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THE INTERSTATE COMMISSION ON THE DELAWARE RIVER BASIN

III

April 7, 1939

PROPERTY OF  
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SEP 17 1966  
pertaining to the interstate aspects of the  
proposal to utilize waters of the Delaware  
River as a source of metropolitan water supply  
for the State of New Jersey.  
185 W. State Street  
Trenton, N. J.

I.

General Background

A. The Problem

Since 1920, the metropolitan regions of New York City, Northeastern New Jersey, and Philadelphia--containing about one-eighth of the total population of the United States--have been almost constantly confronted with water supply problems. The rapidity of growth of these highly urbanized centers caused existing sources of water supply to become either inadequate in quantity or unsuitable in quality.

For almost twenty years these water supply problems have been subjected to study by a variety of official boards and commissions. During this period, New Jersey has considered at least eight different plans of future water supply involving the use of water from the Delaware River Basin, the last being the proposal of Governor Moore to utilize the Delaware and Raritan Canal properties and water rights for a metropolitan water supply. In Pennsylvania, the proposals for new and additional water supplies for Philadelphia and the surrounding metropolitan area include studies by at least twelve agencies, involving many alternate plans, all including the utilization of the water resources of the Delaware River Basin. In New York, New York City having completed its Esopus-Schoharie development in the Catskill Mountains, nevertheless,

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looked over the divide and, in the early twenties, was eyeing the upper portion of the Delaware River Basin as a source of water supply for the city's future requirements. Construction work on this project was begun two years ago.

#### B. An Interstate Stream

Prior to the year 1931, the impression prevailed in the eastern states that what was usually referred to as "the common law doctrine of riparian rights" was effective as between states. From this it followed that any diversion of water affecting another state could be made only with the consent of that state. In other words, such diversion required a compact between two or more states. With the apparent joint interest of New Jersey, New York and Pennsylvania, in the water resources of the Delaware River Basin, Commissioners were appointed, in 1923, to negotiate a compact for the allocation of the waters of the Delaware River Basin among the three states.

#### C. Tri-State Compact Commissions

In 1925, the Commissioners arrived at an agreement including the allocation of the waters of the Delaware River Basin. New York immediately ratified the compact.\* The New Jersey and Pennsylvania legislatures did not ratify it and negotiations were continued.

A second compact was formulated and submitted to the three state legislatures during their sessions of 1927. This document did not attempt to allocate all of the water resources of the Delaware River Basin, but provided for an allocation of 600 million gallons per day to each of the States of New Jersey and New York, and 900 million gallons per day to Pennsylvania.

\* New York Laws, 1925, Chap.177

New York ratified the compact\*\* but it again failed of ratification in New Jersey and Pennsylvania.

Unwilling to risk further delay, New York City decided to proceed independently with its plans to develop a new source of water supply from tributaries of the Delaware River. It proposed the development and diversion of 600 million gallons of water daily from five tributaries of the Delaware River in New York State. It undertook to operate its reservoirs in accordance with the rule of release of compensation water laid down in the proposed 1927 compact.

#### D. The Delaware River Case

This chronology of conflict, within and among the states, led to legal action brought by the State of New Jersey in the Supreme Court of the United States at the October term, 1930, to enjoin the State of New York and the City of New York from proceeding with the proposed diversion.

New Jersey contended, among other things, that the diversion would cause substantial damage to navigation, water power, municipal water supplies, sanitary conditions in the stream, industrial uses, fisheries, the cyster industry, recreational uses, and agricultural lands.

Pennsylvania intervened in the case to protect the rights of the Commonwealth.

Following two years of testimony and argument presented before a Special Master, the United States Supreme Court handed down its decision on May 4, 1931, and issued its decree on May 25, 1931.\*

#### E. Opinion of the Court

The outcome of the Delaware Diversion Case was a denial of New Jersey's prayer that the City of New York be enjoined from diverting any water

\* 283 U.S. 336, 805

\*\* New York Laws, 1927. Chap. 682



whatever from the Delaware River or its tributaries into another watershed. The Court, however, did limit the permissible diversion to the equivalent of 440 million gallons of water daily and established certain conditions under which the diversion could be made, including the following rule for the release of compensation water:

"(b) At any time the stage of the Delaware River falls below .50 c.s.m. at Port Jervis, New York, or Trenton, New Jersey, or both (.50 c.s.m. being equivalent to a flow of 1535 c.f.s. at Port Jervis and 3400 c.f.s. at Trenton), water shall be released from one or more of the impounding reservoirs of New York City in sufficient volume to restore the flow at Port Jervis and Trenton, to .50 c.s.m., provided, however, that there is not required to be released at any time water in excess of 30% of the diversion area yield, and the diversion area yield having been ascertained to be 2.2 c.s.m., the maximum release required shall be 30% of that amount, or .66 cubic feet per second per square mile of the areas from which water is diverted.

"In determining the quantity of water to be released so as to add to the flow of the Delaware River, the Neversink River shall be treated as if it flowed into the Delaware River above Port Jervis, and the number of second feet of water released from the impounding reservoir on the Neversink River shall be added to the number of second feet of water released from other reservoirs, so as to determine whether the quantity of water, required by this decree to be released, has been released."

The above rule of release was based primarily upon a plan developed by the Commonwealth of Pennsylvania and founded on the principle of requiring the release of compensation water during times of low flow, when it would be most required. The Master, in comparing the Pennsylvania plan with the plan proposed by New York, providing for the maintenance of a certain dry weather flow in the stream just below the point of reservoir storage, stated in part:

"The theory of the Pennsylvania plan of release (and I think this theory sound) is that water should be released whenever the river drops to a low stage at either Port Jervis or Trenton. In this manner the regimen of the river between Port Jervis and Trenton

can be better preserved" and, "I also find that when the natural discharge of the river at Port Jervis is low, that flow will generally but not always be increased under the operation of the New York plan of release and will always be increased under the operation of the Pennsylvania plan of release."

In addition to requiring the maintenance of certain dry weather flows, the Master recommended, and the Court approved, two additional guiding principles:

1. That the doctrine of equitable apportionment controls the division and use of interstate waters.
2. That priority of apportionment creates no superiority of right in interstate waters.

The Court also retained jurisdiction in the Delaware Diversion Case "for the purpose of any order or direction or modification, or any supplemental decree."

II.  
THE NEW JERSEY PROPOSAL

A. General Statement

The present water supply proposal now being advanced in New Jersey involves the development and utilization of the Delaware and Raritan Canal and its feeder as the right-of-way for an aqueduct to convey 150 million gallons of water daily from the Delaware River at Bull's Island (about 20 miles above Trenton) to the northern New Jersey metropolitan area; and possibly 50 million additional gallons to Trenton and cities to the south of Trenton in the Delaware River Basin.

B. Legal Aspects

In his consideration of the New Jersey plan, Governor Moore has been advised--regarding New Jersey's right to divert water from the Delaware River--by Duane E. Minard, Special Counsel to the Governor of New Jersey. Stated briefly, Mr. Minard's opinions are as follows:

1. That the State of New Jersey, under rights acquired by it in the Delaware and Raritan Canal and feeder system, may use such canal and feeder for water supply, "and its devotion to such use will not give rise to valid objections or claims of any riparian owner on either side of the river, or of the State of Pennsylvania, if water is not diverted in quantities greater than that heretofore habitually withdrawn for canal and incidental purposes." (underlines added)
2. That independent of the rights acquired by the state in the Delaware and Raritan Canal and feeder, "the state of New Jersey has the right to divert water from the Delaware River for public purposes, without the consent of Pennsylvania, to the extent that such diversion will not cause substantial damage in the State of Pennsylvania." (underlines added)

The legal phases of this project are not considered in this report. They are of major importance to the states involved, and should be given careful study.



III.

EFFECT OF PROPOSED PLAN

A. Compensation Water

The quantity of water proposed to be taken from the Delaware River for water supply purposes in New Jersey, by Governor Moore's plan, quite apparently is not in excess of its fair and equitable share. In the second compact negotiations of 1927, an allocation equivalent to 600 million gallons daily was suggested for New Jersey, with provisions for protecting the low flow of the Delaware River. In the Delaware Diversion Case, the Pennsylvania plan included the possibility of developing intrastate tributaries in New Jersey to the extent of 400 million gallons per day, with provision for the release of compensation water.

In the previous interstate negotiations and in the Delaware Diversion Case provision was made for protecting the flow in the Delaware River during low water stages. The New Jersey project makes no provision for such protection of the river.

It may be here noted that if one agency is required to liberate compensation water, the interests of that agency may be injured if some other agency is allowed to divert water around the control point.

B. Logal Interpretation

A question has been raised in the matter of interpretation of the Supreme Court's rule of release. In the decree, the Court ruled that the release of compensation water should be made from the proposed reservoirs on tributaries of the Delaware River in New York whenever the flow in the Delaware River was at, or below, .50 c.s.m. at Port Jervis or Trenton, and the City of New York was required to release compensation water during these

periods. This requirement for the release of compensation water during the periods of low flow was apparently based upon the principle that when a diversion of water is made, the uses of the river for navigation, water supply, and other purposes, below the point of taking, should be benefited, not harmed; that in return for the privilege of diverting water, the net effect upon the river below the point of diversion should be improved rather than damaged.

However, in establishing this rule, it is not apparent in what manner the Court considered the diversions then existing in the canals by-passing the Trenton gaging station; nor is it clear whether it anticipated any possible changes in such diversions or any new diversions around either the Trenton or Port Jervis control points.

In investigating this problem, a review of the exhibits and testimony offered in the diversion case shows that the flows in the river were actual observed flows and, in the case of the Trenton location, were not adjusted to reflect the flows in the canals paralleling the river in Pennsylvania and New Jersey. However, the Master was aware of these diversions in the canals, as he made specific references to them in his report to the Court. Commenting on the policy of the three states in regard to diversions, he stated:

"I find that the public policy of each of the three states has permitted diversions from one watershed to another watershed of somewhat similar character to the proposed diversion involved in the instant case. The State of New Jersey has permitted the diversion of water from the Delaware River into the Delaware and Raritan Canal which extends from the Delaware River across the State of New Jersey to Raritan Bay on the Atlantic Ocean." and,

"In Pennsylvania there has been the diversion of the waters of the Lehigh River into a Canal extending from Easton, Pennsylvania, to Bristol, Pennsylvania."

Furthermore, the Master also knew the amount of these diversions as he included in his report, as appendices, two tables showing monthly discharges of the Delaware River at Port Jervis and Trenton for the period from 1924 to 1929. The Trenton tabulation includes a reference to the amount of flows in each of the three canals. However, there appears to be nothing in the report to indicate that the Master gave consideration to future changes in the amounts of diversion.

At the time of the Court case, according to the data contained in the table in the Master's report, the flow through the Delaware and Raritan Canal ranged from 160 to 130 c.f.s. during the March to December period of operation. Of these amounts, testimony given in the case to which the Master made specific reference indicated that approximately one-half was returned to the Delaware River through the section of the Canal between Trenton and Bordentown. This section was deeded to the City of Trenton about 1934, and part of it was later filled in by the City.

The flow in the Trenton Power Canal, as shown on the same table in the Master's report, ranged from 210 to 250 c.f.s. and the flow in the Pennsylvania Canal was 50 to 53 c.f.s. until September, 1927. During the balance of 1927, and through 1928, the flow had been reduced to 20 c.f.s.

On the basis of the records contained in the Master's report, the flow in the canals which by-passed the Trenton gage was approximately as follows:

Delaware and Raritan Canal feeder	160 c.f.s.
Trenton Power Canal	230
Pennsylvania Canal	50
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TOTAL	440 c.f.s.

According to the testimony to which the Master refers in his report, substantially one-half of the amount flowing into the Canal feeder was

diverted from the Delaware River Basin.

Governor Moore's proposal contemplates the diversion of a maximum of 200 million gallons per day, or 300 c.f.s. through the Canal feeder. The effect of this is to increase the flow in the feeder at Trenton from 160 c.f.s. to 300 c.f.s. This represents an increased diversion around the Trenton gage of 140 c.f.s.

However, other changes also have taken place since the Delaware suit, which affect the Trenton gage. It is understood that changes also have occurred in the other canals. In the Trenton Power Canal, all of the water now, except 15 c.f.s., is returned to the River above the Trenton gage, and it is estimated that the flow opposite the Trenton gage in the Pennsylvania Canal, does not now exceed 15 c.f.s.

The effect of these changes is to increase the flow in the River at Trenton by 250 c.f.s. Subtracting from this figure the change of 140 c.f.s. which would be caused by Governor Moore's water supply proposal, gives 110 c.f.s. increase in the flow of the River at Trenton as the net effect of the changes, existing and proposed, since the Delaware Diversion Case.

In the section of the river below Trenton, none of the existing changes affect conditions of flow. Governor Moore's proposed project, however, if undertaken, would result in a decrease of 145 c.f.s. or approximately 100 million gallons daily (determined by subtracting 225 c.f.s. minus one-half of 160 c.f.s.) from the flow of the Delaware River.

#### C. New York's Interest

New York's principal interest in regard to the proposed project relates to the application of the Supreme Court's rule of release. Specifically, it would probably want to know whether--in the case of the diversion such as proposed or of possible future diversions which could be made by

either Pennsylvania or New Jersey--New York would be required to make up any decreases in the flows at the control points (Port Jervis or Trenton) caused by such undertakings.

D. Pennsylvania's Interest

Pennsylvania's interest in the questions now raised probably resolves itself to a consideration of conditions in both the section of the river above Trenton and also in the tidal section of the river below that city. Regarding the upper part of the river, Pennsylvania would be concerned with the same problem as New York state regarding the question of application of the rule of release, and the diminution of flow of the Delaware River from Raven Rock to Trenton, especially in connection with possible future plans for the development of water supply, particularly in Philadelphia and southeastern Pennsylvania. In the tidal estuary, the decrease in flow might cause substantial damage to Pennsylvania. The items possibly subject to damage by the diminution of flow would include water supply, both domestic and industrial, salinity invasion, and the amount of water available for dilution of pollution.



IV.

POSSIBLE MODIFICATIONS TO AVOID DAMAGES

The interest of all states in the Delaware River Basin, when confronted with the possibility of a diversion from the watershed, revolves about the effect of the diversion upon the flow conditions in the river during the critical periods of low flow. To avoid possible claims of damage on the part of any interested state, the principles underlying the Supreme Court's decision in the Delaware Diversion Case might be made generally applicable to the present proposal in New Jersey, as well as to future water supply projects in the entire drainage basin.

A. New Jersey Reservoir Proposals

The New Jersey plan contemplates the location of a dam to create the so-called Dock Watch Hollow Reservoir. The flow line of 380 feet, as proposed, gives an available storage of about 600 million gallons--enough to provide four days supply of water.

At an increased cost of approximately four million dollars, the proposed dam could be raised so as to create an available storage capacity of about 15 billion gallons--enough to provide a 100-days supply; at a rate of 150 M.G.D.

B. The Supreme Court Rule

To date, no general theory of apportionment of the waters of the Delaware River has been adopted by the states of the Delaware River Basin. The only attempt to accomplish such an apportionment occurred in the compact negotiations and in the Delaware Diversion Case, previously reviewed. In the decree of the United States Supreme Court, releases of compensation



water were required of New York City when the flow in the Delaware River at Port Jervis or at Trenton, falls below the prescribed minimum rate of .50 c.s.m.

### C. Rule Application

In applying this rule of release to the New Jersey proposal, observations and recordings of the flow of water in the Delaware River at Trenton, made subsequent to the decision of the Supreme Court, indicate a maximum period of approximately four and a half months during the year when the flow in the river falls below .50 c.s.m.

If the Supreme Court's rule of release were applied to all states contemplating diversions for water supply purposes, under the terms of the present proposal New Jersey would be required to modify its proposed plan either by refraining from diverting water from the Delaware River when the flow at Trenton falls below .50 c.s.m. or by providing storage so as to make releases of compensation water during periods where the flow at Trenton was less than .50 c.s.m. The most obvious and appropriate method of accomplishing this purpose, as is evident from a review of the New Jersey plan, would appear to be by the following methods, or by a combination of such methods:

- (1) The capacity of the Dock Watch Hollow Reservoir would have to be increased in size to afford the maximum storage capacity of 15 billion gallons, to supply 100 days of water during the period when the flow at Trenton falls below .50 c.s.m.; and
- (2) Another reservoir must be constructed exclusively for the storage of compensation waters, for release when the flow at Trenton falls below the prescribed minimum.

A BRIEF SUMMARY OF CONCLUSIONS

The Interstate Commission on the Delaware River Basin believes that the New Jersey water supply proposal would, in all probability, be objectionable both to New York and Pennsylvania--particularly to Pennsylvania--because it would appear to cause substantial damage.

There appears to be a comparatively simple and inexpensive way of correcting and avoiding this damage, if the suggestions outlined in this report are followed by the construction of a large distributing reservoir ultimately contemplated by New Jersey, and by constructing a storage reservoir on some small tributary of the Delaware River in New Jersey, in order to secure the release of compensation water during critical periods of low flow. It is further suggested that a combination of these two recommendations might be feasible.

It is believed that by some such method as this, substantial damage to New York and Pennsylvania would be eliminated and a legislative agreement among the states could be secured so as to permit the diversion of 150 million gallons of water daily for the northern New Jersey municipalities, with the possible addition of 50 million gallons daily for Trenton and cities to the south of Trenton. These amounts are not in excess of a fair and equitable apportionment.



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