

PHILADELPHIA ELECTRIC COMPANY

3904057970

LIMERICK GENERATING STATION

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GRAHAM M. LEITCH
VICE PRESIDENT
LIMERICK GENERATING STATION

April 20, 1990
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
1989 Annual Environmental Operating Report
(Non-Radiological)

Gentlemen:

Attached is the Limerick Generating Station, Units 1 and 2, 1989 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 1989.

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

Very truly yours,



KWM/kk

Attachment

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

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LIMERICK GENERATING STATION
UNITS 1 AND 2

1989
ANNUAL ENVIRONMENTAL OPERATING REPORT
(NON-RADIOLOGICAL)

JANUARY 1989 - DECEMBER 1989

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

PHILADELPHIA ELECTRIC COMPANY

1.0 Introduction

This report describes the implementation of the Environmental Protection Plan (EPP) from January 1, 1989, through December 31, 1989.

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 water quality, benthic macroinvertebrates, fishes collected by seining and electrofishing, fish impingement on the Schuylkill River water intake screens, and quarterly examination of river water temperature upstream and downstream of the LGS discharge, were performed in support of LGS in 1989. Additionally, dissolved oxygen was monitored continuously in support of Revisions 8 and 9 of the Delaware River Basin Commission (DRBC) Docket Number D-69-210 CP (Final) authorizing Schuylkill River water withdrawals.

Dissolved oxygen monitoring results were reported several times each day in 1989 to the LGS operating staff and were used to coordinate releases of make-up water from Still Creek Reservoir in accordance with the DRBC docket revisions. Periodic inspections of Still Creek Reservoir and receiving streams revealed no sign of increased erosion, sedimentation, or other environmental damage.

Preliminary examination of water quality and benthic macroinvertebrate data and field observations indicate that conditions were similar to those reported in 1989

and detrimental environmental impacts attributable to LGS operation did not occur. Problems with sedimentation on buried cylinder samplers (BCS) used to collect benthic macroinvertebrates were identified in the 1987 studies and were again evident in 1989. Sedimentation is not directly related to LGS operation.

Construction activities for LGS Unit 2 contribute to the Schuylkill River's sediment load via the Possum Hollow Run watershed which drains the LGS plant site. However, this fraction is small compared to the sediment load contributed by the entire watershed upstream of LGS and construction activities were being curtailed.

Data from fisheries studies conducted in 1989 were analyzed and compared to prior years. No evidence exists to suggest damage to Schuylkill River fish communities from LGS operation. Only 34 fish were found for the entire year during impingement monitoring. The fish community near LGS displayed changes in relative abundance that were within the range of natural variability determined prior to LGS start-up. Prolonged high flows through much of spring and early summer depressed the reproductive success of many species, especially of nest-building sun fishes and smallmouth bass. A similar phenomenon was last observed in 1984 prior to LGS operations.

No fish kills or thermal plume effects were ever observed below the of LGS discharge. Since the discharge is diffused into a wide riffle area, no distinct thermal plume develops. Further evidence of the lack of significant impact from LGS operation was provided by the results of a macroinvertebrate study conducted in 1989. Macroinvertebrate samplers placed immediately upstream and downstream of the LGS effluent discharge were colonized by similar numbers and kinds of macroinvertebrates, organisms which as a group are particularly sensitive and respond quickly to environmental degradation.

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 1989 only for the Point Pleasant Pumping Station. The post operational survey for LGS Unit 1 was completed in 1986. Since of LGS Unit 2, and Bradshaw Reservoir were not fully operational in 1989, no sound surveys were made. Noise surveys for LGS Unit 2 and Bradshaw Reservoir are planned for 1990.

In accordance with the Atomic Safety Licensing Board (ASLB) ruling LBP-83-11, dated March 8, 1983, sound surveys were conducted in the vicinity of Point Pleasant Pumping Station. The operational noise surveys were performed on September 9, 1989, between 2:00 A.M. and 4:00 A.M. when both pumps were operating at full capacity. The sampling locations were those required for analysis by the ASLB ruling LPB-83-11.

All acoustical measurements were made using a Gen Rad type 1988-9700 Precision Integrating Sound Level Meter and Analyzer and 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 51.4-1983, IEC 651-1979, and DIN 45 633/1, 1970). Filter characteristics of both instruments also meet the standards of ANSI 51.11-1966, IEC 225-1966 and DIN 45-652, 1964. Measurements were taken in accordance with ANSI standard 51.B-1971, "Methods for the Measurement of Sound Pressure Levels."

A review of the operational versus baseline ambient surveys as compared with currently accepted methods for predicting the potential for community noise annoyance including subjective audibility criteria has concluded the following:

- o The operation of the Point Pleasant transformers are inaudible at all off-site receptors as compared with the audibility methodology required by ASLB ruling LBP-83-11 and recommendations of the NRC staff contained in the Environmental Statement related in the operation of Limerick Generating Station.

- o 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 nearest residences to the pumping station is "No Observed Reaction".
- o Based on U.S. Department of Housing and Urban Development sleep threshold guidelines, operational noise from the pumping station will cause no sleep interference.

2.5 Environmental Protection Plan

There were no Environmental Protection Plan (EPP) noncompliances identified by the 1989 EPP Audit by the Nuclear Quality Assurance Department.

2.6 Changes in Station Design on Operation, Test, 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, analyses, interpretation, and evaluation.

a. Environmental Evaluation No. 89-1

Environmental Evaluation No. 89-1 assessed the effect of the continuation in 1989 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 1989. 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 Tamaqua reservoirs provides increased flow of high quality water in 77 miles of stream. Therefore, no water quality problems were expected in 1989.

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

2.7 Non-routine Reports Submitted

Eight 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. On February 26, 1989, sewage tanks overflowed. Sewage was discharged to Possum Hollow through Discharge Point 002. The Pennsylvania DER was informed by telephone on February 26, 1989 and by letter dated March 16, 1989.
2. On April 4, 1989, a sanitary sewer line overflowed to a storm drain. Sewage was discharged to Possum Hollow through Discharge

Point 012. The Pennsylvania DER was informed by telephone on April 4, 1989 and April 6, 1989. A waiver of 5 day written notification was received on April 6, 1989. A notification letter was sent dated April 10, 1989.

3. On April 5 and 6, 1989, the spray pond overflowed with the majority of flow through Discharge Point 001. An additional 200 gpm (estimated) overflowed a manhole and discharged through Discharge Point 009. Oral notification was provided on April 6, 1989. On April 11, 1989, the manhole again overflowed and discharged through Discharge Point 009. A notification letter covering both events was sent, dated April 27, 1989.
4. On May 17, 1989, cooling water overflowed a manhole and discharged to Possum Hollow Creek. The Pennsylvania DER was informed by telephone on May 18, 1989, and by letter in May 24, 1989. A follow-up letter was sent on June 20, 1989.
5. On July 14, 1989, the spray pond manhole overflowed. Water was discharged through Discharge Point 009. The Pennsylvania DER was informed by telephone on July 14, 1989, and by letter on July 19, 1989. A follow-up letter was sent on August 31, 1989.
6. On December 1, 1989, a cooling tower blowdown line manhole overflowed. Water was discharged to Possum Hollow Creek. The Pennsylvania DER was informed by telephone on December 1, 1989, and by letter on December 7, 1989.
7. NPDES violations for zinc concentration at Discharge Point 001 on November 1, 1989, and November 17, 1989, were identified on December 19, 1989. The Pennsylvania DER was notified by telephone on December 19 and 20, 1989, and by letter on December 21, 1989.
8. A December 27, 1989 NPDES violation for zinc concentration at Discharge Point 001 was identified on January 2, 1990. The Pennsylvania DER was notified by telephone on January 2, 1990, and by letter on January 15, 1990.
9. A December 11, 1989 NPDES violation for mercury concentration from Bradshaw Reservoir was identified in January 4, 1990. The Pennsylvania DER was notified by telephone on January 4, 1990, and by letter on January 22, 1990.

TABLE 1

YEARLY MEAN AND RANGE OR MAXIMUM (AS APPROPRIATE) OF
PARAMETERS REPORTED IN THE 1989 DISCHARGE MONITORING REPORTS

DISCHARGE NUMBER *

	001	201A	301A
INLET TEMP., F			
maximum	77	NR**	NR
mean	56 +/- 25***	NR	NR
DISCHARGE TEMP., F			
maximum	88	NR	NR
mean	70 +/- 19	NR	NR
pH, range	7.2 - 8.7	NR	NR
FLOW, MGD			
maximum	15.3	0.70	0.094
mean	8.4 +/- 7.4	0.19 +/- 0.10	0.013 +/- 0.016
CHLORINE, MG/L	<0.1	NR	NR
TOLYTRIAZOLE, MG/L	0.8	NR	NR
SODIUM SILICATE, MG/L	15.4	NR	NR
POLYACRYLATE, MG/L	2.9	NR	NR
NALCO 1372, MG/L			
maximum	37.6	NR	NR
range	14.1 +/- 9.0	NR	NR
TOTAL SUSP. SOLIDS, MG/L			
maximum	NR	23.3	NR
mean	NR	8.7 +/- 6.3	NR
OIL & GREASE, MG/L			
maximum	NR	8.9	NR
mean	NR	2.2 +/- 2.1	NR
IRON, MG/L			
maximum	NR	0.5	NR

* There were no discharges reported for 1989 from discharge no. 101A

** NR = not reported.

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

ANNUAL ENVIRONMENTAL OPERATING REPORT (NON-RADIOLOGICAL)

TO: **USNRC** **Washington, DC.**

CC: T. T. Martin, USNRC - Outgoing
T. J. Kenny, USNRC - Outgoing
D. T. Ney, PADER - Outgoing
CHF Region III, USEPA - Outgoing
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LETTER ONLY:

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Sr. V.P. Legal - MO/S23-1
V.P. LGS - LGS/200
V.P. Nuclear Eng & Services - CB/51A-1
General Mgr NQA - CB/53A-1
Plant Mgr LGS - LGS/A5-1
Mgr Nuclear Sup - CB/51A-1
Mgr Licensing - CB/52A-5
Supt Services-LGS - LGS/A5-1
Dir. Environmental Affairs - MO/S9-2
Eng. Reg. Sup-LGS - LGS/SB3-4
Sr. Chemist - Valley Forge
Sr. Chemist-LGS - LGS/SB3-3
Reports Supervisor - LGS/338
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