Wescosville 500 KV Lines. The Sunbury-Susquehanna No. 2 corridor was not treated. Herbicides used, their active ingredient, acid equivalent, amount of concentrate in a designated carrier, drift retardant, and wetting agents are summarized in Table 4.2-1.

Application data for both lines are presented by number of acres on which herbicides were applied, total amount of solution used, rate of application in gallons per acre, total amount of concentrate used, average gallons of concentrate applied per acre, total pounds of acid equivalent and average pounds per acre applied. Dates and locations by structure number of the applications are listed along with the title of the responsible Division Manager, his or her phone number and mailing address.

Exhibits 3 and 4 in the 1982 Annual Environmental Operating Report provide the herbicide application procedures (Ref. 4.2-1). Exhibit 3 discusses the Licensee's Procedures for Herbicide Use on Transmission Right-of-Way, and Exhibit 4 lists the Procedure for Obtaining Herbicide Samples from Contractors for Laboratory Analyses.

B. Vegetation Maintenance by Manual Methods

Maintenance of Transmission Line Corridors, Table 4.2-2, summarizes vegetation maintenance activities other than the utilization of herbicides. The three types of manual methods used in 1989 are as follows:

1. Selective Reclearing - cutting incompatible vegetation where herbicide applications are restricted.
2. Danger Tree Removals - cutting trees outside of the cleared right-of-way which are of such a height and position that they create a potentially hazardous condition which could interrupt a line.
3. Screen Removal - screens which in the judgement of those persons responsible threatened the safety and/or integrity of the line and had to be selectively cleared.

4.2.2 AQUATIC PROGRAMS

The aquatic monitoring requirements, identified in the FES and Appendix B of the operating license for the Susquehanna SES confirms that effects on aquatic biota and water quality due to plant operation were no greater than predicted.

REFERENCES

- 4.2-1 Pennsylvania Power and Light Company. 1983. Susquehanna Steam Electric Station, Unit 1, 1982 Annual Environmental Operating Report (Non-Radiological). Pennsylvania Power & Light Co., Allentown, PA April 1983.

Table 4.2-1

SUSQUEHANNA SES
Maintenance of Transmission Line Corridors
Selective Herbicide Application

1989 Year		Susquehanna-Wescosville 500 KV Line Line Names						Central Division					
Herbicides					Additives		Carrier						
Alt. No.	Commercial Name	Active Ingredient	Acid Equiv.	Spec. Am't. Per 100 Gal. Solution	Commercial Name	Spec. Am't. Per 100 Gal. Solution	Name	Spec. Am't. Per 100 Gal. Solution					
5	Accord	Glyphosate (Low Volume Application)	3#/Gal.	5 Gallons	Ortho-X77	1 Gallon	Water	93 1/2 Gallons					
					Cide-Kick	1/2 Gallon							
Application Data													
Alt. No.	No. Of Acres	Total Gallons Solution	Application Rate Gal./A.	Total Gallons Concentrate	Rate Gal./A.	Total Pounds Acid Equivalent	Pounds Per Acre						
5	12.21	80	6.55	4.00	0.33	12.00	0.98						
Alt. No.					Application Dates				Location By Grid No.				
5		From 10-13-89		To 10-13-89		From 53809N31956		To 53932N31896					
						54526N31504		54646N31543					
		(Additional Locations Listed on Page 2 of 2)				53027N29465		57936N29535					
						58345N29222		58391N29127					
						58484N28898		58909N28789					

Table 4.2-1

SUSQUEHANNA SES
 MAINTENANCE OF TRANSMISSION LINE CORRIDORS

1989 Year		Susquehanna-Wescosville 500 KV Line Line Names				Central Division		
Herbicide Application				Side Trimming				
Dates		Grid Location		Dates		Grid Location		Lin. Ft.
From	To	From	To	From	To	From	To	
10-13-89	10-13-89	59523N26857	59549N26740					
		44656N33205	44795N33394					
		45061N33447	45132N33489					
		45625N33831	45714N33899					
		46254N33748	46407N33648					
		46502N33634	46610N33617					
		46610N33617	46699N33605					
		46800N33583	46935N33553					
		47209N33494	47117N33515					
		48020N34034	48156N34015					
Herbicide Application				Screen Trimming				
Dates		Grid Location		Dates		Grid Location		Lin. Ft.
From	To	From	To	From	To	From	To	
10-13-89	10-13-89	49390N34560	49528N34513					
		49776N34587	49917N34590					
		50196N34602	50384N34609					
		51556N34824	51428N34800					
		52392N34986	52555N35018					

Line Clearance Forester
 Title

717-459-7415
 Phone

Central Division SC
 344 S. Poplar Street, Hazleton, PA 18201-0558



Table 4.2-1

SUSQUEHANNA SES
Maintenance of Transmission Line Corridors
Selective Herbicide Application

1989 Year		Stanton-Susquehanna #2 500 KV Line Names					Susquehanna Division	
Herbicides				Additives		Carrier		
Alt. No.	Commercial Name	Active Ingredient	Acid Equiv.	Spec. Am't. Per 100 Gal. Solution	Commercial Name	Spec. Am't. Per 100 Gal. Solution	Name	Spec. Am't. Per 100 Gal. Solution
1	Garlon 3A	Triclopyr	3#/gal.	1/2 gallon	Clean Cut	1 Quart	Water	98-3/4 Gallons
	Tordon 101	Picloram 2,4-D	.54#/gal. 2#/gal.	1/2 gallon	Clear Way	6 Oz.		
3	Access	Triclopyr	2#/gal.	12-1/2 gallons			Diesel Oil	75 Gallons
	Garlon 4	Picloram Triclopyr	1#/gal. 4#/gal.					

Application Data

Alt. No.	No. Of Acres	Total Gallons Solution	Application Rate Gal./A.	Total Gallons Concentrate	Rate Gal./A.	Total Pounds Acid Equivalent	Pounds Per Acre
1	373.00	20710	55.52	Garlon 103.55	.28	Triclopyr 310.65	.83
				Tordon 103.55	.28	Picloram 55.92	.15
						240 207.10	.55
3	2.52	3	1.19	Access 375.	.15	Triclopyr .75	.30
						Picloram .37	.15
				Garlon 4- .375	.15	Triclopyr 1.50	.59

Alt. No.	Application Dates		Location By Grid No.	
	From	To	From	To
1	6/19/89	9/27/89	44655N34288	49023N40592
3	9/19/89	9/19/89	45722N38170	45552N38058



Table 4.2-1

SUSQUEHANNA SES
Maintenance of Transmission Line Corridors
Selective Herbicide Application

1989		Stanton-Susquehanna #2 500KV				Susquehanna		
Year		Line Names				Division		
Herbicides					Additives		Carrier	
Alt. No.	Commercial Name	Active Ingredient	Acid Equiv.	Spec. Am't. Per 100 Gal. Solution	Commercial Name	Spec. Am't. Per 100 Gal. Solution	Name	Spec. Am't. Per 100 Gal. Solution
5	Accord	Glyphosate	3#/gal.	1 gallon	Ortho X-77	1/2 gallon	Water	98-1/2 Gallon

Application Data							
Alt. No.	No. Of Acres	Total Gallons Solution	Application Rate Gal./A.	Total Gallons Concentrate	Rate Gal./A.	Total Pounds Acid Equivalent	Pounds Per Acre
5	75.63	5440	71.93	54.40	.72	163.20	2.16

Alt. No.	Application Dates		Location By Grid No.	
	From	To	From	To
5	6/19/89	9/27/89	44655N34288	49023N40592



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 the Nuclear Quality Assurance Department with support from the Environmental Management Division (EMD). The Auditing Organizational Chart (Fig. 5.1-1) lists the various groups utilized in environmental reviewing and auditing of the Susquehanna SES environmental monitoring programs. The Manager-Nuclear Services is responsible for off-site environmental matters and for providing any related support concerning licensing. The Superintendent of Plant-Susquehanna is responsible for on-site environmental matters. The Manager-Nuclear Quality Assurance with support from the Manager-Environmental Management of EMD is responsible for verifying compliance with the EPP.

Audits of the EPP are conducted every other year. There was an audit of the EPP in 1989.

5.2 RECORDS RETENTION

Records and logs relative to environmental aspects of plant operation and audit activities are retained in the Susquehanna Records Management 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, shall be retained for the life of the plant. All other records, data, and logs relating to the environmental programs and monitoring shall be 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 1989.

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 1989. 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

Three PCB spills were reported to the NRC as non-routine events in 1989. They are discussed in Section 4.1 of this report. These activities were reviewed as part of the Unreviewed Environmental Questions Program.

The licensee contacted the NRC and other federal, state and local agencies once becoming aware of the PCB spills. A copy of a 30-day follow-up report was submitted to the NRC as required by the EPP. These agencies included:

U.S. Coast Guard - National Response Center
Pennsylvania Department of Environmental Resources

The spills were confined to the Susquehanna SES site. There was no irreversible damage to the environment.

AUDITING ORGANIZATION CHART

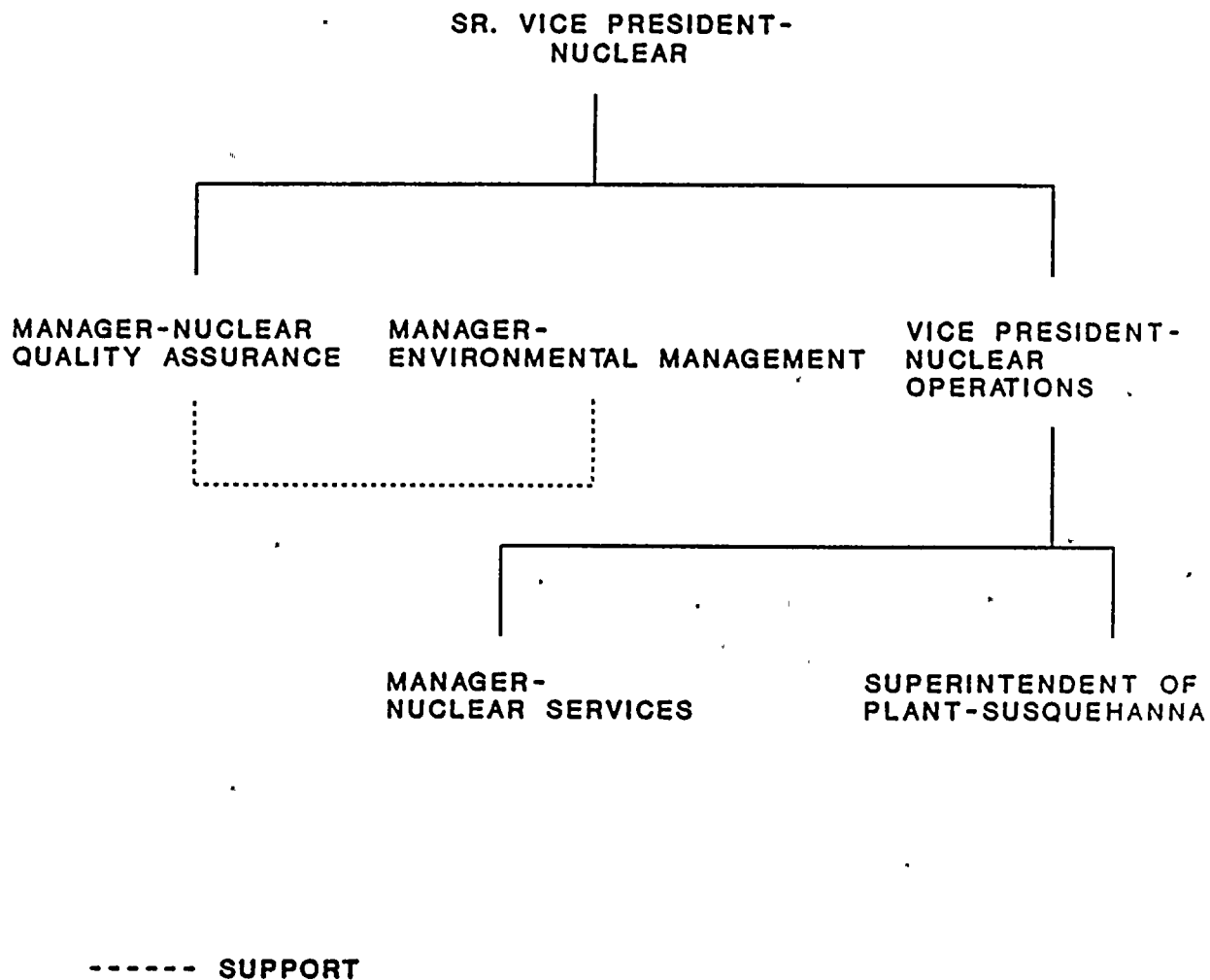


FIGURE 5.1-1

NOV 2 1989
FBI

SUSQUEHANNA RIVER ANADROMOUS FISH RESTORATION COMMITTEE

Members
Maryland Department of Natural Resources
New York Division of Fish and Wildlife
Pennsylvania Fish Commission
Pennsylvania Power & Light Company
Philadelphia Electric Company
Safe Harbor Water Power Corporation
Susquehanna River Basin Commission
United States Fish and Wildlife Service
York Haven Power Company

Secretary
Susquehanna River Fisheries Coordinator
U.S. Fish and Wildlife Service
P.O. Box 1673
Harrisburg, PA 17105-1673
Telephone: 717-657-4547

October 31, 1989

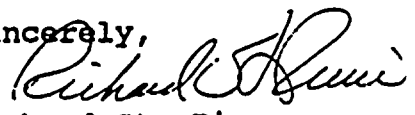
Mr. Jerome S. Fields
PA Power & Light Company
Two North Ninth Street
Allentown, PA 18101

Dear Mr. Fields,

During the 1989 shad restoration season, all prespawed adult fish from Conowingo Dam were stocked below York Haven Dam as in 1988. None were transferred into the basin from other river sources. The PA Fish Commission hatchery at Van Dyke stocked about 13 million shad fry in the Juniata River at Thompsontown and the mainstem at Montgomery Ferry. None of these fish are expected to disperse upstream from those sites, and in fact, the high flow events of late June and early July appear to have pushed juvenile shad downstream into the power impoundments prematurely this summer.

Therefore, since we do not anticipate the occurrence of any juvenile shad above the Sunbury area at any time this season, I would advise you that intake sampling for this species at the Susquehanna SES at Beach Haven is not necessary.

The SRAFRC is now considering a draft 1990 Work Plan that changes the stocking strategy whereby Conowingo adult shad will be placed above York Haven Dam. Since we learned from radio telemetry in 1986 that these fish may make extensive upstream migrations, it will likely be desirable to reactivate intake screen sampling at Susquehanna SES during the fall of 1990. Thank you for your continued support in this matter.

Sincerely,

Richard St. Pierre
Susquehanna River Coordinator

