

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

DOCKETED
USNRC

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD ^{*84} FEB 21 A11:05

In the Matter of :
PHILADELPHIA ELECTRIC COMPANY :
(Limerick Generating Station, :
Units 1 and 2) :

Docket Nos. 50-352-OL
50-353-OL

OFFICE OF SECRETARY
OF THE NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20545

MOTION TO REOPEN PID PROCEEDING

Intervenor Del-AWARE, Inc. moves to reopen the PID proceeding herein relating to Unit 2, and avers as the basis thereof the following:

1. On January 24, 1984, PECO reduced the present construction plan to one unit, and placed Unit 2 in a clearly conditional status.
2. While PECO blithely purports to "schedule" resumption of Unit 2 construction such resumption is entirely speculative, because PECO cannot know whether Unit 1 will be commercially operable, much less when. That matter is within the control of other bodies, including this Commission and whatever court may ultimately review this Commission's decision regarding whether to issue a operating license for Unit 1. By PECO's admission, in the event that such license is not issued or is not issued when and as hoped by PECO, there is no contingency plan for Unit 2 to resume construction.

3. This Board has previously acknowledged a potential need to reconsider its actions with respect to the above docket in the event that PECO's needs were only for one

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unit. (Order of October 5, 1983) While it decided that the environmental impacts over which it had jurisdiction were not significantly adverse, or were remediable, it did acknowledge that such effects would occur. (PID of March 8, 1983).

4. In addition, other areas of effect were excluded as having been considered previously, or by other agencies, or simply as construction impacts outside the Board's authority. (E.g. Order of June 1, 1982, at pp. 91 to 100; Order of July 15, 1982.)

5. As found by the Pennsylvania PUC, there will be significant environmental impacts of diverting water for Unit 1 operation, and alternatives for one unit are available. Specifically, the PUC found there is sufficient water for one unit in Blue Marsh Reservoir.

6. In these circumstances, there is no longer any reason not to await the publication of an Environmental Impact Statement prior to initiation of hearings on supplemental water matters and to consider the results of an amended DES.

7. This is not merely a formality in this case, since very substantial comments were received from both the Environmental Protection Agency and the Fish & Wildlife Service on the DES which disclosed that there is substantial reason for such reopening. Specifically, there has been significant progress in identifying the adverse effects on

the Delaware River and Point Pleasant of the proposed intake system. (Comment letters attached as Exhibits A and B).

8. Since the record was closed, substantial adverse effects on the Perkiomen Creek as a result of the diversion has been identified. Reference is made to the findings of the Pennsylvania PUC ALJ, now final (on appeal to the Commission). (No doubt, it will be contended that these are not final, because an appeal, but such status has not affected the applicant's and staff's practice of citing the District Court's denial of Preliminary Injunction, or this Board's PID, through both are on appeal.)

9. In addition, uncontroverted evidence has now been adduced that there is adequate water at Blue Marsh Reservoir on the Schuylkill River already constructed and complete, to service one unit at Limerick.

10. On June 27, 1983 the staff commented that:

"as the staff as indicated to Del-AWARE and to the Board on several occasions with regard to Del-AWARE's proposed contentions concerning one unit operation, it is the staff's practice to review the application pending before it. Philadelphia Electric Company has applied for a license to operate two units at Limerick; the staff is actively engaged in reviewing that application. Should Philadelphia Electric Company decide to cancel the second unit, the staff will review the amended application when it is submitted".

11. Now that Philadelphia Electric Company has placed Unit 2 in a conditional status, the staff no longer has an effective application for Unit 2 before it. Accordingly, the Board should now deem the application from Philadelphia


Electric amended, to reflect the fact that it intends to pursue Unit 2 only if, as, and when Unit 1 is placed in commercial operation.

11. All of the foregoing information is new and different than what had previously been disclosed, and it is requested that the Board vacate its PID, and reopen the proceedings in order to consider the matter in light of these matters and the late filed contentions referring to them, Nos. 31, 32, 33, 35 & 36.

13. Although it may be contended that intervenor is late or premature, or perhaps both, in referring to these matters, it will be noted that PECO and the staff continuously urged, and this Board found, that these matters are premature. Inasmuch as they were treated by the Board as premature until now, no one can argue that they are now late. Inasmuch as applicant has testified before this Board that Unit 1 will need supplemental water this summer, it is nearly timely to address the issue.

WHEREFORE, intervenors move that the Board reopen the PID, and address the supplemental cooling water needs for one unit at Limerick in a hearing to be held after completion of an appropriate DES.

Respectfully submitted,

A handwritten signature in dark ink, appearing to read 'R. Sugarman', is written over a horizontal line.

ROBERT J. SUGARMAN
Counsel for Intervenors

Of Counsel

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Dated: February 17, 1984
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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION III

636 AND WALNUT STREETS
PHILADELPHIA, PENNSYLVANIA 19101

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APR 15 1983

Dr. Rajender Auluck, P.E., Project Manager
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dear Dr. Auluck:

EPA has completed its review of the draft EIS for operation of the Limerick Generating Station, as required under Section 309 of the Clean Air Act. In general, the document is acceptable with certain exceptions enumerated in the attached technical comments. As a result of the review, the draft EIS is rated ER-2, which means that the environmental reservations are related to insufficient information. The attached sheet describes the rating system used by EPA and is enclosed for your information.

In late 1980 and early 1981, the EPA EIS review staff met with the DRBC and PaDER several times to clarify environmental issues related to the Neshaminy Creek Watershed Plan and Water Supply Plan. The issues discussed had been raised in a letter to DRBC, dated September 26, 1980, and supplemented in subsequent meetings. The issues included analysis of flows, population and water use projections, water conservation controls, and the relationship of the Philadelphia Electric Company needs (described in Docket No. 79-52-CP) as it relates to components of the NWRA watershed and water supply plans. These meetings resolved our technical concerns regarding the NWRA portion of the diversion proposal and resulted in our conclusion that the potential benefits to be derived from the diversion, as claimed in the various Dockets, far outweighed any potential adverse impacts. This is the position EPA took in a letter dated February 17, 1981 to Governor Tribbet of Delaware, who was then the U.S. Commissioner of DRBC.

The majority of the following comments are concerned with radiation and cooling water with regard to its sources and receiving streams. In some cases the radiation information is incompletely addressed while in other places it is presented in a way that is confusing to the reader. The major deficiencies regarding radiation are: a) treatment of EPA standards, b) a lack of information on postulated accidents, and c) a lack of information on decommissioning.

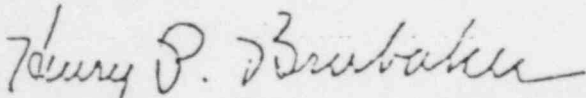
EXHIBIT A

With regard to the cooling water discussions, the document is inconsistent in its presentation of the water budget and the needs. Major deficiencies in the water area of concern are: a) cooling water budget inconsistencies, b) the range of cooling water needs for differing operating configurations, c) aquatic impacts of flow extremes in diversion and receiving streams that may occur over short time spans, and d) dilution for water quality improvement in the lower portion of the East Branch Perkisonen Creek. These are the two major areas addressed in the comments and are followed by some air pollution concerns and other minor points.

We appreciate the opportunity to review the document and your staff's cooperation. If any points require further discussion or clarification, please contact Mr. Robert Davis of the EIS Review Team. He can be reached on 215-597-4388.

Thank you.

Sincerely,



Henry P. Brubaker
Chief, Analysis and Services Section

Enclosure(s)

Radiation Concerns:

A most important concern is the treatment of the EPA standards for the uranium fuel cycle given in 40 CFR 190. These standards are fleetingly addressed on pages 5-38 and 5-48, 49. The standards are incompletely described and are addressed only by the vague statement that "under normal operations the Limerick facility is capable of operating within these standards." This statement does not state whether or not the plant actually will operate within the standards, and more importantly only a part of the standard is referenced by the DEIS. Attached is a copy of 40 CFR 190 for your information. In a careful study of the DEIS, we have found that information is supplied on pages 5-64 and D9-D11 which may be compared to the EPA standard, but the information is not presented in an understandable format and there is some question as to whether the standard for release of Krypton-85 will be met. The EPA standards should be directly and completely addressed in the EIS in tabular form so that projected releases may be directly compared to the standard. The standard is applicable only to normal operations.

In addition, there is a lack of information on postulated accidents and on the radwaste system. On pages 5-61 it is stated that NRC's review of the utility's probabilistic risk assessment has not yet been completed and "will be factored into the NRC staff's analysis . . . to fulfill the requirement of this section of the DES." The radwaste issues are to be addressed in Chapter 11 of the SER. Both of these issues are an integral part of the environmental impacts of the plant and should be considered as a part of the NEPA process. No final EIS should be issued before these issues are reviewed by EPA and supplemental comments provided to NRC.

As a final note on the radiological portion of this review, the impacts of decommissioning are only briefly mentioned in passing. At least a general order of magnitude of these impacts should be discussed, though specific numerical estimates of the impacts are probably not yet available.

Hydrology and Cooling Water:

Information presented in the document regarding hydrology is in agreement with information available to the EPA technical staff. However, some serious questions have been raised over the cooling water sources and uses.

Page 4-11 and 4-12. Page 4-10 indicates a withdrawal rate of 95 MGD from the Delaware River. Of this, a maximum of 46 MGD will be diverted to Limerick. However, Table 4.1 shows a maximum flow of 37 MGD from the Delaware/Perkiomen. This apparent inconsistency should be explained.

Page 4-12 indicates a maximum withdrawal rate of 41.9 MGD from Perkiomen is expected. However, this does not match with the maximum flow of 46 MGD diverted to Limerick, as stated on page 4-10, nor does it match the flows in Table 4.1 for the Perkiomen. Again the apparent inconsistency should be explained.

These inconsistencies may be serious, with implications reaching from operation of the Point Pleasant diversions all the way to the range of possible effects upon the final receiving stream. These could impact the Bradshaw reservoir, the East Branch of the Perkiomen Creek, the Perkiomen Creek, the Schuylkill at the confluence with the Perkiomen, and downstream.

Section 4.2.4 should detail the current conditions of those streams to receive diversion water more thoroughly than is done. For example, virtually nothing is included regarding the conditions of the riparian habitat or the flood plain, and in chapter 5 no mention is made of the effects under extreme conditions, e.g., high flows of short duration. We agree that diverted water will result in negligible effects most of the time and furthermore will probably have beneficial effects ecologically. However, extremes should be thoroughly explained. In addition, very little is mentioned regarding the effects of the environmental ramifications of flows 4 to 25 times normal. You have included information that flows are below the highest flows and that they are well within the erosion limits, but disclosure should go beyond merely the water quality conditions. The answers are probably available and deserve inclusion, if only by reference.

In addition, no mention is made of the effects the Pennsylvania Public Utility Commission decision regarding unit two. If only one unit is ever operated, what are the implications for the cooling water budget both from the Point Pleasant diversion and the Schuylkill? Since this possibility has been disregarded, we have no way of estimating any aquatic impacts that may result from differing operational configurations. If only one unit is ever brought on-line, alternative sources of cooling water may be available. In this case, diversion of water into the East Branch of the Perkiomen may be unnecessary.

Part of the operational plans contained in the document are concerned with the use of releases from the yet to be constructed Merrill Creek facility. Admittedly, all the ramifications of this are unknown, but it seems apparent that releases from that facility will seldom be needed. However, if that facility is necessary for the successful operation of the LGS then what contingency has been planned in the event that the Merrill Creek facility is precluded? This as well as other impoundments appears to be crucial to future water quality in the Delaware.

Recent information indicates that DRRC is continuing to update the modeling of the Delaware, especially with regard to the salinity criteria. As we understand it, the latest salinity objective for the year 2000 is unachievable under current operational modes of existing and planned impoundments and diversions. Apparently a need exists to adjust the operational configuration of these projects to achieve the salinity objective. Aside from the fact that DRRC has a plethora of alternatives to consider and quite a few years to develop and examine them, still the demands by Limerick are certainly a part of the Point Pleasant diversion and certain to be a concern in the deliberations over the salinity issue. Therefore, the salinity issue and operation of the Limerick plant are related and the basin's overall water budget into the future may effect the operation of the Limerick plant. Sections 5.3 or 5.3.2.3 should include discussions regarding salinity and the EIS should include information on the impacts expected from the various operational configurations, both for the LGS as well as for the dams and diversions.

An apparent inconsistency exists in statements under Section 4.3.2.1 (p. 4-3) and 5.3.2.2 (p. 5-3). In the first case it is stated that no changes in the overall scheme for water use has occurred while on page 5-3 it is stated that several changes in the design have taken place. The reviewers assume that these changes have been made to accommodate water quality implications, however, no information is presented to tell why such changes were necessary and why such drastic efforts were needed for what appear to be incremental improvements. On the other hand, perhaps these design efforts have been made for larger improvements than are expressed. If this is so, then the document should discuss design changes discarded and why.

Another inconsistency exists regarding benefits to be derived from the Point Pleasant diversion. In Exhibit No. D-25-PSD (2), PSD has eliminated dilution and augmentation as Point Pleasant diversion benefits for the Mashaminy, but the draft EIS claims such benefits for the East Branch Perkiomen. This appears to be inconsistent because it is a claim of convenience in spite of the fact that apparently dilution is the easiest means for improving the lower portion of the East Branch.

In Section 5.3.2.3, operation of the diversion and its environmental effects are discussed. It is understood that once the diversion of water to Limerick is begun the flows will be maintained so that extremes in fluctuation of water levels in the streams up to diversion will be avoided. However, no mention is made of how the diversion will be operated so that flash floods resulting from short duration/high intensity storms will not be exacerbated. There may be no cause for concern here, but some attention should be paid to the possibility, especially in light of the lack of riparian habitat along the streams of the area. In other words, much of the flood plain in the area has been changed so that it is now dedicated to agriculture or to activities other than flood way.

Air Concerns:

Under air impacts on page 5-24, the emissions are estimated to be "less than EPA de minimus levels" for certain pollutants. These de minimus levels are probably those used for PSD purposes. No information is given on the actual off-site ambient concentrations that will result. While the low emissions will most likely result in very small impacts, this does not justify the complete lack of any numerical data to backup this assertion. At a minimum, annual and maximum 24-hour emissions should be given. A simple model could then be run to estimate off-site concentrations. If these are truly as small, this will reinforce the conclusion that the impacts are too small to be significant.

Finally, on page 5-15, first paragraph, the last sentence states that "Actions to mitigate these potential impacts (from cooling tower chlorination) should be considered . . .". This statement constitutes a recommendation to the utility and is out of place in an EIS. It would be more appropriate to discuss what will be done, what are the alternatives and what mitigative actions will be implemented.

The following are some other points and are offered for your consideration and information.

1) On page 4-37 mention is made of the possibility of the presence of eels in the Delaware. This is very likely, especially in light of the fact that a small eel fishery exists in the Fort Jarvis area, far upstream of the diversion intake.

2) The document contains some very assured statements regarding the ultimate improvement in quality of the streams receiving diversion water. However, monitoring in conjunction with operation of the diversion should be carried out for all parameters contained in the draft EIS as well as for the fish community. A good start has been made, as described in Section 4, of the trophic levels in all the streams. This should be expanded and continued as the diversion is completed and placed into operation.

3) Section 5.3.2.3 describes the nonthermal water quality anticipated for the Bradshaw facility and the Delaware. A statement is made that the reservoir will act as both a sediment controlling facility as well as a phosphorous sink. However, no mention is made regarding the nonsetttable fraction which will pass through the reservoir and may negate any phosphorous control claimed as a benefit of the reservoir. Perhaps some reassessments are in order if the modelling for receiving stream water quality has not included this source of phosphorous. In addition, we failed to see any statements covering retention time in the Bradshaw facility. Information from other sources indicates that sediment control is not achieved with flows greater than 10% of total capacity flow through per day. However, this is an optimum figure that is adjusted on a case-by-case basis. In any event, the claims made by the NRC for sediment control using the Bradshaw facility should be substantiated statistically in the final EIS.

4) The next-to-last paragraph on page 5-25 states that "... induced shock will adversely affect biota along the Limerick Transmission corridor." Perhaps this is a typographical error because the remainder of the paragraph describes just the opposite. However, if this is not an error, then this section needs to be rewritten.



ER 83/803

United States Department of the Interior

OFFICE OF THE SECRETARY
WASHINGTON, D.C. 20240

AUG 26 1983

State College

U.S. Nuclear Regulatory Commission
Attention: Director, Division of Licensing
Washington, D.C. 20555

Dear Sir:

The Department of the Interior has reviewed the draft environmental impact statement for the Limerick Generating Station, Units 1 and 2 (OLS), Montgomery County, Pennsylvania and has the following comments.

Surface Water Hydrology

Section 43.1.1.3 notes that upstream reservoirs can maintain a flow of 3,000 cfs at Trenton during a moderate drought. This is incorrect. Records show that the existing reservoirs could not even maintain 2,500 cfs flow at Trenton during a drought one fourth as severe as the 1960's drought. In fact, historical flow records show that flows have dropped below 2,500 cfs at Trenton in every month except March, April and May even with 90 percent of the existing upstream storage in operation. With all the storage listed on page 4-21 in operation, flows at Trenton dropped below 2,500 cfs during four months in 1977, one month in 1980, and three months in 1981. In January 1981, the flow in the river was only 1,900 cfs at Trenton. The Delaware River Basin Commission (DRBC) now admits that by the year 2000, they may not be able to maintain a 2,300 cfs flow at Trenton because of increased consumptive withdrawals of 1,495 cfs in 1980 with Delaware River Level B Study reported consumptive withdrawals of up to 1,395 cfs from the basin. The Level B Study also reports that over 125 water purveyors are expected to have deficiencies in allocation, storage and yield by the year 2020. The DRBC recognizes that several more large reservoirs must be constructed in the basin to achieve the minimum flow objectives at Trenton.

We recommend that the paragraph be revised to reflect the severity of the low flow problems in the Delaware River and the inability of present practices to adequately deal with the problem.

It is unclear whether the 27 cfs pumping rate to be maintained throughout the low flow season is for water withdrawn from the Delaware River or from Bradshaw Reservoir. The applicant would be required to maintain a discharge of 10 cfs into the East Branch of Perkiomen Creek, not 10 cfs in Perkiomen Creek. The minimum flow of record in Perkiomen Creek is 4.7 cfs and the Q7-10 flow is 17.7 cfs. The final statement should clearly indicate what requirements will be placed on the applicant to maintain flows in the Perkiomen Creek Basin.

EXHIBIT B

A 10 percent loss of water in transport from the Delaware River to the Limerick Generating Station has been estimated. This may be very conservative considering the evaporative losses in Bradshaw Reservoir and over 23 miles of Perkiomen Creek, leakage from transmission pipes and Bradshaw Reservoir, channel storage, and groundwater intrusion.

All of Montgomery County and parts of Bucks, Lehigh, Berks and Chester Counties were declared a "groundwater protected area" by the DRBC on October 8, 1980, because of over-withdrawal from groundwater. Approximately 220 miles of streams are directly impacted by induced groundwater intrusion and another 182 miles adversely affected by reduced flows. Studies by Chester-Betz Engineers and Moody Associates identified at least one mile of the East Branch of Perkiomen Creek downstream from the discharge point as a groundwater intrusion area. The studies also revealed that water discharged from Greenlane Reservoir on Perkiomen Creek is lost to groundwater before it reaches the Philadelphia Water Company's pump-out point near the mouth of Perkiomen Creek. Water will be conveyed in Perkiomen Creek during dry weather at the same time over-pumping of groundwater will be most severe. We believe that losses in transit may be far greater than previously estimated. We recommend that transit loss estimates include potential losses from groundwater intrusion and evaporation as well as transmission pipe leakage.

Aquatic Resources

Collection of eggs and larval American shad, alewife, and blueback herring in 1982 confirms that the area in the vicinity of the Point Pleasant intakes is also used for spawning by alosids. As the alosid population in the river increases, we expect this area to be used more heavily for spawning in the future. The text should be revised to reflect the most recent information.

Water Use and Treatment

The data presented in this section does not clearly explain what the actual consumptive water loss will be at the power plant. Table 4.1 shows the maximum use of Delaware River water to be 57.4 cfs and a maximum evaporation loss of 56.6 cfs. Since the maximum water withdrawal from the Delaware River at Point Pleasant will be 71 cfs and 65 cfs on Perkiomen Creek as noted on page 4-10, it appears there will be a 13.6 cfs loss of water in transit to the plant. If so, the statement should be revised to more clearly discuss how much water will be lost.

Table 4.1 shows water will not be withdrawn from the Delaware River from November through May. Once water is withdrawn from the Delaware River, the applicant will be required to maintain a pumping rate of 27 cfs during the normal low flow season and 10 cfs flow in Perkiomen Creek for the remainder of the year. Flows have dropped below 530 cfs (which requires the applicant to use the Delaware River) in nearly every month of the year at the Pottstown gage on the Schuylkill River upstream of the Limerick Generating Station. Therefore, some pumping from the Delaware River may be required year-round to meet the DRBC flow requirements. We recommend this section clearly

state the range of consumptive water loss and indicate the potential for year-round pumping from the Delaware River.

Water Quality

Although Delaware River water quality has been described as very good, there is evidence of pollution by at least two metals. The data used by the DRBC and subsequently by the Pennsylvania Department of Environmental Resources were from monthly grab samples and some 24 hour composite samples. Monthly grab samples are inadequate to accurately represent the quality of flowing water. Only continuous monitoring could achieve the accuracy implied by the text. Whole fish flesh analysis of fishes taken from the Delaware River at the I-95 bridge 18 miles south of Point Pleasant and at Upper Black Eddy 15 miles north of Point Pleasant indicate high levels of cadmium and lead. The level in these Delaware River fish fall in the upper 15 percent of all samples collected nationwide as part of the National Pesticide Monitoring Program. As noted on page 4-29, state standards for cadmium have been violated in the Delaware River.

Sampling data by the Merrill Creek Owners Group 25 miles upstream of the proposed project shows peaks of 0.9 mg/l total phosphorous and 0.75 mg/l orthophosphate after storms. (It is noted on the bottom of page 4-26 that phosphorous limits are violated at the Point Pleasant intake site.) Even with a three day turnover rate in Bradshaw Reservoir, such high levels of phosphorous could cause algal blooms in the reservoir. With lower pumping rates, detention time would increase and the potential for algal blooms would be even higher. Heavy algal blooms could degrade water quality and cause anoxic conditions. This poorer quality water would then be withdrawn from the reservoir and discharged to Perkiomen Creek.

Water intakes on the Delaware River are only 800 feet downstream from Tohickon Creek. Route 32 crosses Tohickon Creek approximately 200 feet upstream of its confluence with the Delaware River. A chemical spill accident at the Route 32 bridge would quickly travel downstream and be drawn into the Point Pleasant intake, and eventually contaminate Bradshaw Reservoir. Depending on the nature of the chemicals involved, pollutants could eventually find their way to Perkiomen Creek.

Environmental Consequences

To calculate the highest possible percentage of the flows that would be withdrawn by Limerick, a flow of at least 3,000 cfs is assumed to be maintained at Trenton. We are not sure why the 3,000 cfs value is used since even a cursory examination of USGS gaging records show that flows of less than 3,000 cfs are not an uncommon occurrence. In fact, the low flow at the Trenton gage was 1,180 cfs (October 1962). As recently as January 1981, the flows at Trenton dropped to 1,900 cfs. At a flow of 1,180 cfs, the Point Pleasant project would withdraw 12.3 percent of the river water. Since it is the extreme fluctuations that most significantly impact fish and wildlife resources, it is misleading not to evaluate the extremes as part of the impact assessment. The text should be changed accordingly.

The statement that Limerick will not be permitted to withdraw water when flows at Trenton fall below 3,000 cfs is unrealistic. Flows at Trenton have fallen below 3,000 cfs numerous instances since U.S. Geological Survey (USGS) began keeping records. Yet we are unaware of a single instance when DRBC has required anyone to stop withdrawing water because of low flows at Trenton. We recommend this sentence be deleted and this section be revised to reflect customary practice.

Cumulative impacts from water withdrawals in the basin have been ignored. The final statement should discuss the combined effects of: over-allocating water in the basin; diverting a maximum of 1,395 cfs to New York City/New Jersey; over-pumping groundwater; excessive consumptive withdrawals; and the lack of adequate make-up water storage in the basin on salinity intrusion in upper Delaware Bay. Model runs of the Thatcher/Harleman salinity model for Delaware Bay have never taken the reduced flows from over-pumping groundwater into account in their consumptive use estimates. The large Raritan-Magothy-Potomac Aquifer passes under the Delaware River south of Camden, New Jersey and is currently being pumped at three times its recharge rate near Camden. According to the USGS, lower water tables have actually caused water from the Delaware River to flow into the groundwater.

Also, the DRBC salinity model assumes a minimum flow of 2,700 cfs yet the average monthly flow for January 1981, was 2,539 cfs (minimum daily of 1,900 cfs) during a drought only one-fourth as severe as the 1960's drought. Adequate storage does not now exist in the basin to maintain target flows at Trenton.

The progressive decrease in freshwater input and rising sea level has resulted in higher salinity levels in Delaware Bay. A study by Dr. Harold H. Haskin (1972) showed significant increases in salinity at five locations in Delaware Bay over a 41-year period. Model runs by the Thatcher/Harleman Salinity Model predicted greater than 15 ppt isohaline levels over the seed oyster beds in the estuary year-round during dry years (the model run assumed only a 1,000 cfs consumptive use and 2,700 cfs river flow at Trenton). Seed oyster beds are an important part of a multi-million dollar industry in Delaware Bay. Salinity levels above 15 ppt isohaline allow the seed oysters to be attacked and destroyed by the oyster drill and the protozoan MSX. The DRBC study on the effects of rising sea level on salinity identified the need for 3-10 cfs/year more freshwater input to maintain existing salinity regimes in Delaware Bay.

A similar argument for the cumulative effects of water withdrawals can be seen with dissolved oxygen in the estuary. The DRBC dissolved oxygen model shows a direct relationship between river flows and dissolved oxygen in Zone II of the Delaware estuary. Water withdrawn at Point Pleasant will bypass all but three miles of Zone II. Even slight changes in flow of 200-300 cfs can cause more than a 1 mg/l change in dissolved oxygen in Zone II. Diadromous fishes must pass through Zone II of the estuary to reach spawning and nursery areas in the Delaware River. Therefore, it is crucial to the continued existence of these runs to have adequate levels of dissolved oxygen for passage in the spring and fall. Low dissolved oxygen levels are suspected of causing poor repeat spawning by adult American shad and large die-offs of juvenile American shad in the Delaware River estuary. The final statement should assess this issue.

We disagree that there will not be water quality problems in the East Branch of Perkiomen Creek. Weekly samples at the proposed Merrill Creek Reservoir intake 25 miles upstream on the Delaware River had a range of orthophosphate between 0.01 to 0.75 mg/l. With a short detention time in Bradshaw Reservoir, up to four times the level of organic phosphates could be discharged to the East Branch stimulating nuisance algal blooms and plant growth downstream.

Aquatic Resource Impact Summary

Because the Delaware River also has withdrawal restrictions for the Point Pleasant project, make-up water storage capacity on the Delaware River is necessary. When the proposed project was originally planned, DRBC assumed that existing storage capacity was available. However, recent droughts have demonstrated that existing storage cannot even meet the current water demands. Therefore, the applicant has entered into an agreement to help build the Merrill Creek Project. The Merrill Creek Project will inundate 712 acres of high quality wildlife habitat including 1.7 miles of a native brook trout stream. The brook trout is a State-designated threatened species. Habitat for the State-designated threatened longtail salamander and the State-designated endangered cooper's hawk will also be lost. Despite the fact that Merrill Creek is necessary for operating the Limerick Generating Station under all flow conditions, there is very little discussion in the statement about the Merrill Creek project and nothing about the habitat losses and disturbance from operation of this project. We recommend the draft statement be revised to discuss impacts from the Merrill Creek Project and that less environmentally damaging make-up water storage options in the Schuylkill River Basin be seriously considered.

Unavoidable Adverse Impacts

The draft statement (OLS) does not adequately address impacts to fish and wildlife resources nor does it reflect the most recent information pertaining to fish and wildlife resources impacted by the project. The impact assessment in this statement for the Point Pleasant Diversion relies heavily on data previously prepared by the Delaware River Basin Commission (DRBC). We believe the assumptions used by DRBC in the original models to generate this data are no longer valid, based on the most recent information available. ←

We do not agree that project operations will have no adverse impacts to fish and wildlife resources. The potential exists for cumulative adverse impacts to water quality in the Delaware estuary and to increased salinity intrusion in upper Delaware Bay. Water quality may be degraded in Perkiomen Creek during diversions from the Delaware River. The potential also exists for entrainment and impingement of eggs and larval fishes by the Point Pleasant intakes.

The potential for impacts on ground-water resources as a result of a Class 9 accident involving penetration of the basemat by reactor core debris is especially worthy of analysis at the Limerick site. This is true because the Brunswick aquifer is characterized

by secondary permeability derived largely from vertical joints as noted on page 4-22. The existence of such permeability may permit relatively rapid movement of contaminants in ground water in the event of a melt through of the basement and resulting escape of contaminants from the containment.

Fish and Wildlife Coordination Act

These comments do not preclude separate evaluation and comments by the Fish and Wildlife Service (FWS) pursuant to the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.), since the proposal to construct the dam and water intake structures will require Section 404 permits from the Corps of Engineers.

POINT PLEASANT

On October 18, 1982, the FWS recommended denial of the Department of the Army permit (Public Notice No. NAPOP-8-0534-3, dated April 6, 1981) to the Neshaminy Water Resource Authority. The reasons for the recommendation of denial were:

1. Cumulative effect of water withdrawals on salinity intrusion in Delaware Bay.

No studies have assessed the combined effects of over-allocation of water in the basin, maximum New York City/New Jersey diversion of 1,340 cfs, over-pumping of ground water, total consumptive withdrawals within the basin and lack of adequate make-up water storage in the basin on saltwater intrusion in upper Delaware Bay. Studies have documented increased salinity levels in Delaware Bay and the adverse impacts of reduced freshwater inflows on seed oyster production. The model runs of the Thatcher/Harleman salinity model for Delaware Bay have never taken into account their consumptive use figures the reductions in surface flow from over-pumping ground water (induced groundwater intrusion). The model runs have also assumed adequate storage upstream to maintain a minimum flow at Trenton, New Jersey of 2,700 cfs. Flows at Trenton, New Jersey in January 1981 dropped to 1,900 cfs and the average for the month was only 2,539 cfs.

2. Cumulative effect of consumptive water withdrawal on dissolved oxygen.

All the water withdrawn at Point Pleasant will bypass 41 miles of the Delaware River including all but 3 miles of Zone II of the Delaware River estuary. Water returning to the river via Wissahickon Creek will bypass 70 miles of the Delaware River and all of Zones II and III of the estuary. Since 1965, flows low enough to cause severe dissolved oxygen sags in the estuary have occurred in every month. Low dissolved oxygen has been blamed for poor repeat spawning by adult American shad and large die-offs of juvenile American shad in the Delaware River estuary.

3. Impacts to the North Branch Neshaminy Creek and East Branch Perkiomen Creek.

Increased discharges to both creeks will scour stream banks and stream bottom, increasing turbidity and sedimentation downstream. Increased phosphate loading of Lake

Galena will accelerate eutrophication and cause water quality problems. Whole fish flesh analysis of fish taken from the Delaware River at the I-95 bridge (18 miles south of Point Pleasant) and Upper Black Eddy (15 miles north of Point Pleasant) indicate high levels of cadmium and lead. The levels in these Delaware River fish fall in the upper 15 percent of all samples collected nationwide as part of the National Pesticide Monitoring Program. Delaware River water will degrade water quality in both streams by introducing higher levels of cadmium and lead. Several groundwater intrusion areas have been identified in Perkiomen Creek due to over-pumping of ground water. Surface water from the Delaware River will be lost to ground water when discharged into Perkiomen Creek and could potentially contaminate groundwater supplies.

4. Impacts to fish and wildlife resources in the Delaware River at the intake site.

The pipeline to the pumphouse will disturb one acre of riverine, forested wetland and permanently destroy 0.3 acre. The intake is at the edge of a large back eddy formed below Tohickon Creek. The eddy is a spawning and nursery area for American shad, river herring, channel catfish, smallmouth bass, redbreast sunfish, bluegills and black crappie. At low flows the intake will be in the back eddy and will entrain or impinge eggs and larval fish.

5. Impacts from the Merrill Creek Reservoir.

The Point Pleasant Diversion was part of the justification for building the Merrill Creek Reservoir. The Merrill Creek project would inundate 1.7 miles of brook trout stream, flood 712 acres of valuable wildlife habitat and destroy habitat for three State-designated endangered species. There are reservoir sites on the Schuylkill River that would be less environmentally damaging and eliminate the need for the Point Pleasant Diversion.

MERRILL CREEK

In reviewing applications for permits, the FWS recommended denial for the following reasons:

1. Loss of 712 acres of valuable wildlife habitat, including habitat for State-designated threatened species (the longtail salamander and brook trout), and State-designated endangered Cooper's hawk.
2. Loss of 1.7 miles of native brook trout stream.
3. No mitigation plan to compensate for loss of fish and wildlife habitat.
4. The least environmentally damaging alternative was not selected.
5. Inadequate minimum releases from the reservoir into Merrill Creek to protect brook trout habitat downstream.
6. Impacts from the proposed intake structure on the Delaware River.

7. Entrainment and impingement problems at the intake on the Delaware River, especially American shad.
8. Withdrawal of water during low river flows will result in cumulative adverse impacts downstream.

We hope these comments will be helpful to you in the preparation of a final statement.

Sincerely,

Jessence M. Martin

for

Bruce Blanchard, Director
Environmental Project Review

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY LICENSING BOARD

'84 FEB 21 AM 11:05

In the matter of)
)
PHILADELPHIA ELECTRIC COMPANY)
)
(Limerick Generating Station,)
)
Units 1 and 2)

Docket Nos. 50-352
50-353

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CERTIFICATE OF SERVICE

I hereby certify that I have served a copy of the
foregoing MOTION TO REOPEN by mailing a copy of the same to
the following persons this 17th day of February, 1984.

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U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Judge Richard F. Cole
Atomic Safety and Licensing Board
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Judge Peter A. Morris
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Dated: February 17, 1984