PECO ENERGY

PECO Energy Company
Nuclear Group Headquarters
965 Chesterbrook Boulevard
Wayne, PA 19087-5691

October 2, 1995

Mr. Sohan Garg
Bureau of Water Management
PA Department of Environmental Resources
Suite 6010, Lee Park
555 North Lane
Conshohocken, PA 19428

Subject: Bradshaw Reservoir Discharge
NPDES Permit No. PA 0052221
Reduction in Discharge Sampling

Dear Mr. Garg:

The Pennsylvania Department of Environmental Resources (PA DER) issued National Pollutant Discharge Elimination (NPDES) Permit No. PA 0052221 to PECO Energy Company authorizing the discharge of water, diverted from the Delaware River, to the East Branch Perkiomen Creek from the Bradshaw Reservoir in support of the operation of Limerick Generating Station (LGS), Units 1 and 2. NPDES Permit PA 0052221, Part C, "Other Requirement K," requires that PECO Energy perform post-operational biological assessments to assess the impact of the water diversion discharge on the resident aquatic communities and stocked trout population in the East Branch Perkiomen Creek.

PECO Energy developed and implemented a post-operational study plan for sampling and monitoring aquatic life in the East Branch Perkiomen Creek and in the Perkiomen Creek. This study plan was originally submitted to the PA DER by letter dated July 20, 1989. The study plan was subsequently modified as documented in our letters dated September 25, 1991, and June 30, 1994.

In addition, we submitted "Post-Diversion Aquatic Biology Assessment" reports covering the years 1989, 1990, 1991, and 1992 by letters dated April 9, 1991, December 18, 1991, and May 19, 1994, as required by NPDES Permit No. PA 0052221, Part C, "Other Requirement K." These reports document the effects of the first four (4) years of water diversion operation on the East Branch Perkiomen Creek and Perkiomen Creek. In addition, data were collected throughout 1993 and 1994, and are currently being analyzed. A "Post-Diversion Aquatic Biology Assessment" will be submitted for the 1993-1994 period as required by Part C, "Other Requirement K," of NPDES Permit No. PA 0052221.

Based on the results of the post-diversion studies conducted to date, the following conclusions can be reached regarding the impact of the water diversion operation.

> The Perkiomen Creek fish community, as evaluated by electrofishing, has been relatively stable. The total catch-per-unit-effort (CPUE) values from one year to the next have been consistent and there has been concordance of species rank abundances between stations and over time. This indicates that the water diversion has had **no** observable adverse effect on the Perkiomen Creek.

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Post-augmentation monitoring has shown some effects as a result of the water diversion on the East Branch Perkiomen Creek. The most significant effects have been observed, as expected, in the headwaters region, where hydraulic and physical habitat changes are most pronounced. The effects on the fish community structure in this region have been evidenced by changes in cyprinid dominance (i.e., golden shiners and bluntnose minnows have been replaced by spotfin shiners, comely shiners, common shiners, and spottail shiners) and elimination of redfin pickeral.

Farther downstream, where the physical effects of the water diversion are less pronounced, patterns of species composition and trends in population density have been observed throughout the six (6) year study period. In general, both seining and electrofishing have shown a spatial trend of increased abundance of smallmouth bass, rock bass, and redbreast sunfish in the lower East Branch Perkiomen Creek relative to upstream prior to water diversion operation. An increased relative abundance of rock bass, fallfish, shield darter, and blacknose and longnose dace have been most evident over the past two (2) years. In addition, a significantly decreased incidence of blackspot parasitism at all sampling locations is an indication of improved water quality in the East Branch Perkiomen Creek.

Similarly, benthic macroinvertebrate studies have demonstrated that the most significant effects have taken place in the headwaters region. Taxa preferring a lotic environment have replaced lentic or intermittency-adapted forms. Farther downstream, lotic and pollution sensitive taxa have increasingly replaced lentic and pollution tolerant taxa in response to the increased stream flow and improved water quality.

Therefore, as result of the conclusions reached during flow-augmentation studies on the East Branch Perkiomen Creek over the past six (6) years, we plan to reduce the number of sample locations for sampling fish and benthic macroinvertebrates to four (4) locations effective January, 1996. In addition, we also plan to discontinue fish sampling on the Perkiomen Creek effective January, 1996. PECO Energy will maintain a sample location representative of the headwaters region, and three (3) sample locations in the middle to lower reaches of the East Branch Perkiomen Creek. These locations will continue to represent a gradient of increasing stream size and changes in water quality.

The ongoing aquatic monitoring program will be fully effective, and will provide all the necessary data to perform an Aquatic Biology Assessment of the potential impact on the resident aquatic community and stocked trout fishery in the East Branch Perkiomen Creek. Attachment 1 to this letter provides a summary of our revised aquatic community monitoring program for your review.

If you have any questions or require additional information, please do not hesitate to contact us.

Very truly yours,

G. A. Hunger, Jr.

G. A. Hunger, Jr.
Director - Licensing

Attachment

cc: USNRC Document Control Desk, Washington, DC [Docket Nos. 50-352/50-353] (w/ attachment)
T. T. Martin, Administrator, Region I, USNRC (w/ attachment)
N. S. Perry, USNRC Senior Resident Inspector, LGS

ATTACHMENT 1

Summary of PECO Energy Company's Post-Diversion Biological Monitoring of Aquatic Community in the East Branch Perkiomen Creek (NPDES Permit No. PA 0052221, Part C, "Other Requirement K") As Revised, Effective January 1, 1996

STUDY	SAMPLE SITES	SAMPLE FREQUENCY
Water Quality	Delaware River: 1 (at intake) East Branch Perkiomen: 3 (various, including one location upstream of outfall) Perkiomen Creek: 2 (one upstream of confluence with East Branch, one at intake)	Various: biweekly, monthly, and annually
Benthic Macroinvertebrate	East Branch Perkiomen: 4 (various)	Quarterly
Fish Community - Seining (small fish) - Electrofishing (large fish) - Habitat Description[1]	 East Branch Perkiomen: 4 (various) East Branch Perkiomen: 4 (various) Same as electrofishing sites	 Monthly (May through October) 2/year (Spring and Fall) Annually
Fish Age and Growth	East Branch Perkiomen: 4 (various)	Biennially
Trout Creel	East Branch Perkiomen: 3 (one per stocking site)	2 weekends following stocking at open season; one per additional stocking time
Perkiomen Creek Large Fish Catch-Per-Effort (Electrofishing)	[DISCONTINUE MONITORING EFFECTIVE 1996]	[DISCONTINUE MONITORING EFFECTIVE 1996]

[1] Includes depth, velocity, discharge, substrate type, overhead tree canopy and aquatic plants.