



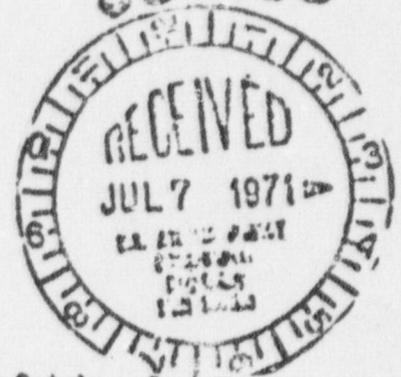
United States Department of the Interior

FISH AND WILDLIFE SERVICE
BUREAU OF SPORT FISHERIES AND WILDLIFE
WASHINGTON, D.C. 20240

50-352

50-353

JUL 6 1971



Mr. Harold L. Price
Director of Regulation
U.S. Atomic Energy Commission
Washington, D.C. 20545

Dear Mr. Price:

This is in reply to Mr. Boyd's letters of March 14 and October 9, 1970, requesting our comments on volumes 1 through 5 of the Preliminary Safety Analysis Report and amendments Nos. 1 through 6, filed by the Philadelphia Electric Company for the Limerick Generating Station, Units 1 and 2, Montgomery County, Pennsylvania, AEC Docket Nos. 50-352 and 50-353.

The project is located on the east bank of the Schuylkill River about 1.7 miles southwest of the borough of Pottstown and about 20.7 miles northwest of Philadelphia. The site includes about 587 acres of land adjoining about one mile of the river.

Two identical boiling water reactors designed for a combined output of 6,586 Mwt (2,200 MWe) will be used. Heat rejected to the circulating cooling water system will be dissipated to the atmosphere by means of four hyperbolic, natural-draft cooling towers. Water requirements for the two units will be about 107 c.f.s., of which 54 c.f.s. will be used for makeup, 20 c.f.s. will be used for blow-down, and 33 c.f.s. will be used for other purposes including water quality maintenance, miscellaneous cooling, drinking and sanitary use, and wash water. Facilities will be provided for treating the drinking and sanitary water. Temperature differentials within the plant and imposed on the environment are not specified in the safety analysis report. All State water quality standards for plant discharges are to be met.

Due to the periodic critically short supply of water in the Schuylkill River and the prior downstream claims on the water, Delaware River water will be used to fulfill the 54 c.f.s. consumptive demand of the project. Delaware River water will be diverted and transported by conduit to the East Branch of Perkiomen Creek, then diverted from the creek by conduit to the plant site. Water velocities through the Schuylkill River water intake will be 0.75 to 1.0 foot per second.



The radiological waste collection system includes filters, deionizers, and evaporators. The applicant states that the radiological waste discharges will be about 1 percent of the permissible limits prescribed by the Atomic Energy Commission's Code of Federal Regulations, Title 10, Part 20. The applicant plans to conduct both pre- and postdevelopment environmental radiological surveys. Details of the surveys are not presently available.

The Schuylkill River in the project area supports moderate populations of largemouth bass, smallmouth bass, walleye, crappie, sunfishes, bullhead, catfish, carp, and suckers. The amount of fishing is moderate, but is expected to increase. Water quality is generally good, but is subject to periodic surges of acidic drainage from upstream mines. Improvement in water quality has been observed over the last decade. This trend is expected to continue. The applicant has planned recreational developments, including access to the river, as a part of the project.

Amendment No. 1 proposes that a 20-mile reach of East Branch of Perkiomen Creek be used as part of the water transport system from the Delaware River. This segment of the creek contains good populations of warmwater fishes such as largemouth bass, crappie, and other sunfishes. Two channel impoundments within this reach provide additional fish habitat. The stream has good public access and receives moderate to heavy fishing pressure. Water quality in the stream is good.

The project site is located in an area which supports moderate populations of pheasant, cottontail, grey squirrel and quail. Migrating waterfowl use the river in spring and fall. Hunting is light in the area because public access is restricted. However, Eastern Pennsylvania is considered to be some of the better pheasant habitat in the eastern United States. Most of the hunting is for pheasant, cottontail, quail, and squirrel.

The applicant indicates that release of radioactive wastes will be only about 1 percent of prescribed maximum permissible concentrations. While maintenance of these low levels would safeguard man from undue radiation exposure, the radiosensitivity of fish and wildlife organisms is poorly understood so that it is uncertain that they would be safe rates for fish and wildlife. Radioisotopes of many elements are concentrated and stored by organisms that require these or chemically similar elements for their normal metabolic activities. Food chain transfer of these radionuclides may result in concentrations hazardous to fish and wildlife.

To date, there has been little study of the effect of gaseous and solid radioactive wastes on wildlife. Therefore, the applicant should furnish information on the rates, quantities, and dispersal radius of those radioactive wastes that will be released.

The 54 c.f.s. of water that would be lost through evaporation in the project cooling process may prove detrimental to fishery resources. This diversion reduces the amount of available fresh water in the Delaware River needed for fish and wildlife production in the Delaware River and estuary. This water withdrawal in addition to the consumptive uses of water could cause serious water shortages in the estuary.

We understand that the applicant's pre- and postdevelopment radiological and environmental monitoring will include monthly water samples and quarterly river sediment, fish, and other biotic samples. The applicant also will monitor terrestrial vegetation semiannually and soils annually. These monitoring programs should be coordinated with the Bureau of Sport Fisheries and Wildlife, the Office of Water Programs of the Environmental Protection Agency (Federal), the Pennsylvania Fish Commission, and other natural resource conservation agencies. The applicant's monitoring program should be expanded to include aquatic plants and benthic animals such as clams, crayfish, and insects. Fishes which depend on various food webs including some bottom feeding species such as suckers, carp, and catfish and some piscivorous species such as bass and crappie also should be sampled. The terrestrial animals such as cottontail, pheasant, and squirrel should be sampled quarterly. Animals with different food habits are likely to differ significantly in their concentration of radionuclides.

Possible adverse effects of thermal and chemical water-purifying additive discharges and of water intake velocities also are of concern. The Delaware River intake and pumping facilities could entrain significant numbers of fishes if the intake is not screened. The twenty-mile reach of the East Branch of Perkiomen Creek would be affected by the proposed transport of 54 c.f.s. of Delaware River water. Water quality of the creek would be degraded, and the larger flows would cause accelerated stream bed and bank erosion. However, the lower two-thirds of the affected reach could benefit from the larger, more constant flows.

The applicant should include in the environmental monitoring program, studies which show the effects of the project on fish and wildlife of the affected stream sections. The monitoring also should be planned, implemented, and evaluated in cooperation with the appropriate Federal and State regulatory agencies.

The preoperational study should inventory the natural resources, determine their use, and set forth the effect the project is expected to have on the resources. The postoperational study should verify the analyses and include remedial measures, if deemed necessary by the appropriate agencies.

If the monitoring programs disclose that plant operation will or has resulted in environmental changes detrimental to fish and wildlife, provision for modifying project structures and operations to protect these resources should be planned and put into effect.

In view of this agency's policy to maintain, protect, and improve the quality of the fish and wildlife resources and the environment, it is recommended that the construction permit for this project not be issued until the applicant provides the Commission with assurance satisfactory to the Secretary of the Interior that the project would be constructed and operated in a manner which will neither harmfully reduce the water quality in the affected area, nor create intolerable adverse effects on fish and wildlife resources. Such assurances should be demonstrated by the Philadelphia Electric Company as follows

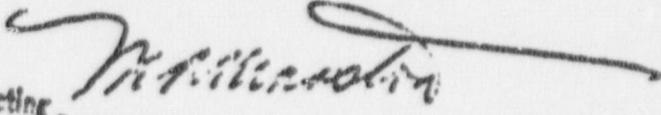
1. Cooperate with the Bureau of Sport Fisheries and Wildlife, the Federal Water Quality Administration, the Pennsylvania Game Commission, the Pennsylvania Fish Commission, the Pennsylvania Sanitary Water Board, and other interested Federal and State agencies in the planning, implementation, and evaluation of the pre- and post-development radiological and environmental monitoring programs.
2. Prepare and provide five copies of the predevelopment radiological and environmental monitoring programs to the Secretary of the Interior for evaluation prior to project operation.
3. Provide information on the rates, quantities, and dispersion of radioactive wastes that will be discharged from the plant.
4. Include in the pre- and postdevelopment radiological monitoring program, representative aquatic plants, benthic animals, and terrestrial birds and mammals. Samples should be collected at appropriate locations and times.
5. Construct, operate, and maintain such fish protective facilities over the intake structures as are necessary to prevent significant damages to the fishery resources of the Schuylkill and Delaware Rivers.

6. Include pre- and postoperational environmental studies of the twenty-mile reach of the East Branch of Perkiomen Creek and at the Delaware River intake to determine and rectify, if necessary, the effects of transporting Delaware River waters to the plant. These studies should be planned and conducted by the applicant in cooperation with the appropriate Federal and State fish and wildlife conservation agencies.

7. To protect the fish and wildlife resources, make such modifications in project structure and operation as may be determined necessary by the interested Federal and State agencies.

The opportunity of providing our comments is appreciated.

Sincerely yours,


[Acting]
Assistant Director