

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

Before the Atomic Safety and Licensing Board

In the Matter of)
)
Philadelphia Electric Company) Docket No. 50-352
) 50-353
(Limerick Generating Station,)
Units 1 and 2))

MOTION OF DEL-AWARE UNLIMITED, INC
TO COMPEL ANSWERS TO INTERROGATORIES

Preliminary Statement

The applicant, Philadelphia Electric Company, filed objections to many of the interrogatories posed by Del-AWARE Unlimited, with respect to water issues. During a conference call on August 2, 1982, the Board directed Del-AWARE file any pleadings, such as a Motion to Compel Answers, on or before August 9, early in the day, and also directed that the parties attempt to negotiate the objections. Pursuant to the Board's direction, counsel for Del-AWARE Unlimited engaged in an extensive negotiation by telephone with counsel for Philadelphia Electric, Troy Conner, on August 3, 1982. During that conversation, Del-AWARE Unlimited agreed to recede from a number of its interrogatories, because the issues had been ruled outside the scope of this proceeding by the Board's Order of July 14, 1982 (which was received by Intervenor on July 19, 1982, and too late to be fully reflected in Intervenor's Interrogatories). Del-AWARE counsel thought that Applicant agreed to respond to others while reserving its objection.

DOCKETED
USNRC

'82 AGO 9 AR 20

OFFICE OF SECRETARY
DOCKETING & SERVICE
BRANCH

DS03

Thus, at the conclusion of the conversation, most of the objections had been settled. Only three interrogatories remained for further consideration the next day.

However, on the following day, when counsel for Del-AWARE Unlimited sought to continue the conversation to address the final group on interrogatories, counsel for the applicant took the position that the discussions of the previous day related to the applicants willingness to answer questions on those subjects at the upcoming depositions, but that they were construed by applicant as not relating to answering the interrogatories. Counsel for applicant refused to discuss the interrogatory request, and instead, told counsel for Del-AWARE to "file his pleadings with the Board."

By way of further preliminary statement, Del-AWARE Unlimited notes that the Board indicated in its conference call of August 2, 1982, that many of applicant's objections were well taken, but that some of the discovery requested by Del-AWARE Unlimited, objected to by applicant, was appropriate.

Reply to Argument

There is no dispute between the parties as to the appropriate interpretation of the discovery rules. Del-AWARE agrees that the parties are entitled to obtain information which tends to support or negate allegations in the contentions, or which is reasonably calculated to lead to such information, and no other information. (Applicant's memo, at p.6)

Specific Requests to Compel

Interrogatories 1(d), (e), and (f): Del-AWARE Unlimited requests information relating to the diversion on water at Point Pleasant when

the flow of the Delaware River at Trenton is less than 3000 cfs for the following reasons:

(a) The DRBC may waive its 3000 cfs minimum flow condition; this is a likely eventuality, as will be developed in the deposition of other witnesses (Hansler, Marazzo, et al), because the Delaware River Basin Commission traditionally takes discretionary actions in draughts, and because the DRBC would be unlikely to force the shutdown of Limerick, and risk a blackout, rather than permit withdrawals in the ranges below 3000 cfs.

(b) The DRBC is presently considering a change in its comprehensive plan and river management plan, and has formally promulgated "INTERSTATE WATER MANAGEMENT: Recommendation of the Parties to the U.S. Supreme Court: Decree of 1954 to the Delaware River Basin Commission: Pursuant to Commission Resolution 78-20" in draft form. Public hearings which are presently being held, after which the members of the DRBC and the parties to the 1954 decree will then assess public comments received prior to proposing any formal commission action concerning revision to the comprehensive plan. A copy of portions of the draft "Recommendations of the parties" is attached hereto as Exhibit A. The draft "Recommendations of the Parties" is based on the published Level B Study, completed and published by the DRBC since the prehearing conference herein, which recommends new salinity standards for the Delaware River which are in turn contained in modified form in the draft Recommendations of the Parties. These include new flow objectives for salinity control during draught periods, to replace the 3000 cfs limitation at Trenton. The new flow limitations include flows as low as 2500 cfs at Trenton,

in draught periods, and furthermore, recognize that in "severe draught," these standards will not apply, and instead, standards "(to be negotiated based on conditions)." (See section II, Recommendation 3, Tables 1 and 2 (pp. 2,3)). These recommendations make it likely that if adopted, they will result in obviating the 3000 cfs flow limitation at Trenton, thus permitting PECO to further draw down the flows at Point Pleasant, and result in all the impacts of lower flows, to be developed in testimony. It should be stressed that the lower flow impacts at Point Pleasant, while including downstream salinity impacts, are not limited to such impacts, and indeed, the local impacts of such flow reductions are highly significant. Thus among other things, it was conceded at the depositions of PECO personnel on August 5 and 6, that the dimension and the velocity factors which are critical in determining the impact of the intake on the spawning and nursery area at Point Pleasant, vary almost in direct proportion to the flow in the river. Thus, withdrawals by PECO at flows less than 3000 cfs will admittedly increase the adverse impacts of the diversion on the local conditions.

(c) By facilitating the construction of the intake at Point Pleasant, PECO is directly causative of NWRA's continuing ability to operate the intake and withdraw water at flows below 3000 cfs. Unlike PECO's permit, NWRA's contains no condition relating to a 3000 cfs minimum flow. Accordingly, the intake will continue to be operated at flows below 3000 cfs, even though the water may not go to PECO. PECO and NWRA have recognized this fact, although it remains confused in the minds of many, by occasionally referring to the fact that the

intake will not be operating at its maximum rate when flows are below 3000 cfs.

By way of clarification, Del-AWARE points out that it does not request creation of new information, or the conduct of research or the performance of analyses by applicant.

Del-AWARE requests that the Board direct PECO to answer these interrogatories because the flows below 3000 cfs are important in fully evaluating the extent of impact of the intake, and thus will constitute information supporting allegations in the contention V-15 and V-16a, or are reasonably calculated to lead to such information. For example, with respect to interrogatory 1(d) Mr. Bourquard testified on August 5 that he had evaluated the extent of the impact of the intake by drawing a circle around the intake and estimating the velocity within that circle by using a formula. The components of that formula would admittedly have to include the ambient velocities, and these are dependent on the flow in the river. Similarly, with respect to the 1(e) the impacts of the intake are determined by the relative velocities of the intake itself and the ambient water, and these are variable at different depths, but also vary according to the ambient velocity, which is a function, to a considerable extent, of the flow. With respect to interrogatory 1(f) (relationship to Tohickon flows) this impacts on turbidity and the velocity of the eddy, because, as admitted by Mr. Bourquard in his deposition, the flow of the Tohickon is a basic cause of the eddy, Del-AWARE will prove that the distribution of the flows as between the Tohickon and the Delaware, will influence the velocities and turbidity of the eddy, when the intake, which is in proximity to the confluence of the two creeks, is in

operation. Although some of these relationships and their extent are disputed, there can be no doubt as to their relevance to the evaluation of the intake impact.

Interrogatory 1(g):

This interrogatory requests information relating to compensatory storage to maintain Delaware River flow. The purpose of knowing such information is to predict the frequency and extent to which flows may be reduced below 3000 cfs. Information is relevant for all the reasons set forth in Request to Compel Answers to Interrogatories 1(d, e, f). It must be stressed that the information requested is not sought for purposes of litigating the propriety or desirability of Merrill Creek or any other supplemental storage, nor to evaluate the extent or nature of the impact of reduced flows on salinity or dissolved oxygen, matters which are more related to the larger issue of diversions from the Delaware River (although these diversions could be made in the estuary at Philadelphia, from the Delaware River, and have less impact on dissolved oxygen and salt front). Rather, they are requested because of their relevance to determining the impact of the intake on the American shad and short-nosed sturgeon, a major fish resource, and boating and recreation in the area of the intake itself.

Interrogatory 1(i):

This interrogatory relates to the operation of the intake and its impact on anticipated minimum surface water elevation and clearance above the intake, at low flow periods, even if the intake is not being operated for PECO's use. PECO objects because it states that only NWRA will be using the intake at this period. PECO claims that this information is irrelevant because the Board has ruled that

environmental impacts rising from NWRA's independent use of the Point Pleasant facilities are not attributable to Limerick.

PECo's position represents substantial misreading of the Board's Orders. PECO's references are to the portion of the Board's Order indicating that the portions of the water supply system to be built and operated solely by NWRA are not within the scope of the Board's evaluation of the impacts of Point Pleasant, because they have independent utility. (SPCO at 76-77, Order on Objections at 8-9.)

These sections of the Board's Orders had nothing to do with the instant issue. This is not a portion of Point Pleasant which will be used only by NWRA; it is a portion of Point Pleasant which is being constructed primarily with PECO funds primarily for PECO use, and which will be used jointly by PECO and NWRA. The fact that PECO may draw water on some days, and NWRA on other days, in no way constrains these issues from being addressed, in view of their total interdependence, by this Board. Thus, the operative portion of the Board's opinion is found on pages 74-76 in which it states:

"Operation of the Point Pleasant diversion is similarly a single project all portions of which should be considered together."

There is no discussion in the July 14 Order of this determination.

Interrogatory 3:

This interrogatory seeks information on potential damage to the intake through debris and ice conditions, in that Del-AWARE believes and will seek to prove that such damage will occur frequently, and necessitate constant (regular periodic) dredging and maintenance activities which will adversely affect the peace and tranquility of the

village of Point Pleasant, which is contention V-16(a), an admitted contention. With this statement of relevance, previously provided to applicant, Del-AWARE believes that it is clear that this interrogatory must be answered.

Interrogatory 5:

Interrogatory 5 requests information regarding the presently pending changes in the DRBC plan, and the potential impacts on the withdrawals at Point Pleasant by Philadelphia Electric Company, as well as reevaluations of the salinity effects of the project in the event of such changes. Applicant objects on the basis that it contends that this Commission has refused contention 16 because of the binding effect of DRBC's determination.

Intervenor concedes that, at this point, this Board has granted binding effect to the DRBC's determination of permission of the diversion of Delaware River water from the Delaware River. However, the Board has also held that it will consider alternative locations for the withdrawal, which might "mitigate impacts" with respect to "environmental costs ascertainable only as the plan gained greater concreteness after the construction permit was issued. . ." (SPCO, at 61). Consequently, the Board stated that "although we will not look at the allocation decision itself, we might determine whether changes in the plans since the construction permit stage call for new mitigation efforts or would cause significantly increased environmental impacts such that overall alternative cooling methods should be examined." (p. 71)

And at page 88, the Board indicated that since there was no prior available hearing for the NRC to consider those impacts resulting from

changes since the construction permits were issued, the Board would consider alternatives "e.g., designs and locations" at the present time in order to avoid the risks of rendering portions of the contentions, moot or requiring the applicant to undo costly work. (p. 88)

These conclusions and considerations by the Board make it clear that the information sought is relevant to the location of the intake, and not to the question of diversion of Delaware River water, as such, the issue which the Commission has presently confined to the DRBC.

The information is relevant to the American shad, and to the short-nosed sturgeon, because the impacts of diversion at Point Pleasant versus the impacts of diversion, e.g at Philadelphia, although both from the Delaware River, are considerably different with respect to the viability of the river for American shad and short-nosed sturgeon.

A Fish and Wildlife Service letter dated July 12, 1982, and attached hereto as Exhibit B, further explains the basis for this contention. (This letter, of course, was written after the Board's June 1 Order, and after Del-AWARE's submission of its contentions.)

The letter states, inter alia,

"By itself the Point Pleasant project would reduce dissolved oxygen levels in Zone Two of the Delaware River less than 0.5 per cent. However, if one considers all of the other consumptive water uses above Trenton (1495 cfs), the cumulative effect is greater than 1 ppm reduction in dissolved oxygen in Zone Two under conditions used for the model run in the Level B study. The Point Pleasant diversion will also allow a maximum on 146 cfs to bypass all but three miles of Zone Two. If dissolved oxygen levels are already at or near the threshold level for fish survival (5 ppm), a reduction of 1 ppm likely would eliminate use of this reach of the river by most fishes.

"DRBC established the 3000 cfs flow limit at Trenton to protect water intakes downstream from salinity increases. However, the 3000 cfs flow is not sufficient to prevent oxygen depletion in Zones Three and Four during prolonged periods each year."

It is necessary to state that Zone Two of the river is the upper portion of the tidal estuary, reaching from Trenton downstream to North Philadelphia. Thus, relocation of the intake to Northeast Philadelphia sewage treatment plant, one of the locations identified as feasible in the PECO 1979 Environmental Report, would avoid these adverse effects, while still honoring the DRBC allocation of diversion from the Delaware River.

Thus, the downstream impacts of Point Pleasant versus other withdrawal locations, as requested in interrogatory 5, are directly relevant to determination of the viability to Zone Two of the river for fish, including the shad and the short-nosed sturgeon. Since both are anadromous fish, the elimination of Zone Two as a viable zone would preclude the passage of these fish back and forth between Point Pleasant, which is in Zone One, and the ocean. Thus, there can be no doubt as to the relevance of the information sought in interrogatory 5.

It should be noted that Del-AWARE does not request information on the impacts of the project on oyster production, but rather that the reference to oyster production in interrogatory 5 is only a description of the events which have given rise to the proposed changes in river management, and it is the latter subject to which the interrogatory is directed. Del-AWARE emphatically does not seek information concerning the impact of the diversion on oyster production downstream which, it is understood, it is precluded by the Board's ruling regarding the DRBC decision finality. What is sought is the impacts of the

changes in river management, which have been proposed partly as a result of the problems of oyster spawning, upon river flow, with their consequent impacts on the fishery relevant to the intake. It is also emphatically stated that Del-AWARE is not seeking to litigate, at this time, the propriety of a diversion from the Delaware River, but rather the location of such a diversion.

Interrogatory 9:

Interrogatory 9 seeks information regarding the extent of compensatory storage available to replace Delaware River withdrawn at Point Pleasant. The relevance of this, and the only purpose for which it is sought, is as described in interrogatory 1: it appears that the intake will operate, with clear potential for including Philadelphia Electric, below 3000 cfs, at which time Merrill Creek compensation would be available to some extent, if built. Therefore, since the impacts of the intake at Point Pleasant are dependent on the flow, the extent to which flow will be available from Merrill Creek is relevant in evaluating the extent of the impacts of Point Pleasant. Del-AWARE does not seek information regarding Merrill Creek in order to evaluate the impacts of Merrill Creek or to litigate at this time the issue of diversion from the Delaware River. Del-AWARE recognizes that both of these matters are beyond the presently admitted contentions.

Interrogatory 11:

Interrogatory 11 is directed towards the claims and the Environmental Report of July 1979 of PECO regarding Bradshaw, that the proposed joint project would result in economic savings to PECO and Bucks County. This interrogatory seeks information as to the present status of those economic determinations, to the extent that they

exist. This in turn relates to the viability of other locations available on the Delaware River, which might not be part of a joint project, but might be more beneficial for PECO and for Bucks County. It is clearly relevant for the reasons stated regarding the consideration of alternative withdrawal locations on pages 8 to 11, super, dealing with interrogatory 5.

In objecting to this interrogatory, the applicant refers to the Board's determination not to consider impacts of the portions of Point Pleasant to be utilized solely by NWRA (SPCO at 76,99-100; Order on Objections at 8-9). These citations are utterly unrelated to the purposes of the interrogatory, which relate to the economic interdependence of the project, as contended for by PECO itself in its July 1979 Environmental Report. Therefore, the Board's Ruling provides no comfort to PECO on this interrogatory. (See, also, discussion at pp. 6 to 7, supra, relating to interrogatory 1(i), and citations therein.)

Interrogatory 12:

Interrogatory 12 was asked for the sole purpose of determining the basis for the contention by applicant, in its report to the Board of July 7, 1982, that construction in the river must begin in December of this year. It does not deal with construction impacts at all, as should be clear from a reading of interrogatory 12. The Board itself, of course, had let it be informed as to the proposed schedule for construction (SPCO at 88). The applicant's proposed schedule appeared inconsistent with prior statements of scheduling, and thus interrogatory 12 was propounded in order to enable Del-AWARE to provide additional information to the Board.

At his deposition on August 6, Mr. Bourquard identified a schedule of construction submitted to the Corps of Engineers on September 9, 1981, as the only schedule of construction he has prepared. A copy is attached hereto as Exhibit C. In that schedule, the construction in the river is identified as the third phase of construction, which appears to contradict the applicant's report to the Board, which states that the initial phases of construction involve going into the river. Del-AWARE submits that its interrogatory is clearly relevant to produce any further information in the possession of the applicant relating to this question, since it has produced the necessity for these accelerated proceedings.

Interrogatory 13:

Interrogatory 13 requests documents constituting the operating plan for the water system. This information is relevant to a determination as to the impacts of the intake, since the operating plan may involve rates of withdrawal at Point Pleasant which may vary from those that have been suggested or relied upon by the applicant in evaluating the impacts of the intake. Similarly, with respect to Bradshaw Reservoir, the overall operating plan is necessary to evaluate the viability of the proposed operating plan for the reservoir itself; obviously, the reservoir cannot discharge flows that have not been diverted to it, nor can it fail to discharge water that has been placed in it. Consistent with the Board's determination on contentions regarding impacts on the Perkiomen, Del-AWARE is not seeking, for the present, this information in order to evaluate the impacts on the Perkiomen, but rather to evaluate the impacts of the

operating plan at the intake and on the reservoir. For these purposes, it appears clearly relevant.

Interrogatory 17(a) and (b):

These interrogatories seek information concerning the timing of compliance with section 316(b) of the Federal Clean Water Act. This interrogatory relates to the requirement of that Act that best available technology be employed in selecting the intake at the Delaware River, and therefore the information is clearly relevant in determining the relationship between this Board's proceedings and a determination that will be made by EPA, or by delegation, by Pennsylvania DER, regarding the intake. This information is not sought with respect to the impacts of the discharge on the Schuylkill River, or the Perkiomen Creek, although EPA or DER will deal with the issue of compliance with section 316(b) in the context of a discharge permit, because that is the structure of section 316(b). In other words, Del-AWARE is inquiring regarding section 316(b) compliance solely for the purpose of litigating the issue of the impacts of the intake, and not at all for evaluating water quality impacts of the related discharge(s). On this basis, Del-AWARE submits that the information is clearly inappropriate for discovery.

Interrogatory 20:

Del-AWARE seeks information relating to any evaluations or reviews of information submitted by Del-AWARE or its experts regarding the admitted contentions. To this extent, Del-AWARE wishes to clarify the interrogatory, and as clarified, believes that the information requested is clearly relevant to this proceeding.

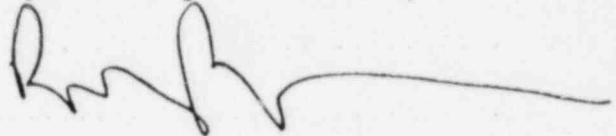
SUMMARY

In summary, Del-AWARE seeks to require the applicant to answer interrogatories 1(d), (e), (f), (g), and (i), 3, 5, 8, 9, 11, 12, 13, 17, 20 and 21.

Del-AWARE does not seek to require answers to interrogatories 4, 6, 10, 18, or 19. Applicant has not objected to interrogatories 1(a), (b), (c) and (d), 2, 7, 14, 15 and 16.

Del-AWARE submits that with the discussion of relevance provided, and the explanation as to the purpose for which some of the information is being sought, the requested information clearly may be relevant or may lead to relevant evidence, as required by the discovery rules. Therefore, Del-AWARE requests that the applicant be required to answer the above-described interrogatories.

Respectfully submitted,



ROBERT J. SUGARMAN
MARY COE
Attorneys for Del-AWARE Unlimited,
Intervenor

Of Counsel:

SUGARMAN & DENWORTH
Suite 510
121 South Broad Street
Philadelphia, PA 19107
(215) 546-0162

August 8, 1982

102

DRAFT

INTERSTATE WATER MANAGEMENT

Recommendations of the Parties to the U.S. Supreme Court

Decree of 1954 to the Delaware River Basin Commission

Pursuant to Commission Resolution 78-20

(WITH APPENDICES)

New York
New Jersey

New York City

Pennsylvania
Delaware

JULY 1982

EXHIBIT A

CONTENTS

	Page
INTRODUCTION	ii
MAP OF THE DELAWARE RIVER BASIN AND ADJACENT AREAS	iii
Section	
I. Management Standards and Criteria	1
II. Diversions, Releases and Reservoir Management During Drought	2
III. Water Storage, Water Supply and Flow Augmentation Projects	5
IV. Conservation	7
V. Depletive Water Use Budget	8
VI. Conservation Releases-- New York City Reservoirs	9
VII. Enforcement	11
VIII. APPENDICES	
Comprehensive Plan Descriptions of:	
A. Francis E. Walter project	12
B. Prompton project	14
C. Merrill Creek project	16
D. Cannonsville project	18
E. Tocks Island project	19
F. Revised Docket D-77-20 CP: modification of release schedules from Cannonsville, Pepacton and Neversink reservoirs	21
G. Delaware River Basin Commission Resolution 78-20	25

INTRODUCTION

Conditions in the Delaware River Basin have changed substantially over the past two decades. The drought emergency of the mid-1960's and the decision of 1975 not to proceed at that time with construction of the Tocks Island dam, were major background events giving rise to Commission action in 1978 calling upon the parties to enter into good faith discussions (page 25).

The recommendations that follow constitute a series of interrelated management steps designed to respond to changed conditions in the Basin. They are organized around a long-term salinity standard to be achieved through the development of new reservoir storage and flow augmentation capacity, water conservation actions, a drought management plan, and the regulation of new or expanded depletive water uses. Modified conservation releases from the New York City reservoirs to protect and enhance recreation below the reservoirs are proposed to be made permanent, but with required reductions during drought periods.

SECTION II

DIVERSIONS, RELEASES AND RESERVOIR MANAGEMENT DURING DROUGHT

Recommendation 3

Pursuant to section 3.3 of the Compact, for purposes of management during a drought, the Commission should amend the Comprehensive Plan to include a schedule of phased reductions in diversions, releases, and flow objectives as set forth in Tables 1 and 2. The formula is based upon a differentiation between "normal," "drought warning" and "drought" conditions as defined by the combined storage levels shown on the operation curves for Cannonsville, Neversink and Pepacton reservoirs (page four). The diversion of the drought warning zone into upper and lower halves is defined as a physically equal division, or 20 billion gallons in each zone.

TABLE I

Interstate Operation Formula for Reductions
In Diversions, Releases, and Flow Objectives
During Periods of Drought

<u>NYC Storage Condition</u>	<u>NYC Div mgd</u>	<u>NJ Div mgd</u>	<u>Montague Flow Objective cfs</u>	<u>Trenton Flow Objective cfs</u>
Normal	800	100	1750	3000
Upper Half-- Drought Warning	680	85	1655	2700
Lower Half-- Drought Warning	560	70	1550	2700
Drought	520	65	1100-1650*	2500-2900*

Severe Drought (to be negotiated based on conditions)

*Varies with time of year and location of salt front as shown on Table 2.

During drought conditions as defined by the operation curves shown on page four, the Montague and Trenton flow objectives should vary according to the location of the salt front (250 mg/l chloride isochlor 7-day average), in accordance with the following table:

TABLE 2

Flow Objectives for Salinity Control
During Drought Periods

Seven-day Average Location of "Salt Front," River-mile*	Flow Objective, Cubic Feet Per Second At:					
	Montague, N.J.			Trenton, N.J.		
	Dec-Apr	May-Aug	Sept-Nov	Dec-Apr	May-Aug	Sept-Nov
Upstream of R.M. 92.5	1600	1650	1650	2700	2900	2900
Between R.M. 87.0 and R.M. 92.5	1350	1600	1500	2700	2700	2700
Between R.M. 82.9 and R.M. 87.0	1350	1600	1500	2500	2500	2500
Downstream of R.M. 82.9	1100	1100	1100	2500	2500	2500

Diversions and releases under this drought operation formula should go into effect automatically whenever combined storage in the City reservoirs declines below the drought warning line and remains below that level for five consecutive days. When the combined storage (including the projected water runoff equivalent of actual snow and ice) reaches a level 15 billion gallons above the drought warning line, and remains above that level for five consecutive days, the drought operation formula should automatically terminate and normal operations provided for in the Decree should be resumed.

Whenever the drought operation formula goes into effect it should be binding on all parties for not less than 180 days following the triggering of drought warning operations, unless terminated automatically by improved storage conditions, as noted above. During the 180-day period, the parties will convene no less frequently than once each month to review current conditions, and they may extend, modify, or extend as modified the formula recommended here. If no unanimous agreement as to a continuing drought operation formula is reached within the 180-day period, all parties shall be released from the terms of the formula contained in this agreement and may pursue their rights and obligations under the Delaware River Basin Compact and the U. S. Supreme Court Decree.

The City of New York joins in recommendation 3 but does not by doing so accept any general responsibility under the doctrine of equitable apportionment or otherwise to vary releases from the City's reservoirs in accordance with the location of the salt front.

*Measured in statute miles along the navigation channel from the mouth of Delaware Bay.



United States Department of the Interior

FISH AND WILDLIFE SERVICE
HARRISBURG AREA OFFICE
100 CHESTNUT STREET, ROOM 810
HARRISBURG, PENNSYLVANIA 17101

July 12, 1982

Lt. Colonel Roger L. Baldwin
District Engineer, Philadelphia District
U.S. Army Corps of Engineers
Custom House, 2nd and Chestnut Streets
Philadelphia, Pennsylvania 19106

Dear Colonel Baldwin:

This responds to your letter of June 1, 1982, requesting our recommendations on Public Notice NAPOP-R-80-0534-3, dated April 6, 1981. The applicant, the Neshaminy Water Resource Authority, applied for a Department of the Army permit to construct a water intake structure in the Delaware River and under the Pennsylvania Canal, 782 feet south of the confluence of Tohickon Creek with the Delaware River, Point Pleasant, Bucks County, Pennsylvania. Plans revised by Supplement Number 1, dated February 9, 1982, also include construction of three conduits 4 feet below the river bed, construction of a temporary earthen cofferdam and installation of a 72-inch conduit under the Pennsylvania Canal.

Our report of June 19, 1981, recommended that the permit be held in abeyance pending review of your assessment of the cumulative effect of the project proposal. On March 26, 1982, we reported on Supplement Number 1 to the Public Notice and letters from E. H. Bourquard Associates, Inc., and Mr. Hershel S. Richman. In addition, we reiterated the importance of an analysis of cumulative effects, particularly with respect to dissolved oxygen and salinity intrusion, and the need for the Corps' independent evaluation during the May 13, 1982, meeting in your office.

Your June 1 letter states that your assessment of project impacts is principally based upon studies made by the Delaware River Basin Commission (DRBC) and consequently we have concluded that your assessment did not result from an independent evaluation by your staff. Our letters of June 19, 1981, and March 26, 1982, identified several apparent discrepancies between DRBC's reports and conclusions and actual field data. We continue to believe that the reports upon which you have based your views do not satisfy our request for the Corps' independent evaluation of cumulative effects.

cc: / Field Supervisor, ES, State College, PA

EXHIBIT B

There are several specific comments we wish to reiterate relative to the points we tried to make in our letters of June 19, 1981, and March 26, 1982. For example, on page 5 of our June 19, 1981, report, we quoted figures from the Level B Study to demonstrate that consumptive withdrawals and demands are increasing, thereby stressing a limited water supply. The DRBC continues to approve additional surface and groundwater withdrawals each month. During the period from 1970 to 1980, depletive uses increased by over 530 cfs, and depletive uses are expected to double in the next 20 years (Table 5, Level B Study). According to Mr. Selzer (personal communication, July 1, 1982), records are not kept of total consumptive withdrawals in the basin. Each new application is reviewed on its own merit and compared to historic flow records. Mr. Selzer was unable to tell us what the current allocation of water is in the basin, yet water withdrawals and diversions continue to be approved. Even the depletive uses reported in the Level B Study are estimates and not based on actual records.

The DRBC and your staff have evaluated impacts from the Point Pleasant Diversion as an independent and separate withdrawal of water. By itself, the Point Pleasant Project would reduce dissolved oxygen levels in Zone II of the Delaware River less than 0.5 percent. However, if one considers all other consumptive water uses above Trenton (1,495 cfs), the cumulative effect is greater than a 1 ppm reduction in dissolved oxygen in Zone II under conditions used for the model run in the Level B Study. The Point Pleasant Diversion will also allow a maximum of 146 cfs to bypass all but 3 miles of Zone II. If dissolved oxygen levels are already at or near the threshold level for fish survival (5 ppm), a reduction of 1 ppm likely would eliminate use of this reach of river by most fishes.

DRBC established the 3,000 cfs flow limit at Trenton to protect water intakes downstream from salinity increases. However, the 3,000 cfs flow is not sufficient to prevent oxygen depletion in Zones III and IV during prolonged periods each year. The historic flow records show that insufficient storage currently exists to maintain a 3,000 cfs flow at Trenton during dry years, let alone flows high enough to improve dissolved oxygen levels. Since we are not aware of any major new flow augmentation reservoirs nearing completion or in final design stages within the basin, we contend that it is presumptuous to conclude that there will not be cumulative impacts from the Point Pleasant Diversion, which may adversely affect fish and wildlife.

Your statement that withdrawals by the Point Pleasant Diversion Project would have virtually no effect on salinity intrusion in Delaware Bay is dependent upon flow conditions in the Delaware River. Not recognized are those consumptive withdrawals occurring during low flow conditions. Consumptive withdrawals now exceed the low flows encountered in the entire river at Trenton during the drought of the 1960's. The record

also shows that there is not enough storage now to maintain minimum flows at Trenton. In addition, the Salinity Intrusion Model predicts that an additional 10 cfs of fresh water would be required each year to offset the effect of rising sea levels. Therefore it appears that even slight changes in flows would be detectable in salinity levels in upper Delaware Bay. Although the Philadelphia Electric Company may supposedly be required to stop operation of the Limerick Nuclear Power Plant when flows drop below 3,000 cfs at Trenton, the nuclear plant will need cooling water for a period of time after the order is given and will continue to impact on low flows.

There were several additional issues raised in our previous reports which are not addressed in your response. We questioned the impacts of the project on a small forested wetland at the site, the potential need for more water by the Limerick Nuclear Power Plant in the future to offset water quality problems in the Schuylkill River, the effects of skimming reservoirs, the effects of the diversion on the North Branch of Neshaminy Creek and Perkiomen Creek, the effects on water quality in Lake Galena, changes in water surface elevations at the intakes and the issue of more water diversions within the Delaware River basin in the future.

We remain concerned over the potential adverse impacts to fish and wildlife which may result from the Point Pleasant Diversion Project. We strongly believe that the cumulative effect of water diversions on water quality and quantity and the associated impacts on public fish and wildlife resources must be weighed before a far-reaching decision is made which will commit those resources. We anticipate that as part of your cumulative analysis you would include a worst case analysis (40CFR1502.22) because the information relevant to adverse impacts is important to the decision on permit issuance and the means to obtain such information are either unknown or the overall costs of obtaining it are exorbitant. For example, we have presented information to suggest that new water allocations are continuing to be approved on an individual basis without regard to cumulative effects. The worst case analysis should indicate the risk and severity of possible adverse impacts on water quality, particularly with respect to salinity and dissolved oxygen, and an indication of the probability or improbability of its occurrence. Further, we would think this particular independent review would consider at least the following items with references and data, when available, to support your position:

1. Is there now adequate storage to offset the withdrawals at Point Pleasant and still meet all flow requirements downstream under all weather conditions? If not, how long will it be before such additional storage will be available and from where?
2. Above Trenton, what is the current allocation of water approved by DRBC, the current depletive uses and the expected increases throughout the life of the project?

3. How will depletive use by the Limerick Nuclear Power Plant affect water quality in the lower Schuylkill River? Will more water diversions be required in the future?
4. Will increased water demand in the Perkiomen basin be met by greater diversions from the Delaware River in the future?
5. What is the cumulative effect of water withdrawals on dissolved oxygen levels in Zone II of the Delaware River under low flow conditions?
6. How many wells in the basin now exceed maximum sustainable yields? Does the Raritan-Mahothy-Potomac aquifer recharge from the Delaware River? Does the aquifer discharge into the river?
7. What are the effects of existing impoundments in the basin on river flow, evaporative loss, skimming spring flows, etc.? What effect will additional flow augmentation reservoirs have on river flows?
8. What impacts would result from discharging large volumes of water into the North Branch of Neshaminy Creek and the East Branch of Perkiomen Creek?
9. How will increased flows through Lake Galena affect water quality in the lake?
10. What has been the cumulative effect of depletive water uses on salinity levels in Delaware Bay? How much have depletive water uses downstream from Trenton affected salinity levels in upper Delaware Bay?
11. What will be the operating schedule for withdrawal of water from the Delaware River at Point Pleasant in comparison with critical summer flow?
12. If the second unit of the Limerick Nuclear Power Plant is not constructed, what provisions have been made to reduce the facilities planned to extract water from the Delaware River and thereby reduce the incentive to extract water for other purposes?
13. How many municipal and industrial water supplies are already short of water or will be short within the next 50 years? What are these water users' plans to alleviate their water shortages? Are more water diversions planned in the future within the Delaware River basin?

Our report of June 19, 1981, as supplemented by our March 26, 1982, report, is still valid in that we continue to recommend that issuance of the requested Department of the Army permit be held in abeyance until we have had an opportunity to provide you with our report on project effects on fish and wildlife based in large part upon receipt of your independent evaluation of the cumulative effect on water quality. We would appreciate receiving copies of or references to that information upon which your conclusion on cumulative impact is based. In the event you proceed to issue without conducting the requested evaluation our likely position would be to recommend against permit issuance because it appears that unaccounted withdrawals and the resulting water quality impacts, particularly during summer low-flow periods, could cause significant adverse effects on public fish and wildlife resources.

Sincerely,

/s/ Norman R. Chupp

Norman R. Chupp
Area Manager

cc:

Pennsylvania Fish Commission, Bellefonte, PA - Attn: Mr. Jack Miller

Pennsylvania Game Commission, Harrisburg, PA - Attn: Mr. Jacob Sitlinger

U.S. Environmental Protection Agency, Philadelphia, PA - Attn: Mr. Jim Butch

National Marine Fisheries Service, Gloucester, MA

Regional Director, FWS, Newton Corner, MA (AEV)

/Field Supervisor, ES, State College, PA

ES:SCFO:RMcCoy:CKulp:clr 7/9/82

Revised HAO:LRNygren:lk 7/12/82

E. H. BOURQUARD ASSOCIATES, INC.

WATER RESOURCES ENGINEERING

WATER SUPPLY
WASTEWATER DISPOSAL
WATER RESOURCES
HYDRAULIC STUDIES
FLOOD INSURANCE STUDIES

1400 RANDOLPH STREET
EXIT NO. 24E, INTERSTATE 83
HARRISBURG, PA.
17104

TELEPHONE (717) 238-9508

FLOOD CONTROL PROJECTS
DAMS & RESERVOIRS
DRAINAGE-SEWAGE
HYDROLOGIC STUDIES
ENVIRONMENTAL STUDIES

September 9, 1981

Lt. Col. Roger L. Baldwin,
District Engineer, Philadelphia District,
U. S. Army Corps of Engineers,
Custom House, 2nd and Chestnut Streets,
Philadelphia, PA 19106

Re: Neshaminy Water Resources Authority
Permit Application Nos. NAPOP-R-
80-0534-3 and 80-0813-3

Dear Colonel Baldwin:

Forwarded herewith, in duplicate, are general construction procedures for (1) the installation of stream intake facilities and channel modifications at the North Branch Water Treatment Plant site, and (2) the installation of intake facilities at the Point Pleasant Pumping Station site.

Respectfully submitted,

E. H. Bourquard

EHB/bs

Encl.

2 sets of General Construction Procedures, in duplicate

c.c.

J. E. McGettigan, Jr., District Counsel, w/Enclosure
John E. Burnes, Chief Environmental Branch, w/Enclosure
Roy E. Denmark, Jr., Chief Permits Branch, w/Enclosure

D-4
8/6/82
K.S.

EXHIBIT C

NESHAMINY WATER SUPPLY SYSTEM
NESHAMINY WATER RESOURCES AUTHORITY - BUCKS COUNTY
POINT PLEASANT PUMPING STATION
INTAKE FACILITIES

GENERAL CONSTRUCTION PROCEDURES

September 9, 1981

The construction procedures for installation of the facilities comprising the Point Pleasant Pumping Station Intake will require the following general activities, the sequence and extent of which may be varied by the Contractor within the constraints imposed by the specifications and by pertinent permit requirements. The location and general plan of the Station are shown on the accompanying Exhibit No. 1.

Prior to the start of construction, there will be a pre-blasting survey and report, plus submission of blasting plans to the State for approval, which plans will include a test blasting program and provision for monitoring and surveillance during construction blasting. Also, provisions will be made for an archaeologist's services. Additionally, the necessary permits will have been obtained and any required notifications given in compliance with the permit requirements.

The first phase of the construction activities will be installation of sediment and erosion control measures; and the staking of limits of wetlands for protection thereof. This will be followed by the clearing of Station site and intake alignment other than wetlands; and the salvaging of usable timber and chipping of slashings. Selected trees will be preserved and stumps will be disposed of in designated areas. Area No. 1, shown on Exhibit No. 1, will be the equipment and material storage area.

First Phase - Installation of Intake Conduit Under the Canal.

Installation of the intake conduit under the Canal will be accomplished in the dry. The first step will be the installation of a temporary roadway and dike

across the Canal, where shown on Exhibit No. 1, utilizing materials excavated from the site. There will be two drainage culverts in this dike with slide gates on the downstream ends. Immediately upstream of Lock No. 14 is an overflow weir which will be set to divert all water above a certain elevation to the Delaware River. Temporary pumping facilities will be installed, where shown on Exhibit No. 1, to deliver Delaware River water to the Canal. The slide gates on the culverts through the temporary roadway will be closed and the pumping facilities will be started.

The next step will be to remove the water, and any fish, from the section of the Canal between the Lock No. 14 and the temporary roadway. The water will be pumped to a sedimentation basin and the fish delivered either to the downstream section of the Canal or to the River, per directions from the Fish Commission. Excavation of the trench for installation of the intake conduit between Stations 4+70 and 6+60 can then proceed. The sides of the trench will be supported by the use of contact sheeting and soldier piles tied back into the rock by anchor bars, as shown on the cross section in the upper right-hand corner of Exhibit No. 1. The excavation will be performed by dragline, shovels and/or pans. The trench is to be dewatered as necessary by pumping to the nearby sedimentation basin for containment and filtering of the discharges resulting from the dewatering activities. The rock will be ripped to the extent possible, but some blasting will be required. The rock and soils excavated for the installation will be temporarily stockpiled on the adjoining section of the Station site or in Area No. 2. After a reach of the trench has been excavated to grade, the conduit will be placed and tested, and the trench backfilled using the excavated materials which had been previously stockpiled. The pipe will then continue to be installed and backfilled by reaches until the conduit is in place from Station 4+70 to Station 6+60. The surface of the excavated portion of the Canal will be shaped to original section, and segregated impervious soils from the trench excavation and from the Station site will be used for replacement of the Canal lining.

The next action will be the opening of the slide gates on the culverts in the temporary roadway to fill the Canal with water. The bypass gate of Lock

No. 14 and the upstream overflow weir will then be adjusted to pass water through that section of the Canal, and the temporary pumping facilities will be removed.

Next Phase - Installation of Remainder of Intake Conduit and Gate Well.

After the required clearing, the remainder of the intake conduit between the Canal and the gate well will also be installed in the dry by use of sheeting and the necessary dewatering. Some blasting will be required and the excavated soils and rock will be temporarily stockpiled in Area No. 2 and/or along the pipe alignment and within the limits of the area to be disturbed by the installation. Sediment and erosion control measures will be installed and utilized as necessary to minimize the flow of sediment into the River. Occupancy of the wetlands for all activities will be restricted to that required for the conduit installation.

The gate well and appurtenant facilities will be installed using the same procedures as used in the intake conduit installation, including the excavation and dewatering methods; the temporary stockpiling of excavated materials; disposal of excessive or unsuitable excavated materials; and the protection of the wetlands, together with appropriate sediment and erosion control measures.

Third Phase - Installation of River Intake Screens and the Three Intake Pipes.

The installations of the River intake screens and the three reinforced concrete intake pipes are to be scheduled for a period during the months of November through March to avoid disturbance of aquatic life during the spawning season. These facilities are to be installed by the use of barges and divers. Foundations for the screen units are to consist of cylindrical reinforced concrete units which will be embedded in the River bottom. These will be placed by drilling or by use of caissons. Required excavation for the installation of the foundations will be by use of a barge mounted clamshell or dragline, with materials being temporarily stockpiled on a barge prior to

selected use as a backfill for the installation. Most of the rock excavation can be performed by ripping but at the site of the intake screens, the lower two feet of rock excavation is expected to require blasting. Pre-assembled screen units will be set in place on the foundations and connected thereto by divers. The trench for the three intake pipes will also be excavated by barge mounted equipment, and barges will be used for temporary stockpiling of excavated materials. The trench excavation is expected to encounter no rock, except near the screens and between the shoreline and the gate well, and most of the rock appears to be rippable. The intake pipes, which will have sub-aqueous joints, will then be placed and connected by divers. Selected backfill will then be placed from temporary storage on barges. Excess excavation would be used for fill or placed in Area No. 2, the capacity of which is more than adequate for such purpose. Usable rock from rock excavation at the site will be utilized for riprap at the intake screens.

Final Phase - Completion of Construction.

Construction of the intake facilities under the Canal and out into the River will be completed by removal of excess material from the stockpile at Area No. 2; final grading of disturbed areas and permanent access road construction; and permanent seeding and landscaping. The temporary access road across the Canal will be removed and the affected sections of Canal will be restored.

E. H. Bourquard

E. H. Bourquard, P.E.