

PHILADELPHIA ELECTRIC COMPANY

LIMERICK GENERATING STATION
P. O. BOX A
SANATOGA, PENNSYLVANIA 19464
(215) 327-1200, EXT. 3000

GRAHAM M. LEITCH
VICE PRESIDENT
LIMERICK GENERATING STATION

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Docket Nos. 50-352
50-353
License Nos. NPF-39
NPF-85

U. S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555

Subject: Limerick Generating Station, Units 1 and 2
1990 Annual Environmental Monitoring Report
(Non-Radiological)

Gentlemen:

Attached is the Limerick Generating Station, Units 1 and 2, 1990 Annual Environmental Operating Report (Non-Radiological). This report is being submitted in accordance with Section 5.4.1 of Appendix B of the Facility Operating Licenses, Environmental Protection Plan (EPP) (non-radiological), and describes the implementation of the EPP for 1990.

If you have any questions, please do not hesitate to contact us.

Very truly yours,

J. D. Leitch
For GML

KWM/dwc

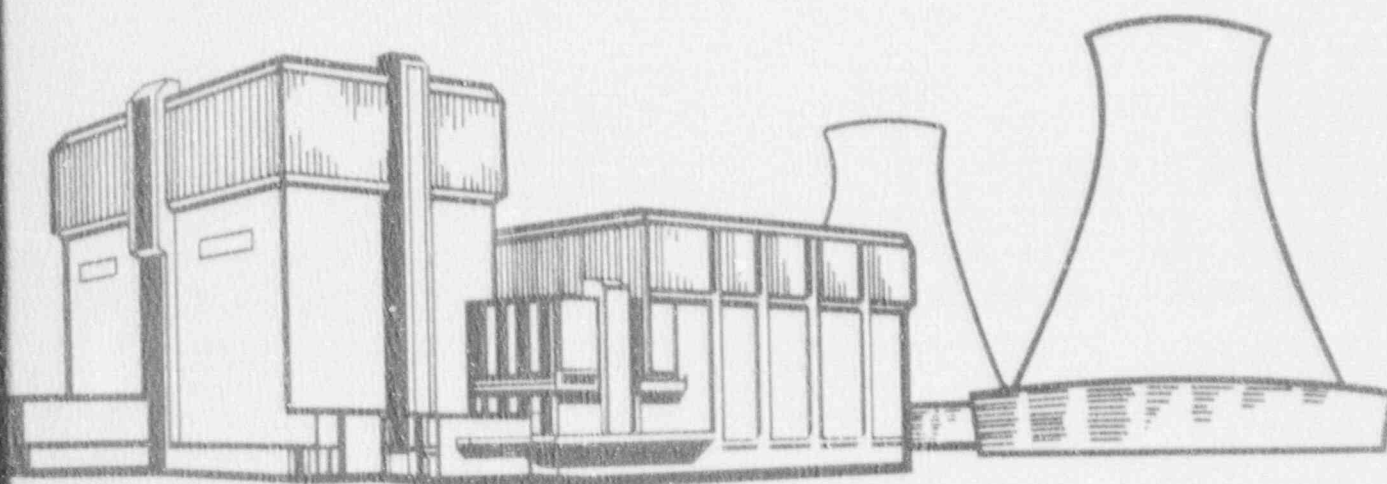
cc: T. T. Martin, Administrator, Region I, USNRC
T. J. Kenny, USNRC Senior Resident Inspector

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**LIMERICK
GENERATING
STATION**

LIMERICK GENERATING STATION
UNITS 1 AND 2

1990
ANNUAL ENVIRONMENTAL OPERATING REPORT
(NON-RADIOLOGICAL)

JANUARY 1990 - DECEMBER 1990

FACILITY OPERATING LICENSE NOS. NPF-39, NPF-85
DOCKET NOS. 50-352, 50-353

PHILADELPHIA ELECTRIC COMPANY

1. Introduction

This report describes the implementation of the Environmental Protection Plan (EPP) from January 1, 1990 through December 31, 1990.

Provided herein are summaries and results of the environmental protection activities required by Subsection 4.2 of the EPP.

2.0 Environmental Protection Activities

2.1 Aquatic Monitoring

The Environmental Protection Plan states that the NRC will rely on decisions made by the Commonwealth of Pennsylvania, under the authority of the Clean Water Act, for any requirements for aquatic monitoring. Industrial waste NPDES Permit PA 0051926, dated September 19, 1984, provides the mechanism for protecting water quality and indirectly aquatic biota.

In accordance with the requirements of Section 3 of the Permit, monitoring results were summarized for each month and reported on Discharge Monitoring reports (DMR) which were submitted to the DER and EPA.

A summary of the results as reported in the monthly DMR's is on Table 1. In addition, studies of corbicula and Zebra mussels, fish impingement on the Schuylkill River intake screens, and water quality sampling and observations at Still Creek and Owl Creek Reservoirs were performed in support of LGS in 1990. Additionally, dissolved oxygen was monitored continuously through August 1, 1990 in support of Revision 10 of the Delaware river Basin Commission (DRBC) Docket Number D-69-210 CP (Final) authorizing Schuylkill River water withdrawal.

Dissolved oxygen monitoring results were reported several times each day through August 1, 1990 to the LGS operating staff and were used to coordinate releases of make-up water from Still Creek and Owl Creek reservoirs in accordance with the DRBC docket revisions. Periodic inspections of the reservoirs and receiving streams revealed no sign of increased erosion, sedimentation, or other environmental damage.

The survey for corbicula and Zebra mussels covered over 40 locations in the Point Pleasant Water Diversion System, the Schuylkill River and Blue Marsh Lake. No Zebra mussels were found, but the range of corbicula in LGS source waters was greatly expanded over that previously known. Living corbicula and/or shells were found in Bradshaw Reservoir, the Schuylkill River near the LGS intake and Blue Marsh Lake.

The Schuylkill River near LGS was sampled for the presence of American shad by electrofishing in September. Approximately 1100 juveniles originating from a June, 1990 Pennsylvania Fish Commission were observed in the vicinity of LGS. As part of the survey, LGS trash racks were searched for impinged fish. No fish of any kind were observed during these searches.

2.2 Terrestrial Monitoring

No terrestrial monitoring is required.

2.3 Maintenance of Transmission Line Corridors

Transmission line maintenance records concerning herbicide use are being maintained by the Company's Electric transmission and Distribution Department. As required by the EPP, these records can be made available to the NRC upon request.

2.4 Noise Monitoring

Noise surveys were required in 1990 for Limerick Generating Station Unit 2 operation and Bradshaw Reservoir. These surveys complete all sound surveys required by the LGS Final Environmental Statement. Section 5.14.4, Atomic Safety Licensing Board (ASLB) ruling LBP-83-11, dated March 8, 1983, and LGS Appendix B Technical Specifications, Sections 2.3 and 4.2.4.

All acoustical measurements were made using a Gen Rad Model 1988-9700 Precision Integrating sound level meter and/or a Larson-Davis 3100 RTA Integrating Real Time Analyzer. The specifications of both instruments meet the requirement for precision (Type 1) sound level meters (ANSI S1.4-1983, IEC 651-1979 and DIN 45 633/1, 1970). Filter characteristics of both instruments also meet the standards of ANSI

S1.11-1966, IEC 225-1966 and DIN 45-652, 1964. Measurements were taken in accordance with ANSI Standard S1.13-1971, "Methods for the Measurement of Sound Pressure Levels".

2.4.1 Bradshaw Reservoir

Noise surveys were conducted in the vicinity of Bradshaw Reservoir on March 29, 1990 (baseline) and September 5, 1990 (operational). All measurements were performed between 12 midnight and 3:00 A.M. The sampling locations were those required for analysis by the FES Section 5.14.4.2 and Appendix B Technical Specification Section 4.2.4.3.

A review of the Bradshaw Reservoir operational versus baseline ambient surveys as compared with currently accepted methods for predicting the potential for community noise annoyance concluded the following:

- * The operation of the transformers are inaudible at all off-site receptors as compared with the audibility methodology required by ASLB ruling LBP-93-11 and recommendations of the NRC staff contained in the Environmental Statement related to the operation of Limerick Generating Station.
- * Based on the preferred "Modified Composite Noise Rating (CNR) procedure published by the Edison Electric Institute's "Electric Power Plant Environmental Noise Guide" the average expected community response at the residences nearest the operating facility is "No Observed Reaction".
- * The operation of the Bradshaw Reservoir Pumping Facility will not exceed the HUD sleep interference criterion at the seven nearest residences.

2.4.2 Limerick Generating Station

Noise surveys were conducted in the vicinity of Limerick Generating Station on March 5, 1990 - March 6, 1990 with a few additional measurements taken on March 22, 1990 - March 23, 1990 for the defoliate survey and on August 13, 1990 - August 14, 1990 for the foliate survey. Both daytime and nighttime measurements were taken; all nighttime measurements were performed between 11:00 P.M. and 3:30 A.M. The sampling locations were those

required for analysis by the FES Section 5.14.4.3 and Appendix B Technical Specification Section 4.2.4.4.

Comparison of the LGS 2-unit operational survey with the ambient survey performed in 1973 and the 1-unit operational survey performed in 1985-1986 indicates that the overall sound level has increased. The major noise sources associated with LGS are the HVAC cooling fans located on the south side of the reactor building, water from the cooling towers, the P.A. system and assorted vehicles located on the plant site.

Evaluation of the noise against currently accepted methods for predicting the potential for community noise annoyance has concluded the following:

- * The operation of Limerick Generating Station will not exceed the HUD sleep interference criterion at the most sensitive points, including the nearest residential receptors.
- * The operation of Limerick Generating Station will not exceed the USEPA criteria for speech interference at the nearest residential receptors.
- * Based on the preferred "Modified Composite Noise Rating (CNR) procedure published by the Edison Electric Institute's "Electric Power Plant Environmental Noise Guide", the average expected community response at the residences nearest the operating facility is "No Observed Reaction".

A resident in the south direction complained about plant-related noise early in the operation of LGS Unit 2. The data indicate that the sound level has the potential to cause annoyance to sensitive individuals located south of the facility. The source of annoyance is primarily the noise radiating from the reactor building HVAC fans. This noise problem is still under evaluation. No other noise complaints were received.

2.5 Environmental Protection Plan

There were no Environmental Protection Plan (EPP) noncompliances identified by the 1990 EPP Audit by the Nuclear Quality Assurance Department.

2.6 Changes in Station Design on Operation, Tests or Experiments

Environmental evaluations were performed for the following changes in the Limerick Generating Station operation. In accordance with the requirements of Section 3.1 of the Environmental Protection Plan, each change includes a brief description, analysis, interpretation and evaluation.

a. Environmental Evaluation No. 90-1

Environmental Evaluation No. 90-1 assessed the effect of the continuation through August 1, 1990 of three temporary changes in plant operation. These involved the withdrawal of water from the Schuylkill river for consumptive use at LGS. The changes were:

1. Substitution of instream monitoring of dissolved oxygen levels in place of the 59 degrees F temperature constraint on withdrawals;
2. consumptive use at LGS when consumptive use at Titus generating Station or Cromby Generating Station was curtailed; and
3. consumptive use at LGS when an equal volume of water was released from Borough of Tamaqua Reservoirs upstream of LGS.

The instream monitoring of dissolved oxygen levels was evaluated in 1985 and was summarized in the 1985 Annual Environmental Operating Report. The environmental advantages of directly measuring dissolved oxygen continued to be applicable in 1990. Automatic D.O. monitoring and transmitting facilities, which were installed in 1986, continued to be used.

Use of the Titus/Cromby allocations enhanced the flow in the reach between Titus and Limerick by 3.5 mgd over the amount which would occur if Titus were in operation. On the other hand, the reach downstream of LGS to the Cromby plant was depleted by 1.7 mgd. Because the quantities involved were a very small fraction of existing river flow, the effect on Schuylkill River water quality was determined to be negligible. Environmental

monitoring in 1985 through 1989 confirmed the negligible effect on water quality.

The use of water from the Borough of Tamagua reservoirs provides increased flow of high quality water in 77 miles of stream. Therefore, no water quality problems were expected in 1990.

These changes were also evaluated for their combined effect on impingement and entrainment. Since these changes were made conditions as in 1986, no significant effects were expected. The 1989 monitoring program found no significant effects.

2.7 Non-routine Reports Submitted

Ten non-routine reports were submitted in accordance with EPP Subsection 5.4.2. Copies of all letters were supplied to the NRC.

A. Twenty-four Hour Notifications

1. A January 31, 1990 NPDES violation for total zinc concentration at Discharge Point 001 was identified on February 7, 1990. The Pennsylvania DER was notified by telephone on February 8, 1990. The DER waived reporting requirements to allow the letter to be submitted with the January Discharge Monitoring Report (DMR). A notification letter was sent on February 20, 1990.
2. NPDES violations for discharge temperature from Bradshaw Reservoir occurred periodically from June 29, 1990 through July 10, 1990. The initial temperature spikes were reported to the DER and additional information was provided on July 5, 1990. The DER was notified by letter on August 21, 1990.
3. On September 7, 1990, a sewage holding tank overflowed. Sewage was discharged into Possum Hollow Creek through Discharge Point 002. The DER and the Pennsylvania Fish Commission were notified by telephone on September 7, 1990. A notification letter was sent on September 14, 1990.
4. On September 17, 1990, a sewage holding tank overflowed. Sewage was discharged into Possum Hollow Creek through Discharge Point

002. The DER was notified by telephone on September 17, 1990, and by letter on September 21, 1990.

B. Other Notifications

1. NPDES violations for total zinc concentration at Discharge Point 001 on July 16, 1990 and July 17, 1990 were identified. The DER was notified by letter on August 21, 1990.
2. An NPDES violation for total zinc concentration at Discharge Point 001 on August 22, 1990 was identified on September 10, 1990. The DER was notified by letter on September 24, 1990.
3. An NPDES violation for fecal coliform level at Discharge 001 of Bradshaw Reservoir for the period between August 6 and August 10, 1990 was identified on August 10, 1990. The Bucks County Department of Health was notified by letter on September 24, 1990.
4. NPDES violations for oil and grease concentration at Discharge Point 201 on September 5, 1990 and for the month of September were identified. The DER was notified by letter on October 26, 1990.
5. An NPDES violation for oil and grease concentration at Discharge Point 001 on October 3, 1990 was identified. The DER was notified by letter on November 29, 1990.
6. An NPDES violation for oil and grease concentration at Discharge Point 201 on October 17, 1990 was identified. The DER was notified by letter on November 29, 1990.

TABLE 1

YEARLY MEAN AND RANGE OR MAXIMUM (AS APPROPRIATE)
OF PARAMETERS REPORTED IN THE 1990 DISCHARGE
MONITORING REPORTS

	DISCHARGE NUMBER *		
	001	201A	301A
INLET TEMP., F			
maximum	79	NR**	NR
mean	59 +/- 25***	NR	NR
DISCHARGE TEMP., F			
maximum	86	NR	NR
mean	72 +/- 18	NR	NR
pH, range	7.4 - 8.7	NR	NR
FLOW, MGD			
maximum	16.9	0.83	NR
mean	10.3 +/- 2.8	0.18 +/- 0.11	0.021 +/- 0.012
CHLORINE, MG/L	<0.1	NR	NR
NALCO 1372, MG/L			
maximum	19.1	NR	NR
range	13.4 +/- 8.5	NR	NR
TOTAL SUSP. SOLIDS, MG/L			
maximum	NR	82.7	NR
mean	NR	13.0 +/- 14.3	NR
OIL & GREASE, MG/L			
maximum	NR	40.3	NR
mean	2.0 +/- 5.3	3.5 +/- 14.3	NR

* There were no discharges reported for 1990 from discharge no. 101A

** NR = not reported.

*** Reported as mean +/- 2 s.d.