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OFFICE OF SECRETARY  
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Mr. Samuel J. Chilk  
Secretary  
U.S. Nuclear Regulatory  
Commission  
Washington, D.C. 20555

In the Matter of  
Philadelphia Electric Company  
(Limerick Generating Station, Unit 1)  
Docket No. 50-3520L

Dear Mr. Chilk:

As a follow-up to my June 3, 1985 letter, I am enclosing a Notice of Commission Action dated June 3, 1985 related to a temporary modification of the Delaware River Basin Commission docket decision for the Limerick Generating Station.

Sincerely,

*Troy B. Conner, Jr.*  
Troy B. Conner, Jr.  
Counsel for the Applicant

TBC/dlf  
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cc: Service List

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DELAWARE RIVER BASIN COMMISSION  
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Project Review

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NOTICE OF COMMISSION ACTION

OFFICE OF SECRETARY  
DOCKETING & SERVICES  
Date: 6-3-85

Docket No. D-69-210 CP (Final) (Revised)

Project Sponsor: Philadelphia Electric Company

2301 Market Street

Philadelphia, Pennsylvania 19101

Project Description:

Temporary Modification

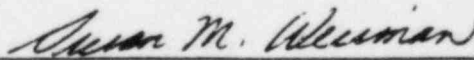
Referred by: \_\_\_\_\_

Action by Commission:

Included in the Commission's Comprehensive Plan for the Delaware River Basin and approved pursuant to Section 3.8 of the Delaware River Basin Compact. See attached docket for terms and conditions.

Explanatory Note:

This action has been taken by the Commission in accordance with its responsibilities under Sections 3.8, 11.1 and 11.2 of the Delaware River Basin Compact. The Commission maintains a comprehensive water resources plan for the Delaware River Basin and reviews water resources projects proposed by other public and private agencies. Review of projects enables the Commission to prevent conflicts among water users and to protect the integrity of the Comprehensive Plan.



Susan M. Weisman, Secretary

enc.

cc: R. Timothy Weston; All interested parties

DOCKET NO. D-69-210 CP (FINAL)(REVISED)

DELAWARE RIVER BASIN COMMISSION

Philadelphia Electric Company  
Limerick Electric Generating Station  
Limerick Township, Montgomery County, Pennsylvania

PROCEEDINGS

The Philadelphia Electric Company (PECO) applied, on March 21, 1985, for a temporary modification of Docket D-69-210 CP (Final). The application was amended with a submission of supplemental information on April 24, 1985.

The application was reviewed for temporary revision of the project in the Comprehensive Plan and approval of these temporary changes under Section 3.8 of the Delaware River Basin Compact. A public hearing on this application by PECO was held by the DRBC on May 7, 1985. The hearing record remained open until 5:00 p.m. May 14, 1985. Sixty-one comments were received and entered into the hearing record on this application.

DESCRIPTION

Purpose.— The purpose of this application is to obtain temporary relief, through December 31, 1985, from two existing docket limitations and thereby increase the frequency that water may be withdrawn from the Schuylkill River for evaporation at Limerick Unit No. 1. The two existing limitations are: (1) PECO may not withdraw water from the Schuylkill River for evaporative use at their Limerick Station when the temperature rises above 59° F and (2) water for evaporative use may not be withdrawn from the Schuylkill River when the flow at the Pottstown gage (not augmented by releases from Commission sponsored reservoir storage) falls below 530 cfs for one Limerick unit in operation. They requested temporary substitution of DO monitoring in place of temperature restriction in original docket. The applicant also has requested necessary, release of varying amounts of water not exceeding 32.5 cfs, in water supply storage; and that the constraint contained in said docket, excluding consideration of releases from Commission-sponsored storage in counting flow at Pottstown, to be inapplicable to any such releases.

Location.— The only change in location of any project facilities is the proposed location of six dissolved oxygen monitors in lieu of the previously proposed temperature monitor at Pottstown.

b. Facilities.-- All existing facilities of the Limerick Electric Generating Project remain as approved by Docket D-69-210 CP (Final) and the only new facilities required by this application for revision is the addition of the dissolved oxygen monitors.

The requested release of water from existing storage could include existing storage and release facilities, and would not involve any new construction.

Cost.-- The overall cost of the proposed dissolved oxygen monitors is estimated to be \$95,000.

Relationship to the Comprehensive Plan.-- The applicant is requesting revision of the Limerick Generating Station Project as included in the Comprehensive Plan by Docket D-69-210 CP (Final).

The applicant has also requested that water be released from storage regulated by the Commission whenever docket constraints would otherwise prohibit the evaporative use at the Limerick Generating Station. The only storage presently owned and regulated by DRBC in the Schuylkill Basin is storage in Blue Marsh Reservoir. The DRBC Comprehensive Plan provisions governing the use of Blue Marsh Reservoir are included in DRBC Resolution No. 84-7, adopted on April 25, 1984, and also included in Article 2 of the Commission's Water Code of the Delaware River Basin; Section 2.5.5. Coordinated Operation of Lower Basin and Hydroelectric Reservoirs During a Basinwide Drought.

#### FINDINGS

The Limerick Generating Station was included in the Comprehensive Plan by Docket decision D-69-210 CP (Final) on November 5, 1975, which also incorporated the project description and docket decision D-69-210 CP dated March 29, 1973. Docket D-69-210 CP (5/29/73) includes a section headed "FINDINGS" subheading "Source of Water Supply 1. Schuylkill River" which reads as follows:

"Schuylkill River water at the plant site may be used for nonconsumptive use whenever the effluent discharged back to the river meets all applicable water quality standards.

"Schuylkill River water at the plant may be used for consumptive use when flow (not including future augmentations of flow from Commission-sponsored projects) as measured at the Pottstown gage is in excess of 530 cfs (342 mgd) with one unit in operation and 560 cfs (362 mgd) with two units in operation with the following exceptions:



- In a repeat of drought year 1980, substitution of a DO standard would have permitted Limerick withdrawals only 4 additional days.
- In 1981, use of DO standard in place of temperature limitation would have allowed Limerick to use Schuylkill water only 5 more days between June and December.
- In 1968 (a normal year), water would have been available for Limerick on 177 days under present temperature and flow constraints. Substitution of a DO standard for temperature would have allowed water withdrawals 41 more days.

The beneficial impacts to PECO of substituting DO conditions for the current temperature restriction during the proposed testing program is uncertain. In its amended application, PECO states:

"In conclusion, the effect of the removal of the temperature restriction is uncertain at best, particularly during a drought year; and it is clear that supplemental water from storage is essential. Nevertheless, the temperature limitation should be lifted for 1985 and the DO monitoring approach adopted because it appears likely that at least a few days would be 'saved' in 1985 with the corresponding reduction in need for water from storage."  
(emphasis added)

On the other hand, during the course of the DRBC hearing, Vincent S. Boyer (PECO Senior Vice President - Nuclear Power) testified that if the DO standards were triggered, plant operations could be suspended rapidly by tripping the reactor shutdown, but reductions "under a controlled manner" would take a matter of 8-10 hours. If DO conditions improved, it would take 10 to 15 hours to bring the plant back to the power levels prior to shutdown, in order to allow the continuation of the testing program.

Mr. Boyer further testified that the test program could be interrupted under certain conditions. The test regimen does not require PECO to operate Limerick a certain number of days at a continuous level. Certain tests need to be run for a period of time to obtain power calibration data and other information, "but these are generally fairly short number of hours," and the "test program can be interrupted or adjusted to accommodate the water requirements."

Exhibits introduced into the hearing record by the DRBC General Counsel, David Goldberg, (DRBC-1 and DRBC -2) addressed the rationale for the 59° C trigger restriction. In those exhibits, it is pointed out that DRBC's reason for the 59° C limitation relates to protection of an acceptable dissolved oxygen standard; and further, that higher water temperatures increase the biological demand rate which in turn reduces the dissolved oxygen concentration.

In comparison to temperature, which is relatively stable and easy to measure, DO in river water varies over the day by a fairly wide range. Such variability creates difficulties in setting appropriate trigger criteria, and adjusting power plant operations and water withdrawals on the basis of such changing conditions.

PECO has formally proposed that withdrawal by Limerick for consumptive use be allowed when Pennsylvania water quality standards for DO are not violated. The applicable standards set forth in 25 Pennsylvania Code Chapter 93 are 5.0 mg/l minimum daily average and 4.0 mg/l minimum instantaneous value. In testimony, however, PECO representatives stated that if the Company saw that DO was "trending towards" the 5 mg/l or 4 mg/l standards, it would seek a release of water from Blue Marsh. The Company "could pick a value" above the 4 or 5 mg/l levels as a trigger point to request a release, but would "need some experience" to identify such a trigger to protect the DO standards. The lack of such specificity in the proposal makes even more troublesome the concept of allowing PECO to self-monitor DO and adjust plant operations as it judges appropriate.

Choice of DO Standard: PECO has proposed to base Limerick operations on Pennsylvania's water quality standards for the Schuylkill. Other witnesses, however, suggested that more restrictive standards may be appropriate to protect fish and aquatic life in the River.

Philadelphia Suburban Water Company (PSWC) noted that "high temperature stress increases the sensitivity of aquatic organisms to disease and toxic pollutants, making the attainment of proper dissolved oxygen criteria particularly important." PSWC recommended the trigger criteria be set according to the National Water Quality Criteria for Dissolved Oxygen. Specifically, the warm water criteria for early life stages is 6.0 mg/l seven day mean and 5.0 mg/l daily concentration. Adoption of such criteria would further reduce the number of days in which Limerick could take water from the Schuylkill without compensation; although a precise calculation of the effect of this revised standard is not available.

Recognizing the special seasonal needs of aquatic life, the Pennsylvania Fish Commission has recommended a two-tiered DO standard for Limerick operations. The Fish Commission proposes that:

"From March 1 to June 15 no water to be withdrawn by Limerick if D.O. values fall below 7 ppm. This is the spawning period for the game species found in the Schuylkill River, and 6-8 ppm of D.O. are necessary to insure successful spawning and incubation for most game species. Flows are usually high enough during this time period so that this D.O. level can be maintained."

"For the remainder of the year the State standards of an average of 5 ppm with no value below 4 ppm would be acceptable providing the lowest readings taken at any of the dams below Limerick are used to determine if the State standards are being met."

Over this 214 day period, assuming continuing drought conditions now being experienced in the Delaware Basin, it is probable that flows on the Schuylkill River during the summer and fall will drop below the 530 cfs trigger for a majority of the time. (In April 1985, the flow on the Schuylkill dropped below 530 cfs at one of the earliest times on record, and monthly flows set all time new low records - nearly one-third below those experienced during the record drought of 1964-65.) Thus, consumptive use makeup demands upon Blue Marsh of 3000 cfs-days or more might be anticipated if the PECO proposal were approved. This quantity would represent 41 percent of the combined water supply and water quality storage in Blue Marsh.

PECO estimates of consumptive use needs for Limerick in 1985 are somewhat lower. PECO projects a use of 1.5 billion gallons (2322 cfs-days) by the end of October. This would represent 32 percent of the water supply and water quality storage in Blue Marsh. Additional water, of course, would be required to continue operations in November and December.

Under the Basin Comprehensive Plan provisions relating to "Coordinated Operation of Lower Basin and Hydroelectric Reservoirs During Basinwide Drought," Water Code of the Delaware River Basin, Section 2.5.5 (DRBC Resolution No. 84-7), the combined storage of Beltzville, Blue Marsh and Nockamixon Reservoirs is dedicated to provision of releases to augment river flows for salinity control in the Delaware Estuary during periods of basin drought emergency. Operating models developed by DRBC indicate that during a repeat of the drought of record, all of the storage in these three lower basin reservoirs, as well as the New York City reservoirs, would be depleted to meet the requirements of the drought management plan.

In the DRBC Exhibit #4 entered into the hearing record by Mr. Goldberg, the "DRBC Staff Issues and Response Document; March-April 1984 Public Hearing on Proposed Amendment to DRBC Comprehensive Plan Relating to Reservoir Management During Basinwide Drought" dealt with the adverse impacts of evaporating Blue Marsh releases at Limerick:

"Use of releases from storage in the Blue Marsh Project for consumptive use at the Limerick plant would deprive the entire lower Schuylkill River from Limerick to Fairmount Dam of the water quantity and quality benefits which Blue Marsh storage was intended to provide.

"Within this reach of the Schuylkill River from the Limerick plant to Fairmount Dam are eleven water supply withdrawal users, who withdrew 380 mgd in 1982. In this same reach, as of 1982, 28 treated waste discharges contributed 70 mgd in wastes requiring assimilation and 8,450 lbs./day BOD<sub>5</sub>."

At any time, the DRBC may call on releases from Blue Marsh Reservoir to enhance poor water quality in the Schuylkill River. If a portion of such releases are evaporated off at Limerick, then their diluting effect will be lost to downstream users.

"[T]he temporary short-term use of Blue Marsh should not be precluded simply because drought conditions might arise which require releases from the water supply storage. Under the 'pooled water' concept, drought hardships must be shared equitably among all Basin users. Equitable demand upon all impoundments would be made to meet flow augmentation needs for water supply and water quality in a drought period."

PECO's argument appears to miss the critical point. Major basin water storage is being marshalled under the DRBC drought operations plan to meet essential water supply and salinity control needs. Experience and model simulations show that all of this storage may well be exhausted just to meet the requirements of the operating plan in protecting Estuary public water supplies and other existing users.

Moreover, the applicant is seeking the approval to operate under drought conditions when existing docket conditions could preclude the operation even if the Delaware diversion into the Perkiomen Creek project was fully operational and the flow of the Delaware at Trenton was less than 300<sup>0</sup> cfs.

PECO's proposal, which would allocate substantial quantities of water for just one user, would place an additional draft on already stressed resources, and tend to exhaust limited storage even earlier under these drought conditions. The result would be to place downstream water users, including those reliant on the Camden and Philadelphia water supply systems, at substantially increased risk.

The DRBC Comprehensive Plan policy on priorities of water use during drought emergencies give first priority to those uses which sustain human life, health and safety (Water Code, Delaware River Basin, Section 2.5.2).

#### Summary

The objective of the 59<sup>0</sup> temperature limitation contained in the original docket decision, was to prevent the Limerick project from aggravating dissolved oxygen conditions in the Schuylkill River during critical periods. The temporary substitution of direct dissolved oxygen monitoring at each critical downstream location is consistent with that objective. In addition, the dissolved oxygen monitors will provide data, not otherwise available to the water resource agencies, for better management of the Schuylkill River.

The temporary use of water from Blue Marsh Reservoir for evaporation at Limerick Generating Station conflicts with the Comprehensive Plan as cited above. Understanding the application is for the remaining portion of 1985, DRBC has considered the application presently before it and recognizes the seriousness of the current drought emergency already declared by DRBC and Pennsylvania in making these decisions.



- (3) The provisions set forth in paragraphs (1) and (2) above shall terminate on December 31, 1985, unless otherwise extended or directed by the Commission, and all prior provisions of Docket D-69-210 CP temporarily suspended by this docket shall become operative in full force and effect.

II. The above revisions of the Limerick Nuclear Generating Station project are approved pursuant to Section 3.8 of the Compact, subject to the conditions listed above.

III. The request that DRBC release water from storage at Blue Marsh Reservoir or other facilities whenever dissolved oxygen limitations or flow limitations would require PECO to replace all evaporative losses at the Limerick Nuclear Generating Station is hereby denied.

BY THE COMMISSION

DATED: May 29, 1985